Hazen

Qualifications for

CONTINUING PROFESSIONAL CONSULTING SERVICES (CCNA)

RFQ No.: 24-001 | January 10, 2024

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1 Letter of Interest

Hazen

Hazen and Sawyer
2101 NW Corporate Blvd., Suite 301 Boca Raton,
FL 33431 • 561.997.8070

January 10, 2024

Mr. Skender Coma
Management Analyst
Town of Highland Beach
3614 South Ocean Blvd.
Highland Beach, FL 33487

Re: RFQ No.: 24-001 Continuing Professional Engineering Consulting Services (CCNA)

Dear Mr. Coma:

The Town of Highland Beach has a long history of cost-effectively developing its utility infrastructure, continuously seeking strategies that are environmentally sound, and being fiscally responsible to its utility customers. Hazen and Sawyer (Hazen) is excited about the prospect of providing continuing professional consulting services to support the Town in executing the projects in its Strategic Priorities Plan.

Members of the Hazen and Sawyer (Hazen) team are experienced with the Town's water treatment plant, elevated storage tank, water distribution system, and sewer collection system. Our proposed Project Manager and Construction Management Services Lead, **Tyler Davis, PE, and Aaron Cutler, CGC, PMP have been working with the Town's utilities and staff for approximately 14 years** under previous employment. As highlighted in the following Scope of Work, we further commit that Mr. Davis and Mr. Cutler will be supported by a full multi-disciplinary team.

As a firm, Hazen is focused on the water/wastewater/stormwater sector of engineering, and as a result, we have attracted excellent and long-tenured staff (specializing in those areas), had the opportunity to work on some of the most interesting and important water-related projects in the industry, and provided longstanding service to the communities in which we live and work. This is certainly the case in South Florida, where we have continuously provided planning, design, permitting, and construction management services related to stormwater, reuse, water, wastewater, and conveyance for over half a century.

Our local, responsive team with relevant experience and a deep bench of available resources properly manages risk and cost on projects and appropriately balances schedules with stakeholder interests and environmental benefits. Further, we understand the Town's desire to obtain grants and funding for infrastructure investment.

We are excited about the opportunity to serve the Town and appreciate your consideration of our proposal. Kurt Pfeffer, PE, has the authority to contractually bind the firm to the submitted proposal (see attachment for confirmation).

Respectfully,

Hazen and Sawyer

Kurt Pfeffer, PE*
Associate Vice President
kpfeffer@hazenandsawyer.com
(561) 997-8070 (Office)

Tyler Davis, PE*
Senior Associate
tgdavis@hazenandswyer.com
(561) 715-5880 (Mobile)

Office Location: 2101 NW Corporate Blvd., Suite 301, Boca Raton, FL 33431

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Hazen and Sawyer
498 Seventh Avenue, 11th Floor
New York, NY 10018 • 212.539.7000

CORPORATE RESOLUTION

I HEREBY CERTIFY that at a meeting of the Board of Directors of **HAZEN AND SAWYER**, a corporation under the laws of the State of New York, held on April 24th, 2021, the following resolution was duly passed and adopted:

"RESOLVED, the below listed Officers of **HAZEN AND SAWYER**, be and are hereby authorized to execute any and all contracts on behalf of the Corporation, and that their execution thereof shall be an official act and deed of this Corporation."

Robert B. Taylor	John C. Koroshec
David Allen Baar	Holly Patricia Kremers
Damann L. Anderson	Jennifer N. McMahon
Patricia A. Carney	Albert Muniz
Fernando B. Chiriboga	Ervin Blaine Myers Jr.
J. Philip Cooke	Jayson J. Page
Patrick A. Davis	Kurt A. Pfeffer
Andre A. Dieffenthaller	Guillermo A. Regalado
Shajan Joykutty	John P. Schroeder
Christopher L. Kish	Janeen M. Wietgrefe

I further certify that said Resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the Corporation this 15th day of March 2022.

William A. Crayon
Chief Financial Officer and Treasurer

2 Personnel Qualifications

2 Personnel Qualifications

The Hazen and Sawyer (Hazen) Team is committed to engaging as a partner in the Town of Highland Beach's success. Our mission is to provide reliable and efficient professional services to Town staff and residents by utilizing cost-effective measures and innovative industry initiatives to ensure Highland Beach remains in compliance with all regulatory requirements.

Firm Profile

Hazen and Sawyer's roots go back over 100 years to the accomplishments of Allen Hazen, one of the pioneers of modern water supply engineering and co-developer of the Hazen-Williams formula for fluid flow in pipes in 1903. Hazen was established by Hazen's son Richard and Alfred W. Sawyer in 1951. Together they created a company culture focused on the profession—not just the business—of engineering. Their legacy is a firm with a reputation for high-quality work and customer service.

Hazen has provided complete in-house engineering services in Florida since 1968. Moreover, we have maintained a regional headquarters/design center in Hollywood, Florida, since 1968 to serve utilities. Our staff members have extensive expertise in water and wastewater treatment facilities and infrastructure, wastewater treatment and disposal, wastewater collection and transmission, water supply, water treatment technology optimization, water distribution, hydrogeologic services, deep injection and raw water supply wells, reclaimed water, regulatory compliance, hydraulic modeling, finance, effective utility management, asset management, construction management, stormwater management, grant funding, public outreach and communications, cybersecurity assessment, value engineering, and related practices and disciplines.

Our Florida staff has designed and/or overseen construction of more than $8 billion in water-related projects in Florida over the past 10 years. These Florida projects include, but are not limited to, evaluation, planning, design, permitting, modeling, construction management and administration, engineering services during construction, startup and operational assistance, general civil, GIS, and support services.

Key staff on your organizational chart, **Tyler Davis, PE and Aaron Cutler, CGC, PMP**, have provided engineering and construction management and inspection services for the Town of Highland Beach's **Water Main, Storage Tank, and Water Treatment Plant projects over the last 15 years** under previous employment.

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Subconsultant Team Member

The Hazen Team includes South Florida Engineering Services (SFES). **SFES' President, Aaron Cutler, CGC, PMP, and Tyler Davis, PE, bring personal experience working together on past Town of Highland Beach projects.**

South Florida Engineering Services, Inc.

South Florida Engineering Services (SFES) was established specifically to service municipal clients like the Town of Highland Beach with construction of their public infrastructure projects. **SFES is managed by their founder and President Aaron Cutler, CGC, PMP. Aaron Cutler has a strong reputation for getting difficult projects completed and is your proposed lead Construction Manager for all Town of Highland Beach projects. Mr. Cutler has over 15 years' experience completing successful projects for the Town of Highland Beach.** Mr. Cutler will support Hazen engineers with his team of dedicated staff for field inspections, construction administration, public outreach, and design constructability reviews.

SFES takes great pride in responsiveness and dedication to being on-site at a moment's notice. They implement a "Boots on the Ground" approach to Construction Management to resolve conflicts and avoid costly construction delays or work scope changes. This level of service will be displayed on all Town of Highland Beach projects.

As Construction Manager for numerous similar Town of Highland Beach water and sewer infrastructure Projects, Mr. Cutler has a strong understanding of the intricacies required for the seamless completion of difficult neighborhood construction projects.

There are many unique aspects of Town of Highland Beach construction projects that require efficient coordination efforts with Town Staff, Operations, Palm Beach County, FDOT, the Design Engineering Team, the Town's Residents, and the Contractors for all planned work phases to be completed successful.

SFES have specific knowledge of the process to begin Public Outreach, Pre-Construction, and Construction and Closeout within FDOT and Town of Highland Beach Right of Ways. It will be important that you have a Construction Manager that knows how to organize the pre-construction tasks, initial submittal review priorities, construction sequencing, permit coordination, schedule monitoring, and lead the communication effort between all parties. These processes will be coordinated closely with Town of Highland Beach staff, Hazen and SFES.

The Hazen Team is committed to being a fully engaged partner in the Town of Highland Beach's success.

Significant Local Leadership and Technical Expertise. Hazen is totally focused on water, wastewater, and reclaimed water engineering. Therefore, our local team members are engaged in providing these services every day. Most of our key team members work and live in the region and are focused on solving local water resource issues. We have the local and national expertise to cost-effectively solve the issues and challenges that the Town faces, as we have demonstrated on similar past successful projects.

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Our key attributes will help deliver timely and cost-effective projects.

On the following pages, as well as throughout our proposal, we have detailed our ability to satisfy the areas of service identified in the RFQ. Our staff's qualifications and similar experience are presented in two-page resumes included at the end of this section.

Tyler Davis, PE and Aaron Cutler, CGC, PMP have worked with Highland Beach for 15 years. They have an excellent working relationship with the Town's staff and both have completed successful projects for the Town, which will result in no learning curve.

Our local expertise will be invaluable to ensuring cost-effective and rapid project delivery. We are local and can respond quickly to the Town's needs. As such, we are knowledgeable about local conditions including local permitting agencies and the current construction environment.

Hazen maintains local and national teams that are 100% devoted to funding, providing the Town with a well-qualified and knowledgeable pool of funding and grant management experts to call upon to initiate and manage your grant and funding applications and documentation.

Hazen has a significant amount of experience with the scope areas identified in the Town's RFQ and has experience supporting similar-sized coastal utilities in South Florida.

Commitment to quality is paramount. At Hazen, every project is required to have a QC Plan with execution and adherence strictly enforced. This directly benefits the Town with high-quality designs and lower bids.

We are local

and can respond quickly to your needs.

We know and work with local permitting agencies and contractors, ensuring expedited permitting and understanding of the current construction climate.

Our cohesive local team is readily available on short notice to meet the full range of project needs required for this contract.

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This section identifies key personnel, assigned support personnel and their qualifications. **Resumes** for all team members are included at the end of this section. Our **organization chart** is inserted on page 2-9.

Hazen Team Leaders

Our experienced project management team and discipline leads have a history of working together on recent projects (with the Town and/or with other clients) that are extremely similar to the services proposed under this contract.

We propose a team **specifically suited to meet your needs.** Our team's prior collaborations will ensure our team ramps up quickly and performs work efficiently for the Town.

Our proposed Project Manager Tyler Davis, PE has a **history of working with the Town on multiple projects, ensuring continuation of seamless and efficient projects.**

The Project Management Team

Tyler Davis, PE
Project Manager; Water Treatment Plants; Wastewater Collection Systems

- Has served as Project Manager on multiple general services contracts, including providing services to the Town since 2009, which provides him with intimate knowledge of the Town's existing infrastructure and future needs.
- Mr. Davis provided the **Town of Highland Beach** with Water Main Extension Construction Inspections Services for approximately 15,000 LF of 10-inch water main, 50 fire hydrants, and 90 service connections with backflow preventers under previous employment.
- Mr. Davis has over 30 years of engineering experience and has worked in the water/wastewater field for over 22 years.

Kurt Pfeffer, PE
Project Director

- Mr. Pfeffer has worked in Hazen's Boca Raton office since 1995 and has managed or directed continuing engineering contracts and major water and wastewater planning and infrastructure projects for several utilities in Palm Beach County and throughout Florida.
- Projects have included master plans, evaluations of processing and disposal alternatives, conceptual and detailed designs, construction management, testing, startup and training.
- Expertise in project planning and execution, including CPM scheduling from conceptual design through construction and startup.

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Key Leaders for Services Identified in the RFQ

Qualifications of Key Leaders for those services areas identified in the RFQ are identified here.

Aaron Cutler, CGC
Lead: Construction Engineering & Inspection

- Mr. Cutler has over 15 years' of personal experience completing successful projects for the Town of Highland Beach.
- His 20 years of experience in all phases of municipal construction including, infrastructure improvements, directional drill subaqueous crossings, utility pipeline projects, stormwater drainage systems, NPDES compliance, roadway construction, pump stations, elevated water storage tanks, and vertical construction facilities will benefit this contract.

Sean Fitzgerald, PE, DBIA
Lead: Sewer Rehabilitation;
Lead: Wastewater Collection

- Mr. FitzGerald serves as Hazen's conveyance practice leader.
- He is a long-standing member of the WEF Collection System Committee, he co-authored two of the leading Manuals of Practice, including FD-6 Existing Sewer Evaluation and Rehabilitation and FD-17 Prevention and Control of Sewer System Overflows.
- Served as Project Manager for the development and implementation of the full mapping of the City of Fort Lauderdale's collection and transmission system. The initial plan includes the development and use of machine learning automated imagery analysis to locate manholes, reducing the survey costs dramatically. Managed the development of the full sewer geodatabase schema and population of the data from field surveys and as-built data.

Monica Pazahanick, PE
Lead: Water Treatment Plants

- Monica Pazahanick, PE, has 16 years of experience in the field of water and wastewater treatment. Her experience includes planning, design, permitting, and construction management of water treatment plants using conventional lime softening treatment ion exchange and advanced membrane technology.
- Additionally, she has successfully permitted and worked closely with permitting agencies for water-related projects, including Floridan aquifer RO systems.

Lucia Medina, PE
Lead: Stormwater

- Ms. Medina's experience includes stormwater management, process and civil design, data sourcing, database management, hydrologic and hydraulic modeling, project coordination, and permitting assistance.
- Project Manager for the Stormwater Master Plan Modeling and Design Implementation Continuing Services Contract for the Village of North Palm Beach.
- Her stormwater work includes the City of Margate Stormwater Master Plan, and the City of Oakland Park, Stormwater Master Plan Update and Flood Vulnerability Assessment.
- Ms. Medina's work for the City of Fort Lauderdale Stormwater Master Plan Modeling and Design Implementation Services includes serving as Project Supervisor for the modeling task.

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Christopher Kish, PE, ENV SP
Lead: Pump Stations and Lift Stations

- Mr. Kish has designed pump stations with capacities ranging from 0.5 to over 30 mgd.
- Involved in the evaluation of over 80 pump stations and the subsequent design of over 50 pump stations.
- He has extensive experience as a Construction Manager on pump station projects coordinating between clients, contractor and permitting agencies.
- Project Engineer for SFWMD's G420 and G422 Pump Stations Project; conducted site visits to determine the overall condition of each facility and assess equipment/structural conditions.
- Project Manager for the City of North Miami's Pump Station Improvement Program which includes upgrades to 10 of the City's 33 pump stations.

Key Leaders for Additional Services

Hazen can offer additional services not explicitly mentioned in the RFQ that could benefit the Town, such as Infiltration/Inflow (I/I) and SSES, Lead and Copper Corrosion Control, Water Supply, Water Distribution Modeling, and Climate Change/Resilience. The qualifications for our key leaders for these categories are summarized below.

Ethan Heijn
Lead: Infiltration/Inflow (I/I) and SSES

- Mr. Heijn brings extensive experience in environmental engineering, focusing on evaluation and rehabilitation of infiltration and inflow in sanitary sewers, including sanitary sewer evaluation surveys, infiltration/inflow analysis, sewer peak flow hydraulic modeling, gravity and pressure pipe assessment, flow monitoring and sampling studies, and sewer rehabilitation programs.
- He has performed similar work for the Cities of Homestead, North Miami Beach, Coral Gables, Sunrise, Hallandale Beach, and Boynton Beach during his 30-year career.

Becki Rosenfeldt, PE
Lead: Lead and Copper Corrosion Control

- A nationally recognized expert, Becki Rosenfeldt, PE, has extensive experience guiding Hazen's clients through the Lead and Copper Rule compliance process.
- Ms. Rosenfeldt serves as Hazen's technical expert in corrosion control treatment and Lead and Copper Rule compliance.
- She serves as a program manager, QA/QC advisor, and technical expert for the development of service line material inventories, including the development of alternative material verification methods such as statistical interpolation and machine learning models.
- She has extensive experience working with utilities to optimize corrosion control through treatment process evaluation, scale analysis, pilot testing, and compliance program development. Ms. Rosenfeldt assists utilities nationwide with developing comprehensive LCRR compliance programs, including service line inventories, replacement and sampling plans, and customer communication.

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Gerrit Bulman, PG
Lead: Water Supply;
Lead: Deep Injection Wells

- Mr. Bulman has managed permitting, bidding, construction, and testing of industrial and municipal deep injection wells, ASR wells, reverse osmosis supply wells, shallow and deep monitoring wells, and stormwater drainage wells, as well as wellfield rehabilitation projects, throughout Florida.
- 19 years of local hydrogeological permitting experience, including injection well regulatory negotiations with FDEP Underground Injection Control (UIC).
- His in-depth knowledge extends to compliance requirements set by FDEP, water management districts, and various state/local agencies.

Nandita Ahuja, PE, P.Eng.
Lead: Water Distribution;
Lead: GIS/Data Management

- Ms. Ahuja has over nine years of experience in environmental engineering in the areas of hydraulic modeling, process modeling (BioWin and CFD).
- Expertise in CFD Modeling, BioWin Modeling, Water Distribution Hydraulic Modeling, GIS/Data Management
- Served as the hydraulic modeler for a GIS-based Water Distribution System Hydraulic Model in InfoWater for the City of Miami-Beach.
- She also has experience in developing specialized data dashboards.

Janeen Wietgrefe, PE, PMP
Lead: Climate Change/Resilience;
Water Treatment Plants

- Ms. Wietgrefe has led detailed risk/resilience assessments and flooding vulnerability analyses as well as multiple water resource projects including water treatment planning/evaluation/design/oversight.
- Resiliency experience includes the Broward County-wide Risk Assessment and Resilience Plan, and the Oakland Park Stormwater Master Plan Update and Flood Vulnerability Assessment.
- Managed design of four membrane plants: City of Hallandale Beach 6-mgd Membrane Plant, Town of Jupiter 14.5-mgd Nanofiltration Facility, City of Plantation East WTP 6-mgd Expansion, and City of Fort Lauderdale Peele-Dixie 12-mgd Membrane Plant.

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SUBCONSULTANT

1. South Florida Engineering Services, Inc.

Resumes

Resumes for all staff identified on the organizational chart are included on the following pages.

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Tyler Davis, PE

Project Manager; Water Treatment Plants; Wastewater Collection

With 35 years in engineering, Mr. Davis has specialized in water/wastewater for over 22 years. ***He played crucial roles in projects for the Town of Highland Beach,*** *handling design, permitting, and construction of pipelines, pumping systems, and water/wastewater treatment. His diverse roles include mechanical process design, value engineering, and project/construction management.*

Education

BS, Chemical Engineering, Georgia Institute of Technology, 1990 with Highest Honor

Certification/License

Professional Engineer: FL

Areas of Expertise

- Pipeline Design
- Construction Management
- Hydraulics
- Pumping Systems
- Project Management
- Chemical Dosing systems, Water Treatment
- Process Development & Optimization
- Process Control & Instrumentation
- Client Service Management
- 3D Modeling
- Infrastructure Assessment
- Odor Control
- Permitting Services
- Cost Analysis

Experience

- 35 total years
- <1 year with Hazen

Professional Activities

ASCE Project of the Year
- Palm Beach County AIX System

Florida Section AWWA
- Volunteer of the Year

FICE Engineering Excellence Award:
- Duck Key Utility Improvements

He has worked with municipal clients on water, wastewater, reclaimed water, pump stations, treatment plants, supply wells, and injection well projects. He has prepared grant applications, hydraulic models, cost estimates, engineering reports, design drawings, technical specifications, and permit applications. He has performed value engineering reviews, vulnerability assessments, sanitary sewer condition assessments, water account audits, consumer confidence reports, shop drawing reviews, and critical construction inspections. Related responsibilities have included pipeline designer, project manager, and construction inspector. **He has served as Client Service Manager for the Town of Highland Beach,** the City of Boca Raton, and the City of Lake Worth Beach.*

Mr. Davis designed and permitted Highland Beach Water Main Extension and Elevated Storage Tank Stand Pipe Replacement. In addition, Mr. Davis worked with Mr. Cutler to provide assistance with construction inspection services. Mr. Davis has also designed more than 50 lift stations ranging in size from 2 HP to 200 HP (2 – 4 pumps/station). He has designed more than 50 directional drills for water, wastewater, and reclaimed water (2 inch – 36 inch diameter). He has performed improvements for several membrane plants, and is currently a lead process engineer for a new 4.5-mgd greenfield membrane plant.

Town of Highland Beach Water Main Replacement | Highland Beach, FL
Project Engineer and Construction Inspector. Mr. Davis was responsible for the design, permitting, and construction of the Town of Highland Beach Highland Beach Water Main Replacement. This project included approximately 15,000 LF of 10-inch water main along the east side of Ocean Boulevard, 50 fire hydrants, and 90 service connections with

backflow preventers. Keen observation during construction identified pipe that had been sabotaged with a tiny drill bit, avoiding significant reconstruction.*

Town of Palm Beach Engineering Services for PS A-39 to PS A-9 Force Main Replacement | Palm Beach, FL

Design Engineer and Project Engineer. Mr. Davis was responsible for mechanical design, permitting, and periodic construction services for the replacement of an existing sanitary sewer force main with a new 20-inch force main. The project included approximately four (4) miles of new force main along A-1-A in the Town of Palm Beach. Key components include existing utility coordination, pipe layout, public meetings, and construction management.*

Palm Beach County Water Utilities Department, Water Treatment Plant 8 Anion Exchange System, Design and Services during Construction | Palm Beach County, FL

Mr. Davis designed a new 20 million gallons per day (mgd) fixed bed anion exchange system at WTP 8. The new system replaced an antiquated 10 mgd ozone system. Mr. Davis was responsible for the design of the large-diameter piping from two separate Clearwell transfer pump stations to three ground storage tanks. He performed hydraulic modeling of the transfer pumping system from the Clearwell through the anion exchange vessels and to the ground storage tanks. He also assisted in the selection of new larger transfer pumps and provided the layout of the above-ground piping for the new anion exchange system. Tyler currently is providing site inspections and service during construction.*

City of Boca Raton, Boca Raton Hills Water Main and Gravity Sewer Main Construction Inspection | Boca Raton, FL

Project Engineer and Construction Inspector. Mr. Davis was responsible for the design, permitting, and construction of 3,100 LF of water main, and 12,561 LF of gravity sewer.*

City of Boca Raton Reclaimed Water Main Extension | Boca Raton, FL

Project Engineer and Construction Inspector. Mr. Davis was responsible for the design, permitting, and construction of 2,100 LF of 20-inch directional drill with an overall project length of 12,800 of 20-inch reclaimed water main along Yamato Road.*

Florida Keys Aqueduct Authority Duck Key Utility Improvements, | Florida Keys, FL

Project Engineer and Construction Inspector. Mr. Davis was responsible for hydraulic modeling, design, permitting, and construction of 28,960 LF of water main, 28,960 LF of reclaimed water main system, 25,765 LF of gravity sewer, 17,923 LF of force main, and nine sewer lift stations. **In 2014, this project received a FICE Grand Award for Engineering Excellence.***

Cudjoe Regional Wastewater Inner Islands Collection and Transmission System | Cudjoe Key, FL

Project Engineer. Mr. Davis developed a Hybrid Sewer System combining the advantages of gravity sewer and low-pressure sewer for Lower Keys, designed and permitted 74,000 LF of gravity sewer, 142,000 LF of force main, 28 area lift stations, and 600 low-pressure sewer pump stations.*

Palm Beach County Water Utilities Department La Mancha Water Main/Force Main | Palm Beach County, FL

Project Engineer. Mr. Davis was responsible for the design and permitting of 3 miles of 36-inch water and 3 miles of 30-inch wastewater force main including four directional drills under canals.*

** Under previous employment*

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Kurt Pfeffer, PE

Project Director

With 37 years of experience, Mr. Pfeffer has managed various Florida water and wastewater projects, handling design through construction, testing, and startup. Over his career, he has served as Project Director/Manager on numerous Florida water and wastewater projects, including membrane and conventional water treatment plant expansions, wastewater treatment plant upgrades, water and wastewater master planning, and operations assistance.

Education

BS, Civil Engineering, Louisiana State University, 1985

Certification/License

Professional Engineer: FL

Areas of Expertise

- Project Management
- Process and Mechanical Design
- Master Planning
- Project Scheduling
- Construction Management

Experience

- 37 total years
- 28 years with Hazen

Professional Activities

Water Environmental Federation

Florida Engineering Society

City of Sunrise Water and Wastewater
Continuing Professional Consulting Services | Sunrise, FL

Mr. Pfeffer served as Project Manager for continuing water and wastewater engineering services from 2012 through 2020. In addition to wastewater infrastructure upgrades, he managed the development of a comprehensive Water and Wastewater Master Plan Update to address the City's (1) raw water supply wellfields and transmission systems, (2) water treatment plants (3), finished water ground storage tanks and high service pump stations (4), water distribution system, wastewater collection system, wastewater treatment plants (3), reclaimed water and biosolids systems. Master planning tasks include areas of service analysis; levels of service benchmarking; demand projections; condition and risk assessment modeling for linear and vertical assets; hydraulic modeling of water and wastewater transmission systems; regulatory and capacity evaluations for raw water supply, water treatment and wastewater treatment facilities; and development of a 20-year prioritized capital improvements plan model.

Palm Beach County Water Utilities Department
Wastewater Master Plans | Palm Beach County, FL

Mr. Pfeffer served as Process and QA/QC Engineer for the development of the 35-mgd Southern Region Water Reclamation Facility Master Plan and the Western Region Wastewater Master Plan. Both master plans included population projections, wastewater flow and load estimates, collection/transmission system modeling, regulatory drivers, evaluations of capacity and optimization of treatment plants, life-cycle cost analyses, capital improvement plans and implementation schedules.

Collier County Public Utilities Department Consulting Engineering Services | Naples, FL

Mr. Pfeffer served as Project Manager of continuing consulting engineering services from 1995 through 2007. Assignments included water treatment and water reclamation facility expansions. The South County Regional Water Treatment Plant Expansion from 20 mgd to 32 mgd included six additional 2-mgd reverse osmosis treatment units (with energy recovery turbo pumps for inter-stage booster pumping); expansion of pretreatment and post-treatment systems (chemical feed, degasifiers and odor control), a new 32-mgd high service pumping station, and upgrades to the plant's existing lime softening treatment process. The project also included design and implementation of a portable, trailer-mounted, fully automated membrane pilot unit for testing of membrane elements (both for this project and long-term membrane replacement evaluations); and a blending evaluation (desktop study and jar testing) to optimize finished water quality. Mr. Pfeffer also managed design, permitting, construction management, and startup of three water reclamation facility upgrades/expansions with a total construction cost of $60 million.

East Central Regional Water Reclamation Facility (ECRWRF) General Engineering Services | West Palm Beach, FL

Mr. Pfeffer has served as Project Manager for the technical evaluation, design, and construction phases of several projects since 2012, including greenfield biosolids management facilities, sequenced fine-bubble diffused aeration upgrades, 5KV power distribution upgrades, SCADA automation improvements, operational assistance programs, short-term and long-term master planning, and development of a funding strategy/implementation plan for the next 10-year CIP plan.

City of Tallahassee Thomas P. Smith Water Reclamation Facility Improvements Project, Tallahassee, FL

Mr. Pfeffer served as Project Manager for the design, permitting and construction management of the City of $180 million Tallahassee Thomas P. Smith Water Reclamation Facility Improvements project. Major process facilities include a new headworks, primary clarifiers, a primary effluent pump station, activated sludge upgrades to 5-stage Bardenpho configuration for AWT nutrient removal, deep-bed denitrification filters, sodium hypochlorite disinfection, primary sludge thickening/fermentation, WAS thickening, anaerobic digestion, centrifuge dewatering, and thermal sludge drying. Mr. Pfeffer developed the master CPM schedule used by the City and CMAR contractor to sequence phased construction in five inter-related bid packages. Construction of the last phase of BNR basin upgrades was completed on schedule in January 2015.

Paul Biscardi, PhD, PE

Technical Advisor

Dr. Biscardi specializes in drinking water quality and advanced treatment, serving as the practice leader for the Southeast Region. He oversees high-level planning, detailed design, operational support, and has led pilot-scale tests for plant design optimization, emphasizing expertise in membrane processes.

Education

PhD, Environmental Engineering, University of Central Florida, 2016

MS, Environmental Engineering, University of Central Florida, 2013

BS, Environmental Engineering, University of Central Florida, 2011

Certification/License

Professional Engineer: FL

Areas of Expertise

- Membrane Processes
- Potable Reuse
- Water Quality and Treatment
- Disinfection By-Products (DBPs)
- Water Treatment Process Design
- Pilot Study Design, Operation, and Analysis

Experience

- 12 total years
- 7 years with Hazen

Professional Activities

American Water Works Association (AWWA)

American Membrane Technology Association (AMTA)

- Board of Directors: 2021 – Present

Southeast Desalting Association (SEDA)

- Board of Directors: 2020 - Present

City of Sarasota Verna Wellfield Sand Filtration
Pilot and Basis-of-Design | Sarasota, FL

Dr. Biscardi assisted with the pilot testing and conceptual design of a pressure sand filter, which is being provided to treat the City of Sarasota's Verna groundwater supply. The Verna Wellfield is located 20 miles east of the City's water plant and provides up to 7.5 mgd of aerated groundwater which contains high levels of sulfur and hardness. The sand filter will provide removal of turbidity from oxidized sulfur and biological floc and will be designed to serve as a pretreatment for a future installation of nanofiltration membranes. Dr. Biscardi was responsible for designing a pilot test that would evaluate the sand filter treatment performance for removing biological material using ATP and HPC analysis. During conceptual design, Dr. Biscardi interpreted the results from previous pilot studies and subsequently developed full-scale process design criteria including loading rate, empty bed contact time, pressure vessel selection, underdrain specifications etc. He was also responsible for sizing the filter system capacity by analyzing historical plant data and projected operational flows and assisted with the conceptual site layout and hydraulic considerations related to the blending of this water with RO permeate.

Toho Water Authority 160-Acre Site
Alternative Water Supply Project | Osceola County, FL

Dr. Biscardi serves as Lead Process Engineer for the planning, preliminary design, construction, and start-up of a new 8-mgd alternative water supply project. The project will be a new aquifer recharge and groundwater treatment facility. The project is in the preliminary design phase and the treatment process will be selected as part of preliminary design. Facilities that will be part of the project include 8 Upper Floridan production wells, one Lower Floridan production well, well pumps, raw water pipeline, hydrogen sulfide removal, TOC removal, sodium hypochlorite/fluoride/corrosion inhibitor storage and feed systems, ground

storage, and high service pumping. The project will include site and stormwater design, electrical system layout, and new I&C and communication facilities.

Pinellas County Waste to Energy Facility IWTP Chloramine System Improvements | Pinellas County, FL

The project included the sizing and design for a new liquid ammonium sulfate chemical feed system for chloramine formation. Project components include the installation of a new monochloramine and free ammonia analyzer, bulk storage liquid ammonium sulfate tank, rehabilitation of a former sodium bisulfite pumping skid, installation of new piping for sodium hypochlorite and liquid ammonium sulfate to new injection locations, and updates controls based on ratio control. Dr. Biscardi evaluated data and performed assisted with control strategy development and process design.

Seminole Tribe of Florida Brighton Water Treatment Plant Process Improvements | Brighton, FL

The Seminole Tribe of Florida (STOF) owns and operates the Brighton Water Treatment Plant which is supplied by surficial aquifer wells and has a rated capacity of 1.6 mgd. The existing process uses microfiltration and reverse osmosis membranes. In order to improve water treatment operations and overall water quality, STOF decided to transition to Upper Floridan Aquifer wells as a new water supply. Dr. Biscardi has assisted with the detailed design of new treatment processes as well as reconfiguration of the existing process to treat this new brackish groundwater supply. Dr. Biscardi was responsible for both process design related to the reverse osmosis membranes, and several detailed design components including yard piping, the deep injection well system, RO pretreatment chemical injection, RO bypass cartridge filtration, reconfiguration of the ground storage tanks, and an inter-stage booster pump with additional pressure relief valves for the reverse osmosis process.

Tampa Bay Water Long-Term Master Water Plan | Tampa, FL

Dr. Biscardi assisted with the development of Tampa Bay Water Long Term Master Plan update. His work included a review of reverse osmosis membrane performance at the Tampa Bay Water Desalination Facility and conducted analysis of alternative blending strategies, chemical dosing strategies, membrane applications, and the potential for operational savings under the existing design and for future expansion. Dr. Biscardi has also been responsible for developing a conceptual design for a new seawater desalination facility which leverages the latest advances in seawater desalination technologies. His work also includes a feasibility assessment and a preliminary design of an innovative potable reuse alternatives for Tampa Bay Water that would utilize both ozone-biofiltration, advanced oxidation, and membrane processes.

Education
BS, University of Florida, Environmental Engineering. 1996

Certification/License
Professional Engineer: FL

Areas of Expertise
- Upgrades to Existing Water Treatment Plants
- Water Supply Wells, Pumping and Pipeline Design
- Water Treatment Process and Mechanical Design
- Water Pumping, Storage and Pipeline Design
- Water Supply and Treatment Planning
- Chemical Feed Design
- Author of Hazen's Chlorine and Sodium Hypochlorite Facility Design Guidelines
- Author of Hazen's Civil Design Guidelines
- Author of Hazen's Manhole Flotation Calculations Guidelines
- Water and Force Main Pipeline Design in the Right-of-Way
- Water and Wastewater Master Planning

Experience
- 29 total years
- 28 years with Hazen

Professional Activities
American Water Works Association (AWWA)

American Society of Civil Engineers

Florida Section AWWA Risk Management/Safety Committee

George Brown, PE
Technical Advisor; Pump Stations

Mr. Brown, Hazen's Civil Discipline Regional Leader, excels in designing, permitting, and overseeing the construction and startup of pump stations and pipelines. With expertise in handling 0.5 billion gallons per day of pumping facilities and 95,000 feet of pipelines, he led the award-winning Intracoastal Waterway directional drill design-build project. His proficiency ensures swift and efficient design development, and he authored Hazen's Civil Design Guideline and Pipeline Routing Guideline.

City of Hallandale Beach Transfer Pump Replacement | Hallandale Beach, FL

The City's three transfer pumps and electrical equipment, originally constructed in 1967, were at the end of their useful life. The City retained Hazen to provide design, permitting, bidding and services during construction for replacement of the high service pumps. The design included four new horizontal split-case pumps designed for 5,600 gpm at 50 feet total dynamic head equipped with variable frequency drives. Maintaining continuous water plant operation during construction required design of a complex sequence of construction to ensure no disruption to treatment during short (less than six hours) interruptions to transfer pumping. Design included new pumps, piping, electrical feed and control systems. Mr. Brown served as the Project Manager and the Engineer-of Record for the general, civil and mechanical disciplines.

City of Cooper City Pine Island Road Pumping Station | Cooper City, FL

Mr. Brown served as the Project Manager for the design and permitting of this project which included the design of a new 1,700 SF pump station building housing all pumps, electrical systems and controls to convey water from an existing 2 MG water storage tank into the City's transmission system at a pressure of 60 psi. The pump station design included three horizontal split case pumps equipped with variable frequency drives. Additionally, the project included design of a 250 KW backup power generation system along with extensive landscaping to meet the City's land development code. Hazen provided services during the con-

struction of the $1.74 million pump station. There were net zero change orders at final completion.

Riviera Beach Utility District Water and Wastewater Master Planning | Riviera Beach, FL

Mr. Brown led the project team that prepared the Riviera Beach Utility District's water and wastewater master plan. Mr. Brown master planned water supply; water treatment; water distribution and storage; along with wastewater collection, pumping and transmission improvements. The infrastructure was evaluated relative to: 1) capacity to meet future growth (hydraulic modeling) 2) regulatory compliance (current and future regulations); 3) water quality and 4) renewal and replacement to ensure long term sustainability. This project identified $159 million in water and $56 million in wastewater infrastructure improvement needs to maintain the reliability of existing infrastructure. Mr. Brown developed a technique dubbed **"asset management right"** that leverages the experience of utility personnel to efficiently identify capital needs to ensure the long-term sustainability of the existing infrastructure. This approach ensured that less money was spent on engineering analysis and more money was available for capital investment.

City of Fort Lauderdale Prospect Wellfield Expansion | Fort Lauderdale, FL

Mr. Brown served as Project Manager and general, Civil and Mechanical Design Engineer during the design, permitting and construction phases of the wellfield expansion. This project included design and permitting of five water supply wells (PW-50 to PW-54), equipping the wells with vertical turbine line shaft pumps (1,750 gpm at 150 feet TDH), and approximately 2,800 feet of pipeline to convey the water from the wells to a connection with the existing raw water transmission system. The design also included radio telemetry design for remote monitoring and control from the water treatment plant.

City of Hallandale Beach Reverse Osmosis Addition | Hallandale Beach, FL

Mr. Brown served as the Project Manager during the design and permitting of the City of Hallandale Beach's water supply well PW-9, three saltwater monitor wells and one brackish water reverse osmosis (RO) train addition. The RO train was designed for a permeate production capacity of 2.0-mgd with a feed water maximum salinity of 5,000 mg/L of total dissolved solids. Pretreatment design included raw water sand separators, five-micron cartridge filtration, anti-scalant and sulfuric acid addition.

City of Hallandale Beach Membrane Softening Facility | Hallandale Beach, FL

Mr. Brown served as Project Engineer. The City retained Hazen to provide pilot testing, design, bidding, permitting and construction management services for a new 6-mgd membrane facility to replace an equivalent volume of existing lime softening capacity at its water treatment plant. Total buildout capacity of the new membrane facility is 10-mgd, which includes 6-mgd of nanofiltration that is currently in operation plus the capability to easily add up to 4-mgd of brackish water reverse osmosis treatment capacity. Hazen completed the design, permitting, and construction oversight of the membrane facility. Total costs for the facility were approximately $20 million and are inclusive of the membrane facility, concentrate disposal well and engineering and administration fees.

Millennium Challenge Account-Jordan Basateen Pump Station | Zarqa, Kingdom of Jordan

Mr. Brown served as the civil, mechanical and controls Engineer-of-Record for the design and startup of the Basateen Reservoir and Pump Station. The pump station included: 1) 0.5 million gallon cast-in-place water reservoir; 2) four constant-speed, 400 horsepower, ring-section pumps with a capacity of 1,750 gpm at 610 feet TDH each; 3) chlorine storage and feed building housing two one-ton chlorine containers on scales, complete vacuum feed system, chlorine residual monitor, two chlorinators and programmable logic controller equipped with a graphic interface that automates the chlorine feed rate based on the water flow during reservoir filling.

Education

MS, University of Florida, Agricultural Engineering, 1987

BS, University of Florida, Agricultural Engineering, 1985

Certification/License

Professional Engineer: FL, NY

Areas of Expertise

- Stormwater Management
- Climate Change/Resiliency
- NPDES Permitting/Compliance
- Water Resources and Water Supply Engineering and Planning
- Civil Engineering
- Hydrologic and Hydraulic Modeling
- Project Management
- Regulatory Compliance

Experience

- 38 total years
- 31 years with Hazen

Professional Activities

American Membrane Technology Association

American Society of Civil Engineers

FES Leadership Institute

Florida Engineering Society

Florida Institute of Consulting Engineers

Florida Stormwater Association

Florida Water Pollution Control Operators Association – Stormwater Advisory Committee

National Society of Professional Engineers

Southeast Stormwater Association

Water Environment Federation

Robert Taylor, Jr., PE

Technical Advisor

Mr. Taylor has efficiently overseen varied water resource and stormwater projects, encompassing design, permitting, master planning, utility development, financing, construction, and maintenance. Noteworthy recent South Florida projects include the City of Fort Lauderdale Stormwater Master Plan, Miami-Dade County Rapid Action Plan, and City of Coral Gables Assessment of Sea Level Rise Impacts and Adaptation Plan.

City of Fort Lauderdale Stormwater Master Plan Modeling and Design Implementation Services | Fort Lauderdale, FL

Mr. Taylor is currently serving as Project Manager for the City's Comprehensive Stormwater Management Program, which includes data collection, hydrologic/hydraulic modeling, master planning, detailed design and construction management, and community outreach. The program **addresses resiliency under the Southeast Florida Regional Climate Change Compact projections for Sea Level Rise, as well as other climate change-related conditions.**

Miami-Dade County Office of Resilience, Miami-Dade County Rapid Action Plan | Miami-Dade County, FL

Mr. Taylor served as Project Director for development of a Rapid Action Plan (RAP) to address the **impacts of sea level rise (SLR) in Miami-Dade County.** The RAP protects the County's most critical infrastructure from increasing flood risks due to rising sea levels. The scope of work included building on existing work completed by the County. Tasks included review and confirmation of vulnerability parameters and exposure data, identification of key infrastructure needs and vulnerability, assessment and prioritization of potential projects, preparation of the final report, and provision of advice to the County on a methodology for incorporating SLR into all capital planning.

City of Stuart General Stormwater Consultant (1992-2014) | Stuart, FL

Mr. Taylor has served as Project Manager for general stormwater consulting assignments for the City of Hollywood, City of Stuart, St. Lucie County and Town of Jupiter, among others. For example, work for the City of Stuart, included a stormwater master plan and stormwater util-

ity development. In addition, a field inventory and needs assessment of the City-owned stormwater infrastructure were conducted. Mr. Taylor's duties included assistance with the development of policies and procedures for stormwater management associated with new development, redevelopment, and retrofitting of existing systems, establishing the basis for a stable, equitable stormwater utility to fund the stormwater management program, and assisting the City in the implementation of the user fee program including the preparation of a complete policies and procedures manual for future use and reference. In addition, he assisted with regulatory compliance and planning and development of construction documents for stormwater-related capital improvements.

Town of Jupiter Professional General Engineering Services for Water and Stormwater Utility (1997-Present) | Jupiter, FL

Mr. Taylor served as Project Manager for this General Water and Stormwater Consulting Contract. The project involved major improvements to the Town's stormwater and water utility systems. Stormwater system improvements included the installation of drainage conveyance systems, pump stations, outfalls, exfiltration trenches, and drainage swales. In addition, improvements and standardization of levels of service for flood control, and retrofit of older systems with water quality treatment provisions were performed. Mr. Taylor was responsible for development of scopes of work, budgets and schedules, as well as assistance with MS4 permitting and FEMA. He served as the primary client contact responsible for coordination with staff, directors, administration, and elected officials, and was responsible for timeliness, budget, and quality related to stormwater and water utilities projects and programs.

City of Delray Beach Five Stormwater Pump Stations | Delray Beach, FL

Mr. Taylor served as Project Manager for five stormwater pump stations, which were constructed on the barrier island of Delray Beach. The facilities ranged in size from 3,000 to 30,000 gpm.

City of Coral Gables Cocoplum Plum I Pump Station Stormwater Improvement Project | Coral Gables, FL

The Cocoplum subdivision within the City of Coral Gables has experienced flooding issues in the past several years. As a result, the City retained Hazen to design enhancements to the area's stormwater system to improve drainage and address resident concerns. The project required modifications to the station's mechanical, structural, electrical, and instrumentation systems. Improvements included installation of a new wet well and valve/meter box and associated piping. Under the City's new sustainability requirements, Hazen assisted the City in utilizing Envision® throughout the design and construction phases. In 2022, the project was awarded a Bronze Envision® award—the first in the State for a wastewater infrastructure improvement project. Additionally, the project won the "Resilient Project of the Year" in the Green Utility Category by the Resilient Utility Coalition in January 2018.

Town of Jupiter 17-mgd Nanofiltration Plant | Jupiter, FL

The Town of Jupiter previously operated a water treatment plant with four independent treatment processes: lime softening, ion exchange, reverse osmosis, and nanofiltration (NF). The Town added a NF facility to produce potable water from the surficial aquifer. The NF treatment ultimately allowed retirement of the lime softening treatment plant 17-mgd Nanofiltration Plant (includes aspects of raw water supply pretreatment, post treatment, blending with other finished water sources, and concentrate disposal). Mr. Taylor served as Project Manager.

Aaron Cutler, CGC, PMP

President/Construction Manager

Lead: Construction Engineering & Inspection

Experience

Years of Experience: 23

With Highland Beach since 2008

Certifications

State of Florida Certified General Contractor

Project Management Professional

Red Vector FDOT Asphalt Paving Level One and Level Two Certification

Florida Department of Environmental Protection Stormwater Erosion and Sedimentation Control - Certified Stormwater Management Inspector (Inspector No. 21817)

Florida Dept. of Transportation GAP Web-based System for Local Project Delivery

Florida Dept. of Transportation Advanced MOT CTQP Course through Florida International University

Aaron has over 20 years of experience in all phases of municipal construction including, complete infrastructure improvements, directional drill subaqueous crossings, utility pipeline projects, stormwater drainage systems, NPDES compliance, roadway construction, pump stations, elevated water storage tanks, and vertical construction facilities.

As Construction Manager, his daily duties include, monitoring all construction field activities and contract administration, acting as the Owner's representative, design review, review of shop drawings, review of pay applications, administering pre-construction and progress meetings, construction schedule review, preparing and negotiating change orders, responding to contractor's RFIs and clarifications, processing final project certifications, and verifying contractor's conformance to construction documents.

Representative Projects

Florida Keys Aqueduct Authority, FL
Islamorada Transmission Main Replacement – Construction Management
Owner's Representative/Construction Manager for construction of a new 5-mile 36-inch Spiral Welded Steel Watermain through the Village of Islamorada and Windley Key. The project includes two (2) stand alone contracts for Directional Drill Subaqueous Crossings of Tea Table and Whale Harbor. This project included FDOT Permitting, Design Team Wade Trim Coordination, and Public Outreach.

Boynton Beach, FL
Central Seacrest Infrastructure Improvements Phase I
Construction Manager for Phase I improvements, consisting of water main replacement, new reclaimed water main, gravity sewer replacement, stormwater system upgrades, pavement overlay, and construction of new landscaping, sidewalks, and driveway aprons.

FPL/Black & Veatch Design Build
CWRC Turkey Point 42-inch Pipeline
The FPL Miami-Dade Clean Water Recovery Center (CWRC) Project is an 8-mile-long, 42-inch reclaimed water pipeline connecting the FPL CWRC Plant to the Miami-Dade South District Wastewater Treatment Plant (SDWWTP). Once constructed, the 42-inch reclaimed water pipeline will supply 15 million gallons per day of reclaimed water to FPL for use at the Turkey Point Clean Energy Center, making it one of the state's largest reclaimed water initiatives.

Lauderdale-by-the Sea, FL
CIPP Lining Inspection Services
Construction Manager for Town of Lauderdale by the Sea CIPP Lining Monitoring and Inspections program for approximately 15,619 linear feet of gravity sanitary sewers.

Florida Keys Aqueduct Authority, FL
Duck Key Utility Improvements
Construction Manager for utility improvements on Duck Key, a small island community located at Overseas Highway Mile Marker 60 in unincorporated Monroe

County. Duck Key consists of five islands connected by Venetian Style bridges. The infrastructure improvements included, low pressure sewer system (30 pump stations), sanitary sewer system, water main replacement, reclaimed water main system, nine lift stations and force main system, four bridge crossings, and roadway reconstruction.

Highland Beach A1A Water Main Replacement Construction Management Services
Construction Management/Administration for the installation of 3 miles of 10-inch water main. Project components included coordinating with the Contractor, Town, Residents, and Regulatory Agencies, as well as full construction administration.

Lantana, FL
Raw Water Supply Wells No. 11 and No. 12
Construction Inspection and Management for two new raw water supply wells. Services included administering progress meetings, inspection services, shop drawing review, monthly payment request review, and coordination with Client, Engineer of Record, and Contractor.

Boca Raton, FL
Boca Raton Reclaimed Water Main Extension
Construction Inspector for over 10,000 LF of new 20-inch reclaimed water main. Services included shop drawing review, record drawing review, and coordination with Client, Engineer of Record, and Contractor.

Loxahatchee River Environmental Control District, FL
IQ Pump Station
Construction Inspection and Management for a new "IQ" irrigation quality reclaimed water master pump station to serve the District's entire reclaimed water serve area. Project included new 22.4 MGD submersible pump station with three 335 Hp and one 160 Hp pump; new electrical building to house VDS, MCCs and control panel; and associated mechanical, electrical, and instrumentation/control improvements. Services included progress meetings, shop drawing review, coordination with Engineer of Record, and inspections as needed.

West Palm Beach, FL
Monceaux Road - Group I
Construction Manager for the construction for the Monceaux Road - Group I Stormwater and Utility System Improvements Project, including new stormwater facilities, water main upgrades, sanitary sewer replacement/rehabilitation, roadway, curb and gutter and sidewalk replacement, signage and pavement marking, landscaping, and street lighting.

Vaughn Hendrix

Field Inspector

Construction Engineering & Inspection

Vaughn is a Construction Field Inspector with more than twenty years of experience in the fast-paced construction industry. He demonstrates excellent construction observations with municipal compliance skills and has an outstanding track record of achieving exceptional results on construction projects throughout South Florida. Vaughn has a keen eye for detail and a commitment to resolving issues with Contractors as a Team Player. He is highly knowledgeable in underground and roadway civil design standards. Vaughn has a long family history and background in the construction industry, making him an expert in inspecting and evaluating municipal construction projects.

Representative Projects

City of West Palm Beach, FL
Broward Avenue Apartment Development – Construction Inspector
Construction Inspector for full water & sewer infrastructure replacement along Broward Avenue. The new water main and sewer system were installed to support Multi-Family Development along the City's Flagler Waterfront Corridor. Duties were to observe and verify work in progress by the construction contractor to ensure compliance with contract documents and plans. We confirmed daily that required engineering procedures were followed and all materials used conform to the City's approved material specification.

Town of Haverhill, FL
Club Road West Drainage Improvements – Construction Inspector
Construction Inspector for new Stormwater System along a heavily flooded area. This area in an active neighborhood that required Traffic Control Coordination, and difficult Utility Crossings so that the neighborhood would remain active during the replacement of large diameter drainage pipe, structures, and a Headwall located in the easement area.

Town of Haverhill, FL
Haverhill Courts Development
Construction Inspector for development project and utility improvements on this multi-lot land that included demo of existing drainage structures, trees, and buildings. The new development required new Sewer, Potable Water, and Storm Drainage Systems. This project included coordination with permit agencies and multiple contractors and design engineering teams.

City of West Palm Beach, FL
Park Central RPD Development
Construction Inspector for new construction Park Central townhome community. Located on Dock Street and Parker Avenue in the heart of West Palm Beach, next to heavy traffic areas along Flagler Drive and the Intracoastal Waterway. This project included difficult retrofitting of water and sewer utilities, along with a crossing of the City's aged pre-stressed concrete pipe.

Palm Beach Gardens, FL
Riverside Business Center
Construction Inspector for the new Business Commerce Park that included full utility improvements within the Burns Road Area. This project included detailed phasing and coordination with Seacoast Utility Authority for connection of the Sewer and Potable Water Services to the new Development.

Jacqueline E. Morales

Executive Administrative Assistant

Construction Engineering & Inspection

Jay has more than a decade of experience in the field of office administration. This experience includes supporting the President of South Florida Engineering Services and overseeing office operations as an executive administrative assistant with a strong attention to detail who has been employed by the organization since it was established. Jay Morales demonstrates proficiency in optimizing administrative procedures, augmenting various data input & output, and making valuable contributions to the organization's overall efficiency.

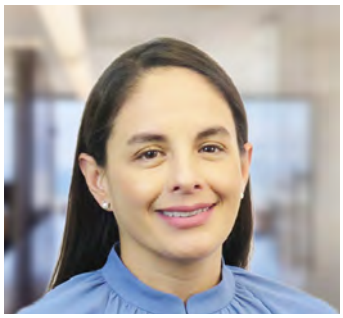
Representative Projects

Florida Keys Aqueduct Authority, FL
Islamorada Transmission Main Replacement – Administrative Assistant
Assistant to the Construction Manager of South Florida Engineering Services for construction of a new 5-mile 36-inch Spiral Welded Steel Watermain through the Village of Islamorada and Windley Key. The project includes two (2) stand alone contracts for Directional Drill Subaqueous Crossings of Tea Table and Whale Harbor. This project included FDOT Permitting, Design Team Wade Trim Coordination, and Public Outreach.

Palm Beach County WUD - Hinterland Group, FL
Seminole Pratt Whitney Road ARV Replacements
Assistant to the Construction Manager for South Florida Engineering Services to prepare a report from our inspection of all PBCWUD ARV Manholes along this roadway section. Our Work Scope included a full report of the ARV Conditions, MH Conditions, and our recommendations to relocate to Green Areas.

FPL/Black & Veatch Design Build
CWRC Turkey Point 42-inch Pipeline
The FPL Miami-Dade Clean Water Recovery Center (CWRC) Project is an 8-mile-long, 42-inch reclaimed water pipeline connecting the FPL CWRC Plant to the Miami-Dade South District Wastewater Treatment Plant (SDWWTP). Once constructed, the 42-inch reclaimed water pipeline will supply 15 million gallons per day of reclaimed water to FPL for use at the Turkey Point Clean Energy Center, making it one of the state's largest reclaimed water initiatives.

Polo Gear, FL
Marketing and Graphics Coordinator
Collaborated with the Graphics Department to produce visually appealing and on-brand graphics for various professional polo teams around the world. Created visually striking graphics for digital and print marketing materials including social media posts, email campaigns, brochures, and advertisements. Designed and updated website graphics to enhance user experience and align with brand. Managed multiple projects simultaneously, ensuring deadlines are met and priorities are aligned with marketing objective. Coordinated with external vendors or agencies as needed for specialized design projects and conducted thorough quality checks on all graphics to ensure accuracy, consistency, and adherence to brand standards before final distribution.



Monica Pazahanick, PE

Water Treatment Plants

Ms. Pazahanick has 16 years of experience in planning, designing, permitting, and managing the construction of treatment plants. Her expertise spans conventional lime softening treatment, ion exchange, and advanced membrane technology. She has a successful track record in permitting and collaborating with regulatory agencies for water-related projects, including Floridan aquifer RO systems.

Education

MS, University of Arkansas, Environmental Engineering, 2007

BE, Catholic University of Bolivia, Cochabamba, 2004

Certifications

Professional Engineer: FL, AR

Areas of Expertise

Water and Wastewater Process and Mechanical Design

Experience

- 16 total years
- 7 years with Hazen

Professional Activities

American Water Works Association (AWWA)

Florida Section American Water Works Association (FSAWWA) Region VI - Past Membership Chair

American Membrane Technology Association (AMTA)

- Co-Editor of the AMTA Quarterly Newsletter "Solutions" (06/2011 to 04/2015)
- AMTA/AWWA 2020 Membrane Technology Conference Planning Committee Past Chair, Member
- AMTA/AWWA 2019 Membrane Technology Conference Planning Committee Chair, Member
- AMTA/AWWA 2018 Membrane Technology Conference Planning Committee Vice-Chair, Member

Southeast Desalting Association (SEDA) Symposium Planning Committee Member (2017 – 2020)

City of Delray Beach Owners Representative for the New Water Treatment Plant Progressive Design-Build | Delray Beach, FL

Ms. Pazahanick serves as a Deputy Project Manager for this project. As the City's Owner Representative, Ms. Pazahanick and the Hazen team provides technical assistance to the City In multiple project phases. Some of the specific tasks include the evaluation/validation of treatment alternatives, development of Progressive Design Build documents for advertisement, assistance in the review of documents provided by the proposers, assistance in the development and technical review of proposed scope of work and fees from the selected Design-Build team, prepare and provide project to the City Commission, funding assistance, document control and management.

City of West Melbourne Water Treatment Plan Final Design, Permitting and Bidding | West Melbourne, FL

Ms. Pazahanick is a process design lead in this project, which includes the design of a green field reverse osmosis (RO) membrane water treatment plant. The design includes four treatment trains each with a treatment capacity of 1.1 mgd of permeate water. The WTP will include pretreatment systems, post-treatment systems consisting of degasifiers and clearwell, chemical feed systems, storage, and high service pumping necessary to produce high quality, finished water delivered to the City's residents. This project includes engineering services for final design, permitting, and bidding for the water treatment plant.

City of Boca Raton Building 11 Improvements and Rehabilitation | Boca Raton, FL

Ms. Pazahanick serves as Project Manager for the City's Water Treatment Plant Building 11 Improvements and Rehabilitation preliminary and

detailed design. Building 11 is the lime softening treatment process chemical building housing the lime, polymer, and brine process mechanical equipment, ancillary equipment as well as the electrical room. This project includes full rehabilitation and hardening of the building as well as replacement of the process mechanical equipment, electrical and I&C. Ms. Pazahanick directly coordinates design elements between the design team and the City, monitors project schedule and budget to efficiently communicate status with the City, and closely coordinates and communicates with the design discipline leads. Cost $950K (design), $22-23M (estimated construction).

City of Stuart Alternative Water Supply Plan | Stuart, FL

Ms. Pazahanick served as Deputy Project Manager for the City of Stuart's Alternative Water Supply (AWS) plan. This project focused on master planning new Upper Floridan Aquifer water supply wells, reverse osmosis treatment facilities, and concentrate disposal. Wells in the Upper Permeable Zone (UPZ) of the Floridan Aquifer were recommended based upon modeling of water quality changes with time. Planning included construction cost estimating, phased implementation scheduling, bid package identifications, State Revolving Fund application assistance, and financial analysis of rate adjustment to fund the investment.

City of Sunrise Springtree Reverse Osmosis Water Treatment Plant | Sunrise, FL

Ms. Pazahanick served as Design Engineer for this project, which included preparation of construction drawings and specifications for a 3-mgd treatment capacity with 1.5 mgd installed during Phase 1. The project design included conversion of an ASR well to a Floridan aquifer production well, pretreatment (sand strainers and cartridge filters), 2-stage reverse osmosis membrane treatment, post-treatment (degasification and air scrubbers), and chemical systems.*

City of Sunrise Sawgrass Nanofiltration Water Treatment Plant Rerate Improvements | Sunrise, FL

Ms. Pazahanick served as Design Engineer for the City of Sunrise Sawgrass WTP re-rate improvements project. This project included the City's WTP upgrades from 18 mgd to 24-mgd treatment capacity, which required the replacement of concentrate pumps, and finished water transfer pumps along with other renewals and improvements. The scope of work included development of design drawings and specifications and permitting with the Health Department.*

City of Pompano Beach Concentrate Disposal Evaluation | Pompano Beach, FL

Ms. Pazahanick served as Project Engineer for this project, which included the economical and non-economical evaluation of alternatives for concentrate disposal during emergency events, and evaluation of using concentrate blending with effluent from the City's reuse facility. *

City of Boynton Beach Ion Exchange Treatment System and East Water Treatment Plant Improvements Progressive Design Build | Boynton Beach, FL

Ms. Pazahanick served as Project Engineer. This project included initial engineering and constructability evaluations, permitting, design, and construction of a 16-mgd ion exchange system, associated ancillary systems, and raw water transmission main modifications.

**Under previous employment.*

1021-646

Jennifer McMahon, PE

Water Treatment Plants

Ms. McMahon brings extensive expertise in managing, designing, and constructing water, wastewater, and stormwater infrastructure. Her experience encompasses civil, mechanical, and process design for potable water treatment and distribution systems, wastewater treatment, transmission, and collection systems, as well as stormwater collection, conveyance, and transmission systems.

Education

MS, Georgia Institute of Technology, Environmental Engineering, 1997

BCE, Georgia Institute of Technology, Civil Engineering, 1995

Certifications

Professional Engineer: FL

Areas of Expertise

Water Treatment and Distribution

Wastewater Treatment, Collection, and Transmission

Stormwater Collection, Conveyance, and Transmission

Pipeline Design

Detailed Process and Mechanical Design

Project Management

Quality Control

Experience

- 16 total years
- 7 years with Hazen

Professional Activities

American Society of Civil Engineers (ASCE)

Ms. McMahon has managed and served on multidisciplinary design teams from master planning, conceptual planning, detailed design, and permitting through construction and startup. She provides quality control reviews for numerous design projects throughout the Southeast region and is a member of Hazen's Pumping System Design Group. She has a proven history of delivering projects on budget and on schedule, as demonstrated on numerous projects for multiple clients.

Town of Jupiter Nanofiltration Plant | Jupiter, FL

As Mechanical and Process Design Engineer for the 17-mgd nanofiltration Water Treatment Plant at the Town of Jupiter, Ms. McMahon's responsibilities included development of detailed design drawings, development of technical specifications, and multidisciplinary design coordination. New facilities included nanofiltration membrane skids, membrane feed pumps, cartridge filters, degasifiers, chemical feed systems, odor control, chemical blend chamber, high-service pumps, and new fuel storage tanks for the existing emergency generator. This facility also incorporates pretreatment pressure filters and associated booster pumps, air scour system, and filter flushing system. Four new horizontal split case booster pumps sized at 4,800 gpm and 200-HP each were housed within a pump station building that included an electrical room and a small room for a polymer feed system.

City of Hallandale Beach Reverse Osmosis Skid Addition, | Hallandale Beach, FL

Ms. McMahon served as a Project Manager and Lead Design Engineer. This project includes a 2-mgd reverse osmosis skid addition at the City of Hallandale Beach Water Treatment Plant. The project also included a 350-Hp membrane feed pump, reverse osmosis membrane softening

skid, chemical metering pumps, and other ancillary improvements. This innovative design includes a skid that can accommodate a range of raw water salinity. Project responsibilities included development of detailed design drawings, development of technical specifications, and multidisciplinary design coordination. Status: Design and bid/award complete, currently in construction.

Broward County Water and Wastewater Services Districts 1A and 2A WTP Hypochlorite System Projects | Broward County, FL

Served as Project Manager, Lead Design Engineer, and Construction Administrator for replacement of an existing gas chlorine disinfection system with a bulk purchased sodium hypochlorite system sized for the 40-mgd District 2A and 16-mgd District 1A WTPs (Water Treatment Plants). The project also included a liquid carbon dioxide chemical feed system for pH control.

City of Fort Lauderdale Fiveash WTP Reliability Upgrades | Fort Lauderdale, FL

Ms. McMahon served as a Project Engineer for the City of Fort Lauderdale's Fiveash WTP Reliability Upgrades project. The Fiveash WTP is a 70-mgd lime softening plant that was originally constructed in the 1950s. Many of the plant processes are at the end of their useful life. This project included the design of improvements to numerous plant processes and structures, including: a new backup power generation building (with two 1,250 kilowatt generators), renovation of the primary control room, automation of plant processes (including Profibus communication to valves, mag meters and remote I/O) and storm hardening of key facilities. Additionally, the project includes replacement of the 90-ton chlorine railcar system with a bulk (12%) sodium hypochlorite facility (capable of feeding 6,000 pounds per day of equivalent chlorine) and a carbon dioxide dosing system.

City of North Miami Winson WTP Lime Softening Plant Rehabilitation | North Miami, FL

Ms. McMahon served as a Project Engineer for the design and permitting of upgrades to the North Miami Winson Water Treatment Plant. This facility, originally constructed in the early 1960s, is a 9.3 million gallon per day lime softening WTP. Many of the WTP processes are at the end of their useful life. The project includes: 1) replacement of underdrains, filter media, piping, valves, and flow meters for four filters; 2) removal of existing water tank; 3) four new vertical turbine can style high service pumps (3,500 gpm at 180 feet) equipped with VFDs (Variable Frequency Drives); 4) finished water magnetic flow meter in a vault downstream of the high service pump station; 5) two new vertical turbine backwash pumps (9,700 gpm at 35 feet) equipped with VFDs; 6) two new vertical turbine transfer pumps (6,500 gpm at 40 feet) equipped with VFDs; 7) removal of all existing high service pumps, transfers and backwash pumps and repurposing of the pump building to house chemical feed storage and feed equipment; 8) new chemical storage and feed facilities for sodium hypochlorite, aqueous ammonia, fluoride, coagulant, and anticoagulant; 9) new sludge and backwash recovery pump stations; 10) replacement of the lime contactor mechanism and refurbishment of the Accelator tank; 11) replacement of two well pumps with constant speed vertical turbine line shaft pumps (each at 1,500 gpm at 60 feet) and new controls; 12) air conditioned electrical building housing 2000-amp main breaker, automatic transfer switch, variable frequency drives and plant SCADA PLC; and 12) 6,350 square-foot administration building.

City of Fort Lauderdale Dixie Wellfield Raw Water Main | Fort Lauderdale, FL

Ms. McMahon served as Project Manager, Lead Design Engineer, and Construction Manager of a 30-inch diameter raw water main from the Dixie wellfield to the Peele-Dixie Water Treatment Plant. This multi-jurisdictional project includes installation of pipeline within the City of Plantation and a congested corridor of State Road 7 (DOT (Department of Transportation) jurisdiction).

Janeen Wietgrefe, PE, PMP

Water Treatment Plants; Climate Change/Resilience

Ms. Wietgrefe has led multiple water resource projects including water treatment planning/evaluation/design/oversight, wastewater treatment planning/evaluation/design/oversight as well as detailed risk/resilience assessments and flooding vulnerability analyses.

Education

MS, Environmental Engineering, University of North Carolina, 1997

BS, Environmental Engineering, University of Florida, 1995

Certification/License

Professional Engineer: FL, NY

Project Management Professional (PMP), #2752873

AWWA Utility Risk and Resilience Certificate

Areas of Expertise

- Membrane Treatment Process Design
- Design of Advanced Water Treatment Processes
- Planning, Design, and Construction Administration of Water and Wastewater Treatment Facilities
- Water Resource Engineering and Planning

Experience

- 27 total years
- 22 years with Hazen

Professional Activities

American Water Works Association

Southeast Desalting Association

Water Environment Federation

American Society of Adaptation Professionals

Broward County-wide Risk Assessment and Resilience Plan | Broward County, FL

Serves as Deputy Project Manager for the development of a cutting edge, actionable, resilient infrastructure resilience plan inclusive of redevelopment strategies consisting of a visualization platform to aid regional planning and project tracking and written plan, to provide the foundation for collective mitigation of future flooding, inclusive of water management infrastructure, transportation systems, critical infrastructure, green infrastructure, land use, basin-scale redevelopment and land use planning based on a comprehensive county-wide risk assessment.

Stormwater Master Plan Update and Flood Vulnerability Assessment | Oakland Park, FL

Ms. Wietgrefe served as Project Manager for the development of a stormwater master plan and a city-wide flood vulnerability assessment. The analysis is based on both a hydrologic and hydraulic model and a geospatial model. The models utilize various data sources and provide a comprehensive stormwater flooding assessment for both current and future projected climatological conditions. Modeling results have facilitated the identification and prioritization of specific vulnerabilities throughout the City, which directed recommendations for adaptation strategies and effective solutions to increase resiliency to climate change.

Broward County Regional Reuse Master Plan | Broward County, FL

Ms. Wietgrefe served as Project Manager for the regional reuse master plan, which builds upon current municipal and county efforts and coordinates a regional approach to reuse planning, maximizing cost-effective reuse development in Broward County. This project developed a state-of-the-art tool for future reclaimed water planning using a Google Earth platform that enables multiple decision makers to easily analyze the issues and spatially determine cost-effective reclaimed water opportunities. This project also evaluated the impacts of climate change on water resources in Broward County. Ms. Wietgrefe facilitated stakehold-

er meetings for 28 municipalities and multiple regulatory agencies throughout the reuse master plan project. Input from stakeholders was incorporated to develop a multi-parameter criteria decision model.

14.5 mgd Nanofiltration Facility | Jupiter, FL

Ms. Wietgrefe served as Project Manager and Process Mechanical Engineer for the pre-design phase of the Town of Jupiter's 14.5-mgd nanofiltration facility. The scope of this project included pretreatment, membrane treatment, degasification, odor control, transfer pumping, and chemical systems. Design for this facility was completed in 2007. Construction began in 2007 and was completed in 2010.

City of Hallandale Beach Membrane Softening Facility | Hallandale Beach, FL

The City retained Hazen to provide pilot testing, design, bidding, permitting, and construction management services for a new 6-mgd membrane facility to replace an equivalent volume of existing lime softening capacity at its water treatment plant. Total build-out capacity of the new membrane facility will be 13 mgd, which includes up to 4 mgd of brackish water reverse osmosis treatment capacity. Hazen completed design, permitting, and construction oversight of the membrane facility. Ms. Wietgrefe provided process mechanical support throughout the design, construction, and startup phases, as well as construction management/office services.

Peele-Dixie Membrane Plant | Fort Lauderdale, FL

Ms. Wietgrefe served as Project Manager and Process Mechanical Engineer for the City of Fort Lauderdale's Peele-Dixie Membrane Plant. Design and construction oversight services included a 12-mgd membrane softening facility, two 4-mg storage tanks, related chemical storage and feed facilities, air strippers/clearwell, concentrate booster, and high-service transfer pump stations. Ms. Wietgrefe also completed startup and completion activities for this facility.

Continuing Professional Services Agreement | Hallandale Beach, FL

Ms. Wietgrefe serves as Project Manager for a continuing professional services agreement with the City of Hallandale Beach. Presently, Ms. Wietgrefe provides multiple engineers to the City to assist with operational assistance at the membrane plant, water and wastewater modeling updates, construction management assistance, preliminary design of high-service pump facilities, and planning assistance. Services also include planning for future water infrastructure and City-wide sanitary and water improvements, permitting assistance, and budgeting assistance.

Broward County Water and Wastewater Services (BCWWS) General Consulting Services| Broward County, FL

Project Manager for numerous projects completed under the 2002 and 2008 General Consulting Services for WWS Agreements for BCWWS in the following areas: water and wastewater treatment plants; water collection and wastewater distribution; hydraulic modeling; pumping stations; water wells and effluent disposal wells; water reclamation; ocean science and marine engineering; financial studies; and regulatory assistance. Projects include studies and design through construction administration services for multiple water and wastewater plant facilities including: NRWWTP Headworks, Screens, and Force Main Redirects, Generator 4, Digester 3 Improvements, SCADA Improvements and Chlorination projects and disinfection improvements at the WTPs and pump stations.

Cooper City Continuing Professional Services | Cooper City, FL

Ms. Wietgrefe serves as Project Manager for several water and wastewater projects completed under the Cooper City Continuing Professional Services agreement since 2009. Projects include the Pine Island Road Pump Station, Lift Station 2 and 49 Improvements, Master Plan Update of the Feasibility Review of Infrastructure Improvements for Wastewater, and the Effluent Reuse and Disposal Master Plan.

Becki Rosenfeldt, PE

Regulatory Compliance with LCRR and PFAS

Ms. Rosenfeldt specializes in corrosion studies, guiding regulatory agencies on LCRR implementation, aiding utilities in national compliance. Her expertise includes facilitating chloramine transitions, implementing corrosion control facilities, and creating comprehensive LCRR compliance programs, covering service line inventories, replacement plans, sampling, and customer communication.

Education

MS, Virginia Polytechnic and State University, 2004

BS, Civil Engineering, Bucknell University, 2002

Certifications

Professional Engineer: MA

Areas of Expertise

Lead and Copper Rule Compliance

Drinking Water Quality and Regulations

Corrosion Control

Lead Service Line Identification and Removal

Hydraulic modeling of treatment and distribution system

Mechanical Design

Experience

- 20 total years
- 2 years with Hazen

Professional Activities

American Society of Civil Engineers (ASCE)

City of Fort Lauderdale Port Everglades Corrosion Control Evaluation | Fort Lauderdale, FL

Ms. Rosenfeldt served as Corrosion Expert and Technical Reviewer. This was an extensive effort in response to a Lead Action Level exceedance. The purpose of this study was to evaluate and recommend the optimal corrosion control strategy to mitigate lead corrosion in Port Everglades. A desktop evaluation of historical lead levels and water quality data in Port Everglades and Fort Lauderdale was completed. To obtain additional information on current water quality conditions in the Port, Hazen assisted Port Everglades in an extensive water quality data collection sampling program which included sequential sampling to evaluate lead profiles and determine specific sources of lead in the system. Distribution system blending of different water sources was also evaluated to determine the impacts of blending on corrosion control. Detailed recommendations for both short term and long-term corrosion control strategies were provided.

City of Miami Beach LSL Inventory Machine Learning Modeling and Predictive Analytics | Miami Beach, FL

Ms. Rosenfeldt served as Corrosion Expert and Lead Project Engineer. Project Manager. Hazen developed a machine learning (ML) model to identify LSLs. The ML model developed was trained using 13 predictor variables, including water network data, parcel data, census data, and a dataset of service lines with identified materials. Responsible for providing technical assistance on the LCRR program and development of ML model.

Miami-Dade County Water and Sewer Department Phase 1: Lead Service Line Replacement Plan and Inventory Assistance | Miami-Dade County, FL

Ms. Rosenfeldt served as Program Advisor and Technical Expert. Miami-Dade County is one of the largest public utilities in the United States, serving 2.3 million residents. Hazen is assisting the County with developing an LSL Inventory and Replacement Plan. This includes the development of a service line identification strategy using a likelihood analysis, extensive collaboration with the County to develop identification criteria, and the establishment of a detailed replacement strategy.

City of Gainesville LCRR Compliance Program | Gainesville, GA

Ms. Rosenfeldt served as Corrosion Expert and Lead Project Engineer. Program Manager and Technical Advisor. This program involves the development of a compliance action plan, LSL inventory, sampling program, and LSL replacement program. A key element of the action plan was the identification of available resources within Gainesville's planned improvement projects to streamline the integration of LCRR compliance tasks. Hazen is also working with the City to develop a robust sampling plan for schools and childcare facilities.

City of Greensboro Corrosion Control Study | Greensboro, NC

Ms. Rosenfeldt served as Project Engineer. Extensive treatment program to assess optimal corrosion inhibition prior to conversion from free chlorine to chloramine disinfection. Water quality sampling was performed to assess the effectiveness of four different phosphate-based inhibitors and their ability to meet the Lead and Copper Rule requirements. Both long-term corrosion and passivation periods were evaluated as well as the mixing of waters from different sources within the distribution system.

City of Chesapeake Lead Service Line Inventory, Replacement Plan, and Grant Funding | Chesapeake, VA

Ms. Rosenfeldt served as Corrosion Expert and Technical Advisor. Hazen is continuing to support to the City's initiative to replace lead service lines (LSLs) and proactively prepare the LCRR compliance, which includes development of an LSL Inventory and Replacement Plan, sequential sampling, grant funding application, and regulatory coordination.

Baltimore City and Baltimore County Program Management Support for LCRR Compliance | Baltimore County, MD

Ms. Rosenfeldt served as Technical Advisor. Through a combination of LSL inventory finalization, LSL replacement, sample plan development, customer outreach and compliance support services, Hazen is helping the City and County proactively prepare for compliance with the LCR Revisions. Hazen is developing advanced GIS analytics, a customer self-reporting portal, prioritization analysis, and machine learning software to aid in prediction of LSL locations. Sequential sampling was completed at sites with LSLs to proactively evaluate the impact of new LCRR sampling requirements on lead levels. This included a sampling protocol and encouraged residential participation in the program with test kits.

City of Tempe LCRR Compliance Program | Tempe, AZ

Ms. Rosenfeldt served as Program Advisor and Technical Expert. This comprehensive implementation program includes the development of an LSL inventory, regulatory coordination, establishing an LSL Identification and Replacement Plan, updating the City's sampling plan, and developing an effective communications program.

Gerrit Bulman, PG

Lead: Water Supply;
Lead: Deep Injection Wells

Mr. Bulman has managed permitting, bidding, construction, and testing of industrial and municipal deep injection wells, ASR wells, reverse osmosis (RO) supply wells, shallow and deep monitoring wells, and stormwater drainage wells, as well as wellfield rehabilitation projects, throughout Florida.

Education

MS, Geological Sciences, University of Alabama, 2005

BS, Geological Sciences, Brown University, 2000

Certification/License

Professional Geologist: FL

Areas of Expertise

- Injection Well System Design, Permitting and Operation
- Floridan Aquifer Well Design
- Injection and Monitoring Well Planning
- Florida Hydrogeology
- Wellfield Rehabilitation

Experience

- 21 total years
- 3 years with Hazen

Professional Affiliations

American Water Works Association

He has extensive knowledge of the Florida Department of Environmental Protection (FDEP), the Water Management Districts, and other state/local agencies in Florida. Other general areas of experience include EPA WIFIA and SRF funding, regulatory exemptions, design-build project management, injection well system operation and reporting, and Florida Keys, Bahamas and Caribbean hydrogeology.

His expertise spans the entire project life cycle, from permitting and bidding to construction and testing, with a focus on industrial and municipal deep injection wells, ASR wells, reverse osmosis supply wells, and monitoring wells. His in-depth knowledge extends to compliance requirements set by FDEP, water management districts, and various state/local agencies.

City of Boynton Beach ASR Well and East Plant Expansion Test Wells | Boynton Beach, FL
Served as Hydrogeologist and Project Manager responsible for the construction and testing of a Class V ASR well and two Floridan Aquifer monitor wells to assist the City meet its alternative water supply demand.*

City of Boynton Beach ASR Well Operation Permitting | Boynton Beach, FL
Served as Hydrogeologist. Class V ASR Well operation permitting with FDEP UIC following nearly 11 years of cycle testing.*

City of Boynton Beach Deep Injection Well System Mechanical Integrity Testing | Boynton Beach, FL
Served as Hydrogeologist and Project Manager. Wrote and certified FDEP approved plans for the 5-year FDEP/EPA mandated mechanical integrity testing, as well as managed water well contractor and field staff supervision during pressure testing, geophysical logging, and video surveying. Also prepared certified reports for FDEP, which included testing results and an evaluation of monitoring well water quality.*

Miami-Dade Water and Sewer Department Injection Well Program Management Ocean Outfall Legislation Program | Miami-Dade County, FL
Management and Technical Lead for unprecedented scale injection well implementation project planning and program management. Over the next decade, the program will be responsible for installing 15-20 new large diameter (24-inch) injection wells to depths of approximately 3,000 feet to accommodate over 1 billion gallons of treated wastewater per day.

City of Fort Lauderdale GT Lohmeyer Injection Well System Operation Permit Renewal | Fort Lauderdale, FL
Mr. Bulman analyzed historical operating and testing data; prepared application for a successful five-year permit renewal for the five existing injection wells at the GT Lohmeyer WWTP. Managed landfill groundwater modeling and monitoring.*

City of North Miami Injection Well and Groundwater Remediation System for the Munisport Landfill | North Miami, FL
Hydrogeologist for a design-build $15 million remediation project, which used a 3,200-foot-deep injection well for the disposal of ammonia contaminated groundwater at a closed landfill site.*

City of Deerfield Beach Deep Injection Well System Rehabilitation and Mechanical Integrity Testing | Deerfield Beach, FL
Hydrogeologist and Project Manager preparing planning documents and specifications for rehabilitation of the City's Class I industrial deep injection well at the West Water Treatment Plant.

Toho Water Authority Sunbridge WTP Well #3 | Osceola County, FL
Technical Lead for the design, bidding, construction, testing and reporting for a 600-ft Floridan aquifer water supply well. The design included criteria for well drilling, geophysical logging, water quality testing, development, pumping testing and disinfection.

Toho Water Authority Harmony WTP Well #3 | Osceola County, FL
Technical Lead for the design, bidding, construction, testing and reporting for a 600-ft Floridan aquifer water supply well. The design included criteria for well drilling, geophysical logging, water quality testing, development, pumping testing and disinfection.

City of Largo WWRF Non-Surface Water Effluent Disposal | Largo, FL
Hydrogeology Technical Lead and QA/QC for the planning, design, permitting, services during construction, testing, funding assistance and reporting for two large diameter reclaimed water injection wells, associated monitoring wells and surface facilities.

JEA Nassau Regional WRF UIC Exploratory Well Feasibility, Design, Permitting, and Construction Phase Services | Jacksonville, FL
QA/QC and Senior Technical Reviewer. One exploratory well is under construction at the NRWRF to investigate the feasibility of ASR, aquifer recharge (AR), or deep well injection for excess reclaimed water during the rainy season.

Deep Injection Well System, Cudjoe Key, FL
Hydrogeologist responsible for design, permitting, FDEP Underground Injection Control (UIC) regulatory communication and hydrogeologic and construction data interpretation for the installation of a dual-zone monitoring well and deep injection well.*

Feasibility Assessment of Class V Well Demineralization Concentrate Disposal, St. Johns River Water Management District, FL
Hydrogeologist and Project Manager. Compiled hydrogeologic data from existing literature and databases using GIS. Also analyzed data to determine whether Class V disposal is a suitable concentrate management option in coastal northeast Florida, as well as wrote a technical memorandum summarizing the results of the analysis.*

** Under previous employment.*

1021-646

Angela Giuliano, PG

Water Supply; Deep Injection Wells

With 11 years as a hydrogeologist, Ms. Giuliano excels in permitting, well design, hydrologic data collection, water quality profiling, geophysical interpretation, well video logging, field geologic analysis, pump testing, and mechanical integrity testing. Her expertise spans public and private projects, including nanofiltration, reverse osmosis, raw water supply, and injection well projects in Florida.

Education

MS, Geology, Certificate in Hydrogeology and Environmental Geology, East Carolina University, 2014

BS, Geology, Radford University, 2009

Certification/License

Professional Geologist: FL #3063

OSHA 10-Hour Construction

OSHA 40-Hour Hazardous Waste Operations and Emergency Response

First Aid CPR and AED Certificate

Areas of Expertise

- Surficial Aquifer and Floridan Aquifer Production Wells
- Water Supply Well Construction and Rehabilitation
- Injection Well Construction and Testing
- Injection Well Mechanical and Integrity Testing
- UIC Permitting
- Hydrogeology
- Project Management
- Field Activities and Contractor Oversight

Experience

- 11 total years
- 1 year with Hazen

Professional Affiliations

American Water Works Association and American Groundwater Trust

Her most notable projects have concentrated on the design, construction, rehabilitation, and testing of Floridan aquifer production wells and Class I injection wells. Ms. Giuliano's most recent projects have included project management for the Ocean Outfall Legislation Program for Miami-Dade County for oversight and management of design consultants task authorization for services during construction. Simultaneously, Ms. Giuliano is providing project management assistance for the South Florida Water Management District Lake Okeechobee Watershed Restoration Project for construction and design management of aquifer storage and recover wells, local scale groundwater modeling, and treatment facilities.

South Florida Water Management District Lake Okeechobee Restoration Project, Aquifer Storage and Recovery Program | Okeechobee, FL

Ms. Giuliano served as Project Manager. She is providing project management assistance to the District Project Manager in managing project deliverables, performed by another consultant, in accordance with project schedules for various projects pertaining to the design and construction of aquifer storage and recovery wells, permitting, ground water modeling, treatment facility design and testing. Project management services include coordination of project meetings, technical review of deliverables, maintenance of project files, cash flow projections. Also providing design assistance and coordination with design consultant, manage project status and reporting, and invoice reviews.

Palm Beach County Water Utilities Department Water Treatment Plant 11 Production Wells Construction and Rehabilitation | Belle Glade, FL

Ms. Giuliano served as Hydrogeologist responsible for the project design, construction, development, acidization and testing of two new 14-inch

and 17.4-inch diameter Upper Floridan Aquifer production wells to supplement existing reverse osmosis raw water supply. In addition, the project included geophysical and video inspection, acidization, and testing of five existing production wells for raw water supply.

Town of Jupiter Surficial Aquifer and Upper Floridan Aquifer Wellfield Rehabilitation | Jupiter, FL

Ms. Giuliano served as the Hydrogeologist. The project included preliminary well video logging and interpretation, rehabilitation oversight, development, testing, and post video logging for five production wells for nanofiltration supply and two for reverse osmosis supply.

City of Deerfield Beach West Water Treatment Plant Injection Well IW 1 FDEP UIC Operation Re-permitting Application | Deerfield Beach, FL

Ms. Giuliano served as the Project Hydrogeologist. She prepared the application for permit renewal, coordinated with the FDEP, updated O&M manual, record drawings and cost estimate for plugging and abandonment on behalf of the City. In addition, prepared and submitted the 2017 Annual Summary Report to FDEP. Provided post-application services and correspondence with FDEP. Prepared the 2017 and 2023 permit application for renewal for the City.

Miami Dade County Water and Sewer Department Ocean Outfall Legislation (OOL) Program Injection Wells | Miami-Dade County, FL

As Project Manager, Ms. Giuliano oversees program-level management, design consultant, and contractor supervision for the construction of 14 municipal injection wells at CDWWTP and NDWWTP. Her responsibilities also encompass managing consultant services for two consultants, reviewing invoices, processing task authorizations, overseeing field quality control, and ensuring regulatory compliance.

City of Hollywood Southern Regional Wastewater Treatment Plant Mechanical Integrity Testing of Class I Injection Wells 1 and 2 | Hollywood, FL

Ms. Giuliano served as the Project Hydrogeologist. She observed casing brushing, mechanical integrity testing to include well video survey, casing pressure testing, and radioactive tracer testing. Upon completion of MIT activities, a comprehensive report was prepared and submitted to FDEP on behalf of the City. She also provided coordination and correspondence with FDEP during testing.

City of Boynton Beach West Water Treatment Plant FDEP UIC Class I Injection Well, IW-1, Mechanical Integrity Testing | Boynton Beach, FL

Ms. Giuliano served as the Project Hydrogeologist. She observed mechanical integrity testing to include well video survey, casing pressure testing, and radioactive tracer testing. Upon completion of MIT activities, she prepared a comprehensive report and submitted it to FDEP on behalf of the City. She also provided coordination and correspondence with FDEP during testing.*

City of Boynton Beach East Water Treatment Plant FDEP UIC Class V, Group 7, Aquifer Storage and Recovery Well 2 (ASR-2), FDEP Operation Permitting Application | Boynton Beach, FL

Ms. Giuliano served as the Project Hydrogeologist. She prepared application for operation permit following 11 years of cycle testing, coordinated with the FDEP, updated O&M manual, updated record drawings and reviewed operational data on behalf of the City. Provided post-application services including review of Notice of Intent and Draft Permit.*

** Under previous employment.*

1021-646

Education

MS, Environmental Sciences, Ohio University, 1996

B.Arch, Architecture, Regional Engineering College, Trichy, India, 1990

Certification/License

Professional Engineer: FL

Areas of Expertise

- Resiliency Analysis/Design
- Hydraulic and Hydrologic Modeling and Studies
- Flood Protection Level of Service
- GIS
- Water Supply Planning
- Water Resources Modeling
- Riverine and Coastal Flood Hazard Analysis
- Watershed Planning and Management Plans
- Climate Change Impacts on H&H Modeling
- Groundwater Modeling
- Saltwater Intrusion Modeling

Experience

- 24 total years
- 2 years with Hazen

Professional Activities

American Water Resources Association (AWRA)

Rama Rani, PG, GISP, CC-P

Water Supply

With 24 years of expertise, Ms. Rani has extensive hands-on experience in surface and groundwater modeling across regional, sub-regional, and local-scale projects, coupled with a strong background in project management.

Hydrology and Hydraulic (H&H) Modeling and Field Work, South Florida Water Management District (SFWMD) | West Palm Beach, FL
Section Leader. Supervised a group providing different types of modeling and field work to support modeling activity and other H&H projects. She was responsible for leading the Emergency Modeling Team (EMT) to effectively respond to emergency requests and situations (4 seasons); as well as responses to missions included modeling, scientific data analysis and field visits. Ms. Rani developed and obtained funding for a proposal to develop a real-time surface water forecasting and operating tool. She was responsible for calibration and development of base conditions surface and ground water integrated models for Kissimmee Basin. Ms. Rani served as Lead Modeler for MIKE model applications in the Kissimmee Basin (MIKE SHE/MIKE 11, MIKE FLOOD), Big Cypress Basin, Caloosahatchee Basin, and other basins in the SFWMD jurisdictional area. Ms. Rani served as Technical Lead for modeling of seepage management in South Dade, Florida. She was a contributing member for update of Local Mitigation Strategy (LMS), Palm Beach County, Florida. She also managed contracts for various projects, including deep level learning for forecasting of inflows using artificial intelligence. Ms. Rani also provided litigation support, when needed, for any cases that involve hydrologic modeling and/or data analysis.

Proposed Rule for Kissimmee River and Chain of Lakes Water Reservations | Various Locations, FL
Expert Witness for MIKE model used by SFWMD in developing water reservation rules needed for the protection of fish and wildlife.

Big Cypress Basin Model Update, SFWMD | Collier and Lee Counties, FL
Project Manager and Modeler. This project involves long-term and storm event H&H modeling to evaluate the FPLOS offered by SFWMD water management system under current and future conditions with sea level rise; the design storm simulation includes 5-, 10-, 25- and 100-year events. Groundwater model inputs extracted from SEAWAT BCB model. The model will help answer questions on many issues including flood risk driven by complex interactions between the natural and built environments, surface and groundwater, infrastructure system inadequacies if

any, increased development, and climate change impacts; recommendations will be made on mitigation and adaptation projects for SFWMD to combat climate change and sea level rise impacts.

Comprehensive Everglades Restoration Plan Modeling Management, Inter-agency Modeling Center (IMC), SFWMD | West Palm Beach, FL
Program Manager. Managed the SFWMD-IMC. IMC is the inter-agency body of SFWMD and the United States Army Corps of Engineers (USACE) that oversees all Comprehensive Everglades Restoration Plan (CERP) modeling, regional and sub-regional. The IMC provided guidance to PDTs and RECOVER (Restoration Coordination and Verification) based on thorough technical analyses with best available data and modeling tools.

Upper Kissimmee Basin Flood Protection Level of Service Assessment for Current and Future Conditions, SFWMD | Central Florida, FL
Project Manager and Modeler. This project involves development, calibration and application of H&H modeling for 26 watersheds in UKB to evaluate the flood protection level of service offered by SFWMD primary conveyance system under current and future conditions. Recommendations will be made on mitigation and adaptation projects for the central Florida area to consider in the 4000+ square-mile domain.

Flood Protection Level of Service Assessment for Current and Future Sea-Level Rise Conditions, SFWMD | Miami-Dade County, FL
Project Manager and Modeling Lead. Conducted a Hydrology & Hydraulics study and modeling to assess the watersheds and water management infrastructure to determine the flood protection level of service under current and future conditions with sea level rise. This information is for use by the SFWMD, local governments, and other state and federal agencies to identify areas where improvements to the design, construction and operations or upgrade of facilities are required. The 550-square-mile MIKE model calibrated for this study will be used to make recommendations for flood mitigation projects. The model domain in Miami-Dade County covers C-4 basin on north, C-111 on south, L-31N canal on the west and Biscayne Bay on the East.

Grove Land Reservoir and Stormwater Treatment Area Modeling, SFWMD | Northern Okeechobee and Southern Indian River Counties, FL
Lead for integrated modeling of a 3,000-square-mile area on the east coast of Florida to assess the environmental benefits. Assessment to include timing and distribution of flows to the lagoon and estuaries, movement of saltwater interface and simple analysis to check impact on TMDL of impaired water bodies. Groundwater model inputs from SEAWAT based East Coast Florida Transient model (ECFTX) built for Central Florida Water Initiative (CFWI) are included in the surface water-groundwater model, ensuring inclusion of MFLs and other considerations.

Loxahatchee River Watershed Restoration Plan | Jupiter, FL
The Watershed Restoration Plan is part of a Comprehensive Everglades Restoration Plan, and the project objective is to restore and sustain the overall quantity, quality, timing, and distribution of fresh water to the Loxahatchee River (MFL), Florida's first federally designated "National Wild and Scenic River". Surface water and groundwater modeling performed for this study included alternatives to augment the work of SFWMD and USACE. This project used the SEAWAT model code.

Loxahatchee River Restoration Local Initiative and Mecca Site Evaluation | Palm Beach County, FL
Modeling Lead. Project is part of Comprehensive Everglades Restoration Plan. The project objective is to restore and sustain the overall quantity, quality, timing, and distribution of fresh water to the Loxahatchee River, Florida's first federally designated "National Wild and Scenic River." The Loxahatchee River Watershed Restoration Local Initiative Evaluation was a study intended to provide technical information on the feasibility of additional alternatives that specifically address county concerns on the Technically Selected Plan. Surface water and groundwater modeling performed for this study included alternatives to augment the work of SFWMD and U.S. Army Corps of Engineers. The model code used was SEAWAT with customized, additional surface water model capabilities.

Nandita Ahuja, PE, P.Eng

Water Distribution; GIS/Data Management

Ms. Ahuja has over nine years of experience in environmental engineering in the areas of master planning, hydraulic modeling, process modeling (BioWin and CFD), design and construction on a variety of water/wastewater infrastructure facilities. She also has experience in developing specialized data dashboards and excel based programs for projects.

Education

MS, Civil Engineering, Virginia Tech, 2015

BE, Environmental Engineering, Delhi College of Engineering, 2012

Certification/License

Professional Engineer: FL

Areas of Expertise

- Water and Wastewater Treatment Plants
- CFD Modeling
- BioWin Modeling
- Hydraulic Modeling
- Design Construction
- Permitting
- Master Planning

Experience

- 9 total years
- 8 years with Hazen

Professional Activities

Water Environment Federation

American Water Works Association

Water Hydraulic Model Development | Miami Beach, FL

The project involved development and calibration of a GIS-based Water Distribution System Hydraulic Model in InfoWater for the City of Miami-Beach. The City receives treated water from Miami-Dade Water and Sewer Department through 5 points of entrance that were used as boundary conditions in the model. Additionally, the model includes 180 miles of piping, six booster pump stations, four water storage tanks and approximately 1,400 hydrants. Model development activities include extensive use of SCADA information to accurately represent operational strategy in the InfoWater model. The model will be used to define the hydraulic capacity of the existing water distribution system and its components under different fire flow and operational scenarios, and to evaluate the impact of proposed developments in the service area. Ms. Ahuja served as the hydraulic modeler and was involved in all stages of the project.

Ocean Outfall Legislation Program | Miami-Dade Water and Sewer Department, FL

This $2.2 billion, 11-year program includes upgrades to Miami Dade's three existing wastewater treatment plants, including the addition of injection wells for effluent disposal . Ms. Ahuja serves as the Project Engineer for evaluating process alternatives for expansion of the three facilities to meet the projected loads for the 2035 planning horizon and meeting the requirements of the Ocean Outfall Legislation. She was also responsible for developing and maintaining a intuitive and informative dashboard for visualization and analysis of the extensive operational and reporting data collected for the three plants.

North County Reclaimed Water System Expansion | Broward County, FL

Ms. Ahuja serves as the Project Manager responsible for coordinating the development of the hydraulic model for the existing reclaimed water system and potential expansion of the reclaimed system. The project also involves performing field data collection for the model calibration and utilization of the calibrated hydraulic model for assessment of future conditions to maintain the required level of service.

Water Master Plan - General Utilities Engineering Services | Plantation, FL

The project includes development of a Water Master Plan to define both short-term and long-term planning goals through the year 2040 including goals that serve to optimize operation and management of City's entire water system. A key task for this project includes development and calibration of a new water distribution system hydraulic model using the InfoWater modeling platform. The model is used to identify capacity issues within the distribution network, evaluate recommended improvements and address possible water quality concerns. Ms. Nandita's role in the project involved development of the InfoWater model and using the calibrated model to evaluate short term and long term distribution system projects for the City. Ms. Ahuja also developed a Power BI dashboard for communicating the modeling results to the City for effective review and feedback.

Water and Wastewater Master Plan | Sunrise, FL

The project includes the development of updated Water and Wastewater Master Plans which will reflect and evaluate the current land use development, water demands, asset conditions, treatment plants capacities, and wastewater flows. The project includes the update and calibration of the WaterCAD Water Hydraulic Model to analyze the existing water distribution. City of Sunrise's water hydraulic model application includes general network performance evaluation, fire flow availability assessment, water age mapping, storage availability evaluation, and definition of methods to reduce water age. Project also includes the update and calibration of the wastewater force main model to include flows and boundary conditions imposed by the connection with an adjacent municipality. Ms. Ahuja serves as the Project engineer to assist in the water hydraulic model development tasks and Capital improvement plan related tasks. As part of the project, Ms. Ahuja also developed an optimization tool for determination of a prioritized Capital Improvements Plan based on funding constraints, risk and cash flow. She also developed a data dashboard for visualization and assessment if the various components of the Capital Improvements Plan.

East Central Regional Water Reclamation Facility | Palm Beach County, FL

A 22 MGD high-level disinfection (HLD) facility, which is located on the East Central Regional Water Reclamation Facility (ECRWRF) site utilizes deep-bed filters and sodium hypochlorite disinfection to treat a portion of the main ECRWRF plant's secondary effluent to FDEP high-level disinfection standards to meet industrial cooling water demands at the Florida Power and Light West County Energy Center. The project involves identifying potential treatment strategies to allow the County plant to meet HLD effluent quality requirements and handle fluctuations in secondary effluent quality. Ms. Ahuja serves as the Project Engineer and is assisting in development of conceptual level evaluation of treatment alternatives including preliminary sizing and cost estimation based on the historical water quality data.

JEA Buckman WRF Struvite Mitigation Evaluation | Jacksonville, FL

The purpose of this project was to assess struvite formation in the facility and evaluate alternatives for struvite mitigation and provide recommendations for the preferred mitigation alternative(s). Ms. Ahuja was responsible for review of the historical plant data and field sampling data and determining the location and extent of struvite formation potential at the facility using a calibrated BioWin™ model.

Education

BS, Environmental Engineering, University of Central Florida, 2015

MS, Environmental Engineering, University of Central Florida, 2019

Certification/License

Professional Engineer: FL

Areas of Expertise

- Distribution System Hydraulic Modeling
- Collection System Hydraulic Modeling
- Surge Analysis Modeling
- Pump Station Design
- Pipeline Design

Experience

- 8 total years
- 8 years with Hazen

Professional Activities

American Water Works Association

Florida Water Environment Association

Water Environment Federation

Briana Parbus, PE

Water Distribution

Ms. Parbus has been involved in a variety of projects ranging from hydraulic modeling, wastewater treatment, and potable water treatment.

City of Sunrise Model Rebuild and Unidirectional Flushing Plan | Sunrise, FL

Ms. Parbus served as Project Engineer for the development of a unidirectional flushing plan. The rebuilt hydraulic model will be used to determine flushing path and duration. This plan will be used to improve water quality throughout the distribution system and will be implemented by the City of Sunrise.

City of West Melbourne WTP Feasibility Analysis | West Melbourne, FL

Hazen performed a detailed evaluation regarding the feasibility of developing a new water treatment plant and related infrastructure in lieu of obtaining potable water from an outside entity. As a Project Engineer, Ms. Parbus's responsibilities included creation and calibration of a model which will be used to assess water treatment plant placement and source water selection, as well as determining conveyance and distribution needs. Additional duties include GIS mapping, cost estimation, and report contributions.

City of Sarasota Utilities Department Potable Water Hydraulic Modeling | Sarasota, FL

Project Engineer for the development of a potable water hydraulic model used for monitoring operating conditions and water quality, as well as identifying potential hydraulic concerns and impacts on future demands. Ms. Parbus participated in the development of the field test plan to collect necessary data and was responsible for coordinating and performing the field testing task. Additionally, she developed and calibrated the hydraulic model and currently provides as-needed modeling to update the model with City development projects.

National Park Service Fort Pickens Campground Hydraulic Modeling and Water Quality Assessment | Pensacola Beach, FL

Ms. Parbus served as Project Engineer for the development of a potable water hydraulic model for the National Park Service. The model will be used for monitoring operating conditions and water quality, and will improve the unique operating conditions at the campground. She par-

ticipated in the development of the field test plan to collect necessary data and was responsible for coordinating and performing the field testing task. Additionally, she is developing and optimizing the hydraulic model.

Seminole County Heathrow Well 4 Replacement | Seminole County, FL

Seminole County Environmental Services has requested Hazen to design and construct a replacement well at the decommissioned Heathrow Water Treatment Plant. Flow from this well will be directed to the Markham Water Treatment Plant. An additional pipeline will be designed and installed to create redundancy for Wells 2, 5, and 6 flowing to Markham. Ms. Parbus serves as the Project Engineer and is responsible for the hydraulic modeling associated with the pipeline design, pump design, and site visits.

Seminole County Oxford Road Water Main Improvements | Seminole County, FL

The Oxford Road Water Main Improvements were a response to the extension of Oxford Road. The project includes replacement of 600 linear feet of PVC force main, 1,300 linear feet of asbestos cement water main, 1,700 linear feet of PVC water main, and 1,060 linear feet of gravity sewer. The project also included replacement of 6 manholes. Ms. Parbus served as Project Engineer and her duties included specification writing, pipeline configuration, and assembly of construction drawings.

Hillsborough County Phase 2 Valve Assessment and Replacement Program | Hillsborough County, FL

Ms. Parbus is assisting with the assessment and replacement of valves within Hillsborough County's water distribution system, in order to proactively remove faulty valves. Her responsibilities include GIS data management, valve identification, and survey.

Taylor Bomarito, PE

Water Distribution

Mr. Bomarito's project experience includes design of trenchless, aerial, and open-cut pipelines along a variety of challenging corridors requiring extensive permitting.

Education

ME, University of Florida, Environmental Engineering, 2012

BS, University of Florida, Environmental Engineering, 2011

Certification/License

Professional Engineer: FL

NASSCO PACP Certification

Areas of Expertise

- Pipeline Design
- Trenchless Technologies
- Horizontal Directional Drilling
- Wastewater Facility Construction

Experience

- 11 total years
- 10 years with Hazen

Professional Activities

Water Environment Federation

Florida Water Environment Association

American Water Works Association

He has significant expertise in the delivery of water distribution, sewer collection and stormwater infrastructure projects.

Town of Lake Park US-1 Water Distribution and Sewer Force Main Replacement (Phase 2) | Lake Park, FL

Mr. Bomarito is serving as Project Manager and Engineer-of-Record for the replacement of water main and force main within FDOT's US-1 right-of-way in the Town of Lake Park. The design includes approximately 3,800 lf of 6-inch to 10-inch DIP water main and 725 lf of 8-inch DIP force main, along with modifications to existing gravity sewer. A portion of the project requires replacement-in-place of the existing asbestos cement water main. The project design is ongoing.

Town of Jupiter (TOJ) Floridan Aquifer and Surficial Aquifer Raw Water Line Extensions | Jupiter, FL

Mr. Bomarito is serving as Project Manager and Engineer-of-Record for the extension of approximately 17,000 lf of 8-inch to 24-inch HDPE raw water main. The project corridor includes SFWMD, PBC, FDOT, and TOJ rights-of-way, with pipe alignment varying between the roadway and utility easements. The design includes parallel electrical and fiber optic conduit and structures, as well as connections to existing and proposed Floridan and Surficial Aquifer wells. The project design is ongoing.

City of Miami Beach Venetian Causeway Water and Sewer Main Upgrades | Miami Beach, FL

Mr. Bomarito is serving as Engineer-of-Record for the replacement of 8,700 lf of 8-inch to 30-inch water main and force main located along a County causeway crossing ten bridges. The design includes 7,500 lf of 36-inch water main and 5,000 lf of 12-inch force main installed by sub-aqueous horizontal directional drill. The project is very carefully coordinated with stakeholders due to the imminent replacement of the subject bridges and the associated potential conflicts. Extensive permitting is involved: Army Corps of Engineers, Florida Department of Transportation, Florida Department of Environmental Protection and Miami Dade County Department of Environmental Resource Management. The project design is ongoing.

Town of Jupiter Alternate A1A/Damon Bridge Water Transmission Main Replacement and Force Main Installation | Jupiter, FL

Mr. Bomarito served as Project Manager and Engineer-of-Record for the joint project between the Town of Jupiter and the Loxahatchee River District. The project includes the replacement of an existing 20" aerial steel water main with a new 12" steel main along with the installation of a new 16" stainless steel force main. Both pipelines, supported on bridge bent pipe supports, include provisions for expansion/contraction and tie-in to underground piping on either side of the bridge. The project included extensive permitting due to the nature of the ~1,000 lf aerial crossing over a State water body, the Loxahatchee River. Stakeholders include: Army Corps of Engineers, Florida Department of Transportation, Florida Department of Environmental Protection, Palm Beach County Department of Health, Town of Jupiter.

Town of Jupiter Indiantown Road Raw Water Main Crossing | Jupiter, FL

Mr. Bomarito is serving as Project Manager and Engineer-of-Record for the extension of approximately 1,500 lf of 24-inch HDPE raw water main installed via directional drilling. The project, which included crossings of an FDOT roadway and a SFWMD/USACE canal, required extensive permitting. Construction of the project is ongoing.

Seacoast Utility Authority Northlake Boulevard Water Distribution and Sewer Force Main Replacement (Phase 1) | North Palm Beach, FL

Mr. Bomarito is serving as Project Manager and Engineer-of-Record for the replacement of all water main and force main within the 106-ft right-of-way along Northlake Boulevard, a six-lane County roadway. The design includes approximately 12,000 lf of 6-inch to 12-inch DIP water main and 1,500 lf of 4-inch DIP force main installed by open cut, along with approximately 500 lf of 6-inch HDPE installed by directional drill and 1,200 lf of existing 12-inch force main rehabilitated via Cured-in-Place Piping (CIPP). Also included in the design is approximately 30 tie-ins to the existing systems, 150 utility conflicts, replacement of 130 commercial water services and 15 fire hydrants, and abandonment of existing asbestos cement piping. The project required extensive stakeholder coordination due to the highly developed, commercial nature of the corridor and presence within multiple jurisdictions.

Town of Jupiter Penn Park Water Infrastructure Improvements | Jupiter, FL

Mr. Bomarito is serving as Project Manager and Engineer-of-Record for the project to replace existing backyard asbestos cement water mains with new mains in the right-of-way for the Penn Park residential and commercial areas. The project generally consists of abandoning backyard mains and water services and constructing approximately 15,000 lf of new 6-inch PVC and DIP water mains, services and meters with the right-of-way. Also included is approximately 600 lf of 6-inch HDPE water main located within a narrow easement behind commercial properties.

Town of Cary-Raleigh Water Supply Interconnections | Cary, NC

Mr. Bomarito served as a Project Engineer, Construction Manager, and Resident Project Representative for the interconnection project, which included 5,500 lf of 8" to 16" open-cut ductile iron water main, 3 jack and bored roadway crossings, and the modification of two existing pump stations. The pipelines were located along several high traffic roadways and intersections, requiring extensive maintenance of traffic and coordination with NCDOT.

OWASA Ridge Road Water Main Rehabilitation | Carrboro, NC

Mr. Bomarito was the Project Engineer for the cured-in-place pipe (CIPP) rehabilitation of 1,600 lf of 12" and 8" water distribution system water mains. The project was the first CIPP water main constructed in the state of North Carolina. The project was located in a heavily developed corridor of the University of Chapel Hill campus and required significant coordination with traffic, public transportation, public safety, and campus events and schedules.

Education

MS, University of Cincinnati, Environmental Engineering, 1994

BS, University of Cincinnati, Civil Engineering, 1992

Certification/License

Professional Engineer: FL, NY, OH, KY, TX, MN, DC

NASSCO PACP/LACP

BAM-I Asset Management Certification

Areas of Expertise

- Sewer and Water Master Planning
- Sewer and Force Main Assessment and Rehabilitation
- Hydraulic Analysis
- Pipe and Pump Station Design

Experience

- 33 total years
- 16 years with Hazen

Professional Activities

Water Environment Federation

- Collection System Committee

Ohio Water Environment Association

- Collection System Committee

American Waterworks Association

Kentucky-Tennessee Water Environment Association

Sean FitzGerald, PE

Wastewater Collection; Sewer Rehabilitation

Mr. FitzGerald currently serves as Hazen's Conveyance Practice Group Led and Midwest Asset Management Lead.

He has extensive experience in conveyance asset management helping numerous utilities develop and implement programs to proactively plan for operations, assessment and renewal. He has helped lead the development of key software tools on numerous projects to help ensure project efficiency and support their asset management efforts.

City of Fort Lauderdale Sewer Design and Consent Order (CO) Implementation Program Management | Fort Lauderdale, FL

Mr. Fitzgerald provides technical support for the City's CO Implementation. The Florida DEP CO requires the City to develop and implement a robust AM/CMOM and capacity improvement program to reduce spills associated with lack of capacity, pipe failures and blockages. Technical support for the condition assessment of the City's 111-mile force main system focusing on corrosion risk analysis with pipe to soil potential measurements. Played key role in gaps analysis, development of levels of service and performance measures, and risk assessment. Key activities include acting as Senior Project Manager for the City for its Cityworks implementation Phase 1 and Phase II, providing technical assistance with development of workflows, business processes, and geodatabase design for implementation.

City of Sunrise Water and Sewer Master Plan | Sunrise, FL

Mr. Fitzgerald provided technical support for the comprehensive asset master plan. The project included the development of a risk model and Power BI asset renewal tool that allows users to adjust funding and easily visualize impacts on risk profile. The output was an optimized CIP based on maximizing risk reduction for each dollar spend and funding available.

City of Boca Raton Pressure Pipe Assessment and Rehabilitation Program | Boca Raton, FL

Mr. Fitzgerald served as Technical Lead for the program to develop and implement a prioritized water distribution and force main condition assessment and rehabilitation/replacement program for the entire City. The program includes the development of a refined risk model resulting in the use of remaining useful life and consequence of failure to support

condition assessment and asset renewal funding planning resulting in a living Master Plan.

Miami-Dade Water and Sewer Department Government Cut Deep Utility Relocation (Design-Build) | Miami, FL

The project included horizontal directional drilling of a new 24-inch water main and the microtunneling of a new 60-inch sewage force main inside a 72-foot steel casing. The project required the utilities to be lowered since the original lines were too shallow to allow for the dredging. The microtunneling portion included the design of an innovating retrieval shaft using secant piles combined with grout and a fabricated steel caisson.

Sarasota County CMOM Program Development and Implementation | Sarasota County, FL

Mr. Fitzgerald served as Technical Lead for the development and implementation of the Sarasota County CMOM program. The CMOM program includes components for capacity assessment, capacity assurance and the development and implementation of the Collection System Asset Management Plan (CSAMP). The CSAMP includes ESRI model builder risk models for all collection and transmission system assets.

Jefferson County Department of Environmental Services Collection System Asset Management Program |

Jefferson County, AL

Mr. Fitzgerald supervised the development and implementation of the highly successful comprehensive asset management program for the 3,100-mile JCDES system. The program included the development of a risk analysis and prioritized condition assessment and rehabilitation and O&M program for all collection and transmission system assets including all gravity sewers, pump stations, and force mains. Advanced hydraulic models, HazenQ software, and optimizer software identified cost-effective I/I reduction alternatives to provide significant long-term savings over traditional approaches. Pilot testing of the I/I removal program has been highly effective removing over 80% of rainfall derived I/I through comprehensive rehabilitation approaches. Project includes the development and calibration of 10 collection system models for the 3,100-mile Jefferson County Alabama collection system using InfoWorks software. Capacity assessments were conducted under current and future development conditions. Prioritized remedial measures were developed for areas with capacity constraints. The System-wide InfoWorks ICM model includes: 156 pump stations, 69 miles of force mains, and 922 miles of gravity sewer.

City of Nashua Collection System Risk Analysis for CMOM Program | Nashua, NH

Mr. Fitzgerald served was responsible for development of the collection system risk analysis as part of the City's CMOM program. The risk analysis included the development and implementation of a GIS-based risk model that took into account likelihood and consequence of failure to develop an overall risk score for each pipe.

City of Reading Priority Sanitary Sewer Evaluation | Reading, PA

Mr. Fitzgerald served as Technical Lead to assess the entire 175-mile Reading collection system as part of its Consent Decree Compliance. The approach was to characterize and prioritize the field assessment using existing data and new flow meter data. Our HazenQ software was then used to develop robust I/I statistics to prioritize basins. An all-pipes Infoworks model was also developed and calibrated to further refine and confirm problem areas for assessment. The priority areas were then assessed on half of the normal time and budget using RedZone Solo cameras.

Education

BS, Civil Engineering, Florida International University, 1994

Certification/License

Professional Engineer: FL

Envision Sustainability Professional (ENV SP)

Areas of Expertise

- Pump Station Design
- Pipeline Design
- Water and Wastewater Plant Mechanical Design
- Hydraulic Modeling
- Project Management
- Construction Management
- Master Planning
- Asset Management

Experience

- 29 total years
- 29 years with Hazen

Professional Activities

American Water Works Association

Christopher Kish, PE, ENV SP

Pump Stations; Lift Stations

Mr. Kish has played a key role in assessing, designing, overseeing QA/QC, obtaining permits, managing bids and awards, and supervising the construction of numerous water, wastewater, and stormwater infrastructure projects in Florida and internationally. Notably, he has contributed to the completion of over 70 pump stations, particularly in Miami-Dade and Broward counties.

He has also designed approximately 84 miles water and force main improvements ranging in size from 6 to 42 inches.

Miami-Dade Water and Sewer Department Ocean Outfall Legislation (OOL) Program | Miami-Dade County, FL

Mr. Kish served as Wastewater Collection Senior Technical Consultant (STC) for this $2.2-million master planning program to address implications of new state regulations as well as threats of sea level rise and storm surge to their wastewater infrastructure. The 11-year OOL Program is driven by a regulatory mandate from the Florida Legislature to dramatically reduce wastewater discharge to the Atlantic Ocean by 2025. As a subconsultant to another national firm, Hazen shares responsibility for wastewater system master planning, as well as management of the overall delivery of a long-term program encompassing design, procurement, construction, and commissioning of approximately 26 major capital projects. Hazen used Envision as a master-planning tool for the OOL Program. Envision validated and expanded upon the initial drivers for the Master Plan identified by the client. As STC under the OOL Program, Mr. Kish was tasked with reviewing proposed large-diameter pipelines and booster station improvements and consultant Basis of Design Reports (BODR), as well as performing field visits.

City of Coral Gables Cocoplum 1 Pump Station (PS-CC1) and Force Main Upgrade | Coral Gables, FL

As Project Manager, Mr. Kish was responsible for conducting site visits to confirm as-built data, development of the basis of design report, plans/specifications, and permitting as well as bid/award services. The project involved improvements to the Cocoplum 1 Pump Station and discharge force main that required modifications to the station's mechanical, structural, electrical, and instrumentation systems. Improvements in-

cluded installation of a new wet well and valve/meter box and associated piping. The new 12-inch PVC force main from the station to the City's existing transmission main in Old Cutler Road will eliminate the need for PS D to re-pump Cocoplum 1, thus freeing up capacity at station D. Under the City's new sustainability requirements, the project was also evaluated for Envision® certification. Hazen assisted the City in utilizing Envision® throughout the design and construction phases. In 2022, the project was awarded a Bronze Envision® award—the first in the State for a wastewater infrastructure improvement project. Additionally, the project won the "Resilient Project of the Year" in the Green Utility Category by the Resilient Utility Coalition in January 2018.

City of Hialeah Phase 1 and 2 Pump Station Improvements | Hialeah, FL

The City of Hialeah owns and operates in excess of 90 pump stations. To stay in compliance with the MDCC-mandated 10-hour runtime criteria, the City was required to perform upgrades to 14 pump stations between 2016 and 2021. Station horsepowers range from 20 to 387, and capacities from 0.5 to 21.6 mgd. All proposed stations were submersible in configuration and include duplex to quadraplex layouts. In order to transmit the flows generated by these proposed station improvements, it was necessary to design force main improvements totaling 31,330 LF ranging in size from 8 to 36-inches in diameter. As Project Manager, Mr. Kish was charged with the collection of field data, survey coordination, hydraulic modeling, BODR development, permitting, and Bid/Award service. He also provided assist during construction, including shop drawings review, RFI resolution, field visits, and the issuance of the certification of completion.

City of North Miami Beach Pump Station Improvement Program (PSIP) | North Miami Beach, FL

The City of North Miami Beach owns and operates 34 pump stations. To standardize around the submersible configuration and increase reliability moving into the future, the City decided to upgrade 10 stations. Mr. Kish oversaw the design, permitting of two of the 10 station and obtained approval for SRF funding on a fast-track basis. Prior to moving onto the bidding phase, Hazen performed a constructibility review of the other eight stations designed by other consultants. Subsequent to the bid/award process, the City requested Hazen to provide construction oversight for all 10 pump station in order to have one point of contact. Mr. Kish also served as Project Manager and Construction Manager, conducting construction phase meetings, reviewing/approving shop drawings and pay requests as well as performing periodic site visits and issuing the certification of completion for each station. Additional tasks involved quarterly reporting SRF representatives regarding project status.

City of Coral Gables General Services | Coral Gables, FL

The City of Coral Gables owns and operates its wastewater collection/ transmission system comprised of 35 pump stations, 71 miles of gravity main and 19 miles of force main ranging in size from 4 to 36-inches in diameter. Over the past 25 years, Mr. Kish has served as Project Manager assisting the City with upgrades to 13 of its pump stations ranging in size and capacity from 20 to 75 HP and 0.5 to 6.5 mgd respectively. Concurrently, he designed approximately 31,400 LF of force main piping ranging in size from 6 to 20-inches in diameter. All upgrades were performed as a means to reduce station operating times or to remain in compliance with DERM Consent Agreement. Improvements have been conducted in the right-of-way as well as easements, and has involved several canal crossings. As part of the projects, Mr. Kish has conducted field visits, performed hydraulic modeling, developed BODRs and contract documents, and assisted during bid/award phases, subsequently providing construction oversight necessary to implement/ certify the projects.

Education

BS, Civil Engineering, Clarkson College, New York, 1979

Certification/License

Professional Engineer: FL

Areas of Expertise

- Injection Well Design
- Construction Management
- Permitting
- Civil Design
- Mechanical Systems Design
- Pipeline Design
- Pump Station Design
- Condition Assessments

Experience

- 44 total years
- 43 years with Hazen

Professional Activities

American Society of Civil Engineers

American Concrete Institute

American Water Works Association

National Association of Corrosion Engineers

Society for Protective Coatings

Water Environment Federation

Florida Engineering Society

Michael Wengrenovich, PE

Lift Stations

Mr. Wengrenovich has served as lead design engineer and/or construction manager for numerous lift station and associated pipeline projects in Florida.

He has extensive experience in pipeline and civil/site work design for wastewater and water facilities. He has over 43 years of experience with the planning, design and construction of water resource projects including treatment facilities, pumping stations, injection wells, and pipelines for municipalities throughout South Florida.

City of Miramar Pump Stations | Miramar, FL

Hazen designed several pump stations for the City of Miramar for which Mr. Wengrenovich has participated. Mr. Wengrenovich was responsible for design cost estimating, permitting and construction services for the rehabilitation of Lift Stations 2, 5, 6, 7, 11, 13, B and C. He assisted with the development of lift station design standard for the City and provided quality control / quality assurance for the Master Pump Station Upgrades, Injection Well Pump Station at the WRF, the wastewater transmission system and the reclaimed water main. Mr. Wengrenovich also assisted the City with repairs to the pipeline crossing under the Turnpike Extension in Miramar.

City of Fort Lauderdale Coral Ridge Pump Station Rehabilitation Project | Fort Lauderdale, FL

Mr. Wengrenovich served as Lead Design Engineer on the City of Fort Lauderdale Coral Ridge Pump Station Rehabilitation Project. This pump station was converted from a conventional wet well design to an in-line booster station after the wetwell wall failed, and Hazen was retained to redesign the facility on an emergency basis. Mr. Wengrenovich is working with the contractor selected by the City of Fort Lauderdale and currently making the repairs.

City of Plantation Water and Wastewater Continuing Engineering Services | Plantation, FL

Hazen has assisted the City of Plantation with planning, design, and construction projects from 2000 to date. Various City projects completed by Hazen with Mr. Wengrenovich performing key roles have included: raw water pump station improvements, water main and wastewater force main design, lift station repair, master pump station design, alternative water supply planning; headworks coating system restoration, injection

well liner replacement, Floridan aquifer monitor well construction, aeration basin repair, water treatment plant expansion, high service pump station construction, digester evaluation, generator replacement, fuel tank replacement, WWTP permitting, and injection well permitting.

City of Sunrise General Wastewater Consulting Services | Sunrise, FL

Hazen has served as the professional engineering consultant for wastewater infrastructure projects for the City of Sunrise since 2004. The City owns and operates three wastewater treatment plants that are interconnected via force mains and about 210 lift stations. Some of the work performed by Mr. Wengrenovich to date under this contract includes development of standard specifications, lift station upgrades and force main design, injection well pumping system, WWTP aeration system, and injection well testing and permitting. Service areas include Sunrise, Weston, and portions of Davie and Southwest Ranches.

City of Fort Lauderdale Multiple Pipeline Projects | Fort Lauderdale, FL

Mr. Wengrenovich directed the pipeline project to provide water and wastewater service to the Broward County Southern Resource Recovery Facility and the City of Fort Lauderdale Compost Plant. This project included extensive coordination among the City, Broward County Office of Environmental Service, and the Florida DOT in association with the construction of I-595.

City of Tamarac General Consulting Services | Tamarac, FL

Mr. Wengrenovich served as Project Director and Project Engineer on hydraulic studies, water supply wells, water mains, force mains, gravity sewers, water treatment plant expansion and improvements and pump station projects from planning through design and construction under a general consulting services contract. He was responsible for the design, permitting and construction management of six 12-inch diameter potable water wells and the rehabilitation of an existing 12-inch potable water well.

City of Miami Beach Constructability Reviews | Miami Beach, FL

For the City of Miami Beach, Mr. Wengrenovich has performed constructability reviews for pump stations, water main and storm sewers of the $195 million infrastructure improvement project. He served as Project Engineer on multiple of construction projects, including water treatment plant expansions and modifications, water mains, force mains, water supply wells, pump stations, and pump station rehabilitation projects.

Pump Station Design and Construction for Multiple Projects | South Florida, FL

Mr. Wengrenovich served as Design Engineer and Project Manager on several pump station projects, including water main replacement projects, force main construction, sewer rehabilitation, wastewater pump station rehabilitation and a variety of projects involving modifications and improvements to treatment facilities. Design, construction and rehabilitation services were performed for multiple lift station including the City of Hollywood, the Loxahatchee Environmental Control District, Broward County, and the City of Sunrise.

Broward County Water and Wastewater Services General Wastewater and Water Engineering Services | Broward County, FL

Hazen provided general professional consulting services to Broward County Water and Wastewater Services under the 2002 and 2008 Agreements in the following areas: water and wastewater treatment plants, water collection and wastewater distribution, hydraulic modeling, pumping stations, water wells and effluent disposal wells, water reclamation, ocean science and marine engineering, financial studies and regulatory assistance. Hazen completed over one hundred separate projects under that Agreement.

City of Boca Raton Water, Wastewater and Reclaimed Water Continuing Engineering Services | Boca Raton, FL

Hazen has assisted the City of Boca Raton with planning, design, and construction projects from 1995 until today. Various City projects have been completed by Hazen including several pump stations.

Ethan Heijn

Infiltration/Inflow (I/I) and SSES

Mr. Heijn brings extensive experience in environmental engineering, focusing on evaluation and rehabilitation of infiltration and inflow in sanitary sewers, including sanitary sewer evaluation surveys, infiltration/inflow analysis, sewer peak flow hydraulic modeling, gravity and pressure pipe assessment, flow monitoring and sampling studies, and sewer rehabilitation programs.

Education

MS, Civil and Environmental Engineering, Duke University, 1991

BA, History, Vassar College, 1985

Certification/License

Professional Engineer: GA

Areas of Expertise

- Infiltration/Inflow Analysis/SSES
- Collection System Design
- Utilities Infrastructure Management

Experience

- 31 total years
- 20 years with Hazen

City of Homestead Community Redevelopment Area (CRA) and Non-CRA Sanitary Sewer Evaluation Survey (SSES) Cycle 2, Phases 1-3 | Homestead, FL

The City of Homestead owns and operates an extensive wastewater collection, transmission and treatment system. Inflow and Infiltration (I/I) within the City's sanitary collection system is imposing an economic burden on the City as rain/groundwater (not requiring treatment) enters the collection system is transmitted to the WWTP for treatment and disposal. In an effort to remove these extraneous flows from the collection system as well as meet regulatory requirements, the City contracted Hazen to conduct a SSES of the CRA and Non-CRA portions of the City. Mr. Heijn served as Project Engineer for work, including flow data analysis, manhole inspection, smoke testing, video review and development of recommendations, and construction inspection.

City of North Miami Beach Engineering Services and Compliance Reporting for Infiltration and Inflow Reduction and Sewer Rehabilitation | North Miami Beach, FL

The City of North Miami Beach owns and operates its wastewater collection and transmission system. Wastewater generated from this system is transmitted to the Miami-Dade Water and Sewer Department (MDWASD) for treatment and disposal. Hazen was contracted to develop the Cycle 2 Phase 1 and 2 Reports for the City. Concurrently, Hazen is assisting the implementation of a sewer rehabilitation program that is being funded through the State Revolving Fund (SRF).

City of Coral Gables Sanitary Sewer Evaluation Survey, Phases 1 and 2 Studies | Coral Gables, FL

Mr. Heijn has assisted the City of Coral Gables in preparing its Sanitary Sewer Evaluation Survey Phase 1 and 2 studies and implementing its

rehabilitation program. The Miami-Dade County Code requires that Volume Sewer Customers of the Miami-Dade Water and Sewer Department such as the City perform a variety of activities related to collection system assessment, rehabilitation, and management. Mr. Heijn has assisted the City of Coral Gables in meeting sewer system rehabilitation needs via planning, budgeting, and program implementation. He has assisted the City with I/I program implementation, including flow data analysis, manhole inspection, smoke testing, video review and development of recommendations, and construction inspection.

City of Coral Gables Sanitary Sewer Evaluation Survey and Sewer Rehabilitation Program | Coral Gables, FL

The Miami-Dade County Code requires that Volume Sewer Customers perform a variety of activities related to collection system assessment, rehabilitation, and management. One such requirement concerns the completion of a Sanitary Sewer Evaluation Survey (SSES), followed by sewer rehabilitation and post-rehabilitation flow monitoring to assess compliance with the 5,000 gallon per day-inch-mile standard for infiltration and inflow (I/I). Since 2002, Hazen has assisted the City of Coral Gables in meeting sewer system rehabilitation needs via planning, budgeting, and program implementation using a collaborative approach. Most recently, Hazen prepared the City's SSES reports, and subsequently assisted the City with I/I program implementation.

City of Sunrise Sewer System Evaluation Survey, Phase 1 | Sunrise, FL

Mr. Heijn directed Phase 1 of the infiltration and inflow evaluation and rehabilitation program for the City of Sunrise's gravity sewer system. Assignments under this contract included measurement of infiltration and inflow for the overall system and selected pump station collection areas; planning of a sanitary sewer evaluation survey; preparation of bid specifications for sewer rehabilitation with an emphasis on trenchless approaches; provision of bid-phase services for the sewer rehabilitation program; and planning for expansion and integration of City programs to address CMOM.

City of Hallandale Beach Sanitary Sewer Evaluation Survey, Phase 1 | Hallandale Beach, FL

Mr. Heijn managed and conducted the technical work on the Phase 1 Sanitary Sewer Evaluation Survey for the City of Hallandale Beach. The work included analysis of system-wide water usage and wastewater flow records for a 12-month period to characterize the overall system based on I/I severity and define the approximate proportions of infiltration, inflow, and wastewater; development of a wastewater flow database for each pump station; analysis of wastewater flow data, including dry weather infiltration, wet weather events, and tidal influence; and prioritization of basins by I/I severity so that inspection and rehabilitation work could be focused on those areas where the greatest I/I reduction potential exists. Following the City's rehabilitation program in Basin 6, which the Phase 1 analysis had identified as a top priority for inflow and infiltration reduction, Mr. Heijn also conducted post-rehabilitation flow analysis and concluded that the City's rehabilitation efforts had achieved an I/I reduction of approximately 400,000 gallons per day and an annual savings in treatment and disposal fees of $410,000.

City of Boynton Beach Sanitary Sewer Evaluation Survey | Boynton Beach, FL

Mr. Heijn developed and managed the technical approach for a sanitary sewer evaluation survey for the City of Boynton Beach. The approach involved use of existing SCADA records and correlation with groundwater and rainfall records to achieve initial prioritization of basins for inflow and infiltration severity.

Alexandra Kelly, PE, ENV SP

Infiltration/Inflow (I/I) and SSES

Ms. Kelly has 8 years of experience in the water/ wastewater industry. She has been involved in conveyance, construction projects, and project management.

Education

MS, Environmental Engineering, University of Florida, 2017

BS, Environmental Engineering, University of Miami, 2016

Certification/License

Professional Engineer: FL

Areas of Expertise

- Conveyance
- Asset Management

Experience

- 8 total years
- 8 years with Hazen

Professional Activities

Florida Water Environment Association

American Water Works Association

Water Environment Federation

Sanitary Sewer Evaluation Survey and Sewer (SSES) Rehabilitation Program, multiple Miami-Dade Volume Sewer Customers (VSC) | South Florida

The Miami-Dade County Code requires that Volume Sewer Customers perform a variety of activities related to collection system assessment, rehabilitation, and management. One such requirement concerns the completion of a Sanitary Sewer Evaluation Survey (SSES), followed by sewer rehabilitation and post-rehabilitation flow monitoring to assess compliance with the 5,000 gallon per day-inch-mile standard for infiltration and inflow (I/I). Ms. Kelly is assisting with preparing Cycle 3 SSES reports for the Town of Bay Harbor Islands, the City of North Miami Beach, the City of Miami Beach, the City of Homestead, the City of Hialeah, and Miami-Dade Aviation Department (MDAD).

City of Fort Lauderdale Inflow and Infiltration Reduction Project | Fort Lauderdale, FL

As part of the City of Fort Lauderdale's Consent Order Number 16-1487, the City is required to perform inflow and rehabilitation reduction projects in six pre-defined pump station basins. The inspection approach to address I&I defects is television of the gravity mains and laterals, smoke testing, and manhole inspections. The rehabilitation approach to address I&I defects is cured in place pipe lining for active mainlines and laterals, and rehabilitation of manholes. To date jointly between the City and Hazen, 35 task orders totaling nearly $30 million have been awarded for sanitary sewer television and rehabilitation projects. Ms. Kelly's role is to provide project management services, including coordination with Contractors and City personnel in various departments, management of a team of inspectors, preparing bid documents for new rehabilitation work, and preparing updates on the project for the City's upper management. Ms. Kelly also provides technical services such as updating GIS maps and preparing flow analysis data.

City of Fort Lauderdale Sanitary Sewer Overflow Response Plan | Fort Lauderdale, FL

Ms. Kelly served as one of the primary authors of the City's updated Sanitary Sewer Overflow Response Plan. Responsibilities included review of existing documentation related to overflow response, research of requirements for reporting overflows to various agencies, coordination with City staff on internal processes for responding to overflows.

City of Fort Lauderdale Rapid Response Plan | Fort Lauderdale, FL

As part of the City of Fort Lauderdale's Consent Order Number 16-1487, the City is required to create a Rapid Response Plan, with the purpose of documenting options for external assistance during a Sanitary Sewer Overflow. Ms. Kelly was one of the primary authors of this report and her responsibilities included: research of outside entities that provide overflow response assistance, coordination with City staff on methods used to obtain outside assistance during an overflow, development of graphics, and review of existing information from various sources within the City.

City of Pembroke Pines 30-inch Taft Street Sewer Force Main Condition Assessment Bid Documents | Pembroke Pines, FL

Ms. Kelly assisted the City with preparation of bid documents, including drawings and specifications, for the internal condition assessment of 3.1 miles of 30-inch ductile iron sewer force main. The project also included evaluation of available condition assessment technologies and recommendation of the best alternative.

City of Fort Lauderdale Wastewater Pump Station Asset Inventory, Condition Assessment, and Asset Management Plan | Fort Lauderdale, FL

As part of the City's wastewater Asset Management and Capacity, Management, Maintenance, and Operations Program (AM-CMOM Program), Hazen assisted in developing an asset inventory and condition assessment for all of the City's 185 wastewater pump stations. Ms. Kelly served as the deputy project manager and participated in field inspections as the lead for a team of four inspectors. Following the data collection in-field, Ms. Kelly will assist with the next steps under this project to develop a Wastewater Pump Station Asset Management Plan (WWPSAMP) which will include the determination of risks, identification of remaining useful life and urgent needs, projecting R&R costs, and building an asset management dashboard for the City.

City of Fort Lauderdale Condition Assessment and Capacity Analysis for Stormwater Pump Stations SS1 & SS2 | Fort Lauderdale, FL

Hazen assisted the City of Fort Lauderdale with condition assessment and capacity analysis for the two critical stormwater pump stations that service the City's downtown and financial district. SS1 is a 3-pump (150HP each) stormwater pump station and SS2 is a 3-pump (75HP each) stormwater pump station. Ms. Kelly assisted with interviewing City Operations staff on station operation and assisted with the in-field asset inventory and condition assessment. The field data was processed to develop remaining useful life and risk scores and used to inform future and funding needs.

Lucia Medina, PE

Stormwater

Ms. Medina's experience includes stormwater management, process and civil design, data sourcing, database management, hydrologic and hydraulic modeling, project coordination, and permitting assistance.

Education

ME, Civil Engineering, Vanderbilt University, 2013

BE, Civil Engineering and Studio Art, Vanderbilt University, 2012

Certification/License

Professional Engineer: FL

Areas of Expertise

- Stormwater Management
- Project Management
- Permitting
- Wastewater Process Design
- Civil Modeling and Design (Civil 3D)
- Database Management (GIS)
- Hydrologic and Hydraulic Modeling (ICPR4)

Experience

- 9 total years
- 8 years with Hazen

Professional Activities

Bill and Melinda Gates Millennium Scholar Alumni

City of Margate Stormwater Master Plan | Margate, FL

Ms. Medina serves as project supervisor of the development of the Stormwater Master Plan for the City of Margate. Ms. Medina led a team to refine the existing Broward County MIKE SHE/ MIKE HYDRO model used for the County's Flood Protection Level of Service analysis to better simulate the City's stormwater assets and hydrologic characteristics. The project is divided into two phases, spanning two years of effort to gather data pertaining to the City's stormwater management system, develop a hydrologic and hydraulic model to identify vulnerabilities, inform and vet capital improvement recommendations that include detailed cost and duration estimates as well as implementation considerations. Part of this effort included the development of the City's 20-year needs analysis required by House Bill No. 53.

City of Oakland Park Stormwater Master Plan Update and Flood Vulnerability Assessment | Oakland Park, FL

Ms. Medina is managing the development of a stormwater master plan and a city-wide flood vulnerability assessment for the City of Oakland Park. The analysis is based on both a hydrologic & hydraulic model and a geospatial model. The models utilize various data sources and provide a comprehensive stormwater flooding assessment for both current and future projected climatological conditions. Ms. Medina is coordinating with the City to understand the City's composition, known vulnerabilities and to identify critical and important assets. Modeling results have facilitated the identification and prioritization of specific vulnerabilities throughout the City, which directed recommendations for adaptation strategies and effective solutions to increase resiliency to climate change. Ms. Medina is currently finalizing the stormwater master plan portion of this project due to inform the City in the development of future capital improvement projects.

City of Fort Lauderdale Stormwater Master Plan Modeling and Design Implementation Services | Fort Lauderdale, FL

The Fort Lauderdale program consists of developing a master plan and designing implementations to address chronic flooding and other stormwater management issues in the City. The program is focused on resilient adaptation to climate change and inclusion of innovative and regional solutions. The City covers approximately 23,000 acres of highly urbanized neighborhoods with much of its coastal land area lying within the floodplain. Ms. Medina served as Project Supervisor for the modeling task. She led the team to develop the hydraulic, hydrologic, and groundwater modeling used to inform the design teams and permit the proposed projects. She has hands-on experience with ICPR4, the modeling software selected by the City, as well as various ArcGIS applications used to dovetail raw data into modeling inputs and parameters. Ms. Medina's role in this project included collecting and organizing supporting data from agencies, developing detailed modeling workflows to streamline coordination and consistency amongst project partners, and providing modeling support to the design teams by providing modeling results that showcase both existing and future scenarios with variable time horizons.

Village of North Palm Beach Stormwater Master Plan Modeling and Design Implementation Continuing Services Contract | North Palm Beach, FL

Ms. Medina serves as Project Manager. Hazen is providing professional services related to a continuing contract for stormwater master plan modeling and design implementation services. The contract includes the development and implementation of a hydraulic/hydrological stormwater model of the entire Village. The model shall consist of a comprehensive basin by basin analysis of the existing and proposed stormwater systems, and how they react to different boundary conditions, including future projected climatological conditions. Based on the model results, Hazen will develop a master plan update consisting of individual neighborhood capital improvement projects (CIP), especially in the areas found to be most susceptible to chronic flooding.

City of Hollywood Citywide Vulnerability Assessment and Adaptation Plan | Hollywood, FL

Hazen conducted a citywide climate change vulnerability assessment, prioritizing vulnerabilities, developing adaptation strategies, creating an adaptation plan, informing the public about risks and adaptation opportunities and building the capacity of the city to include climate change data in decision making. Ms. Medina served as a Project Engineer, her role included providing models to showcase both existing and future scenarios with variable time horizons.

Town of Jupiter Seminole Basin Improvements – Phase I | Jupiter, FL

Ms. Medina assisted the Town of Jupiter in improving the Seminole Basin drainage system by evaluating the benefit of a second pump station and outfall located towards the south portion of the basin near the intersection of Juno Street and Old Dixie Highway. The need for additional attenuation, water quality improvements, and/or conveyance improvements within the basin were also evaluated. Ms. Medina updated the existing ICPR model of the Seminole Avenue Basin to include the proposed pump station located at Juno Street and for proposed connections into the existing drainage system from Old Dixie Highway north of Center Street. Modifications to existing components of the conveyance system were also evaluated to ensure the most effective use of the proposed pump station.

Guillermo Regalado, PE

Stormwater

Mr. Regalado holds the position of Hazen's Southeast Region Hydraulic Modeling and Water Resources Practice Lead. With extensive experience, he has led modeling teams and directed projects spanning wastewater, water resources, water supply, watershed management, stormwater management, and restoration and conservation initiatives.

Education

MS, Irrigation Engineering, Catholic University of Leuven, Belgium, 1992

BS, Civil Engineering, Pontificia Universidad Javeriana, Colombia, 1988

Certification/License

Professional Engineer: FL, Puerto Rico, Colombia

Areas of Expertise

- Hydrologic and Hydraulic Analysis and Modeling
- Systems Analysis and Optimization
- Water/Wastewater Modeling
- Engineering Design
- Expertise in hydraulic and hydrologic (H&H), and water quality engineering models for both large and small-scale systems including water distribution networks and wastewater collection and transmission systems
- Hydrologic and hydraulic modeling for multiple Puerto Rico and Latin America projects

Experience

- 35 total years
- 6 years with Hazen

Professional Activities

American Water Works Association (AWWA)

American Water Resources Association (AWRA)

He has 35 years of experience in a wide range of hydraulic engineering topics, including the application of hydraulic, hydrologic and water quality engineering models for water, wastewater and stormwater master plans. Mr. Regalado's project experience spans analysis, planning, engineering design, and project management to include hydraulic and hydrologic analysis and modeling of water distribution networks, wastewater collection and transmission systems, and wastewater pump stations.

Upper Kissimmee Basin Flood Protection Level of Service (UKB FPLOS) Assessment for Current and Future Conditions | Central Florida, FL

Mr. Regalado served as QA/QC Lead and Modeler for UKB FPLOS H&H modeling project. This project involves development, calibration, and application of H&H modeling for 26 watersheds in UKB to evaluate the flood protection level of service offered by South Florida Water Management District (SFWMD) primary conveyance system under current and future conditions. Recommendations will be made on mitigation and adaptation projects for the central Florida area for SFWMD to consider in the 4,000+ square-mile domain.

Big Cypress Basin Model (BCB) Update | Collier and Lee Counties, FL

Mr. Regalado served as QA/QC Lead and Modeler for BCB Model Update. This project involves long-term and storm event H&H modeling to evaluate the FPLOS offered by SFWMD water management system under current and future conditions with sea level rise; the design storm simulation includes 5-, 10-, 25- and 100-year events. Groundwater model inputs extracted from SEAWAT BCB model. The model will help answer questions on many issues including flood risk driven by complex interactions between the natural and built environments, surface and groundwater, infrastructure system inadequacies if any, increased development, and climate change impacts; recommendations will be made on mitiga-

tion and adaptation projects for SFWMD to combat climate change and sea level rise impacts.

County-wide Risk Assessment and Resilience Plan | Broward County, FL

Hazen was selected by Broward County to develop an actionable, resilience plan inclusive of infrastructure improvements and redevelopment strategies consisting of a visualization platform to aid regional planning and project tracking; and to provide the foundation for collective mitigation of future flooding, inclusive of water management infrastructure, transportation systems, critical infrastructure, green infrastructure, land use, basin-scale redevelopment, and land use planning based on a comprehensive county-wide risk assessment. The plan will serve as the basis for a multi-decade, coordinated and phased infrastructure improvement plan with ample detail to support refined outreach, design, and financing needed for implementation. Mr. Regalado serves as Deputy Project Manager, developing and executing the technical approach, including hydrologic and hydraulic modeling, exposure, vulnerability and risk assessments; and also developing the components of the resilience plan. He directed the model (MIKE SHE/MIKE HYDRO) model refinement phase and the evaluation of flooding hazards under the current or no-action conditions.

Vulnerability Assessment | City of Hollywood, FL

Mr. Regalado served as Lead QA/QC and Technical Engineer in the development of a City-wide Vulnerability Assessment. The evaluation consists of the analysis of projected flood caused by the rise in sea level and/or by the storm surge caused by a hurricane. It considered the City's owned and other critical infrastructure and assets within the City that may be vulnerable to climate change conditions, including select assets not owned by the City. The project identified affected systems throughout the City using GIS and LiDAR data for assessing sea level rise and storm surge inundation to calculate vulnerability scores for the City's critical infrastructure. The vulnerability and criticality were used to prioritize risks and begin development of a systematic plan of action to be taken in the future.

Stormwater Management Master Plan | City of Fort Lauderdale, FL

The Fort Lauderdale program consists of delivery of a new stormwater master plan and design implementations to address chronic flooding and other stormwater management issues in the City. The program is focused on resilient adaptation to climate change and inclusion of innovative and regional solutions. The City covers approximately 23,000 acres of highly urbanized neighborhoods with much of its coastal land area lying within the floodplain. Mr. Regalado served as Technical Lead and QA/QC for the modeling development and application tasks. He performed QA/QC reviews and evaluations within the development of the 1D and 2D hydraulic, hydrologic, and groundwater modeling used to inform the design teams. The City was divided into several watersheds, an independent model was developed for each watershed. The models were developed in ICPR4, as selected by the City. Models were prepared to simulate the existing and proposed conditions under a variety of scenarios including multiple sea level rise conditions. Proposed conditions included pump stations and detention storage (ponds).

Stormwater Master Plan Update and Flood Vulnerability Assessment | City of Oakland Park, FL

Mr. Regalado served as Senior QA/QC Reviewer for the modeling and vulnerability analysis. The analysis is based on both a hydrologic and hydraulic model and a geospatial model. The models utilize various data sources and provide a comprehensive stormwater flooding assessment for both current and future projected climatological conditions. Modeling results have facilitated the identification and prioritization of specific vulnerabilities throughout the City, which directed recommendations for adaptation strategies and effective solutions to increase resiliency to climate change.

1021-646

Rachel Loffing, EI

Climate Change/Resilience

Ms. Loffing has aided in the development of multiple stormwater models, vulnerability assessments and stormwater design projects. She has experience with project management, construction management services, pump station design, stormwater infrastructure design, permitting, master planning, modeling, and ArcGIS.

Education

BS, Civil Engineering, The Ohio State University, 2020

Certification/License

Engineering Intern: OH

Areas of Expertise

- Stormwater
- Wastewater Collection Systems
- Permitting
- Modeling
- ArcGIS
- Construction Management Services
- Project Management
- Lift Stations

Experience

- 4 total years
- 4 years with Hazen

Professional Activities

American Water Works Association

American Society of Civil Engineers

City of Hollywood Lift Station W-27 Upgrades and Force Main Replacement | Hollywood, FL

Lift Station W-27 is a critical lift station that services Memorial Regional Hospital as well as 13 upstream stations within the City's transmission system. This lift station was built in the early 1960s and needs renewal and/or replacement. In addition, the City experiences operational difficulties with the existing pumping arrangement. Currently, there is one large pump (200 horsepower) and two smaller pumps (75 horsepower each). Ms. Loffing is serving the project as a junior engineer assisting with the development of the basis of design, detailed design, and construction management services. Her responsibilities additionally include coordination with sub-consultants and coordination across multiple disciplines.

Village of North Palm Beach Stormwater Master Plan Modeling and Design Implementation | North Palm Beach, FL

Ms. Loffing serves as Deputy Project Manager of the development of the Stormwater Master Plan Modeling and Design Implementation for the Village of North Palm Beach. Ms. Loffing is assisting leading the team to gather data pertaining to the City's stormwater management system, develop a hydrologic and hydraulic model to inform and vet capital improvement recommendations that include detailed cost and duration estimates as well as implementation considerations.

City of Plantation Central Water Treatment Plant Sodium Hypochlorite Chemical Storage and Feed Facilities | Plantation, FL

Ms. Loffing is assisting in providing engineering services associated with design, permitting, bid and award and construction management services of the new sodium hypochlorite chemical storage and feed facilities. The design incorporates complete demolition and replacement of the sodium

hypochlorite system including, chemical storage tanks, chemical transfer, and chemical metering pumping systems along with all piping, valves, accessories, electrical and controls to comply with current Building Code requirements and general health and safety recommendations.

City of Fort Lauderdale Stormwater Improvements Master Plan Program | Fort Lauderdale, FL

The City of Fort Lauderdale Stormwater Program is a part of a larger effort for the City to update the master plan and improve design to address chronic flooding and stormwater management issues throughout the City. Hazen completed a conceptual model and permitting effort for the design of improvements throughout the City beginning in 2016. Ms. Loffing has assisted with conceptual and construction permitting, detailed design and construction management services.

County-wide Risk Assessment and Resilience Plan | Broward County, FL

Hazen was selected by Broward County to develop an actionable, resilience plan inclusive of infrastructure improvements and redevelopment strategies consisting of a visualization platform to aid regional planning and project tracking; and to provide the foundation for collective mitigation of future flooding, inclusive of water management infrastructure, and land use planning based on a comprehensive county-wide risk assessment. The plan will serve as the basis for a multi-decade, coordinated and phased infrastructure improvement plan with ample detail to support refined outreach, design, and financing needed for implementation. Ms. Loffing assisted with program planning including the development for a County-wide heat island analysis.

City of Sunrise SW 130th Avenue Force Main and Lift Station 309 Improvements | Sunrise, FL

Ms. Loffing assists in providing construction management services including coordination with the client, coordination with the contractor, shop drawing review, and general construction services.

Millennium Challenge Corporation, Timor-Leste Advisory Services –Development and Assessment of Possible Water Investments | Dili, Timor-Leste

Ms. Loffing served as GIS Specialist assisting the Hazen Team by serving as due diligence consultant for the development of the Timor-Leste Compact. Her responsibilities include assisting with the Country's GIS database development and maintenance, the procurement of feasibility study consultants, work plans, COVID-19 pandemic related changes to the work plan, presentations, work products and deliverables providing input as required.

City of Fort Lauderdale Stormwater Improvements Merle Fogg Park Seawall | Fort Lauderdale, FL

Ms. Loffing is managing the development of stormwater improvements for the Merle Fogg Park seawall and associated outfalls. The project includes the design, permitting and construction services. Ms. Loffing is assisting with the design and permitting efforts while coordinating with the City on the vulnerabilities of the existing seawall.

City of Oakland Park Stormwater Master Plan Update and Flood Vulnerability Assessment | Oakland Park, FL

Ms. Loffing assisted in the development of a stormwater master plan and a city-wide flood vulnerability assessment for the City of Oakland Park. The analysis was based on both a hydrologic and hydraulic model and a geospatial model. The models utilized various data sources and provided a comprehensive stormwater flooding assessment for both current and future projected climatological conditions. Modeling results facilitated the identification and prioritization of specific vulnerabilities throughout the City, which directed recommendations for adaptation strategies and effective solutions to increase resiliency to climate change.

1021-646

Sharon Simington

Grant Management

Ms. Simington helps clients in various industries and disciplines to identify potential funding sources. She leads efforts to secure alternative funding for a variety of clients and projects, acting as the liaison between agency and community, providing a smooth funding experience and cohesive working environment.

Education

AA, University of South Florida, 2002

Areas of Expertise

- Funding Management
- Program Management
- Project Management

Experience

- 19 total years
- 2 years with Hazen

Brevard County Lori Laine Trunkline Replacement Clean Water State Revolving Fund Assistance | Satellite Beach, FL

Provided the planning, Facility Plan, and Clean Water State Revolving Fund (CWSRF) loan application. The project consists of piping and earthwork to reroute stormwater conveyance to biosorption activated media (BAM)-filled trenches for nutrient removal.

Sanitary Sewer Collection and Treatment System Funding Assistance | Pierson, FL

Provided the design loan Request for Inclusion, loan agreement assistance, disbursement request, funding coordination. The project involves the construction of approximately 21,200 lineal feet of a new collection system, along with the construction of a 100K GPD wastewater facility

Hillsborough County Gibsonton Septic to Sewer Conversion Funding Compliance | Hillsborough County, FL

Assisted Hillsborough County in the application for Phases 3 and 4 for the Septic to Sewer Conversion project in the Gibsonton area and assisted in the funding compliance for Phases 1A, 1B, 1C, and Phase 2 through the FDEP Wastewater Grant Program. The project will convert over 2,200 septic tanks to a vacuum sewer system. The project will reduce nutrient loadings to the Alafia River Basin Management Action Plan area in Tampa Bay. Grant awarded: $13M

Volusia County Lake Beresford Stormwater Improvements Funding Assistance | Volusia County, FL

Planning and application for the Clean Water Section 319(h) funding. Project includes two dry retention ponds with BAM upflow filter on discharge side of ponds to further treat water as it leaves the ponds. Diversion dams in ditches will divert the runoff into the ponds. Flows from Lakeside Drive will be diverted to a Nutrient Separating Baffle Box which

will filter 90% of rainfall runoff. The larger flows will bypass the NSBB filter system within the box.

Hillsborough County Palm River Septic to Sewer Conversion Grant Management | Hillsborough County, FL

Assisted Hillsborough County in the application for Water Quality Improvement Grant for the design and construction of a vacuum wastewater collection and distribution system for the County's Palm River Utility Expansion and Septic to Sewer Conversion Project. The Project includes pipelines and pump stations from areas identified to a point of connection to the existing County wastewater system. The project area is approximately bounded by Causeway Blvd / SR 676 to the South, 56th Street to the West, 12th Avenue to the North, and the developed boundary of Clair-Mel City along Windermere Way and 70th Street to the East. The project goal is eliminating 1,750 on-site sewage treatment and disposal systems (septic systems) and converting the properties to the County owned and operated central sewer collection system and remove the non-point source pollution sources. The grant awarded was $5 million.

Charlotte County Ackerman Septic to Sewer Conversion Project FDEP State Revolving Funds, Legislative Appropriation and EPA Community Grant Funds Management | Charlotte County, FL

Due to the size of the Ackerman Neighborhood area and funding limitations, the Ackerman Neighborhood area has been broken into two phases. The first phase including construction of Vacuum Sewers in Zones 1 and 2 and a Vacuum Pump Station is underway with substantial completion anticipated in May 2023. The second phase of this program will includes the installation of approximately 58,240 LF of vacuum sewers and 15,130 LF of low-pressure sewers to serve Zones 3 and 4 and a Low Pressure Sewer Area as identified in the Preliminary Engineering Report and Update. It will also include 730 on-site lateral connections to the new vacuum and low pressure sewer system in addition to the proper abandonment of the failing septic tanks. This second phase is proposed to be funded in part by FDEP State Revolving Funds, a Legislative Appropriation and EPA Community Grant funds.

City of DeLand NW Reclaimed Water Ground Storage Tank and Pump Station Grant Management | DeLand, FL

Provided grant application, assistance, and program coordination. A 2.0 million-gallon (MG) GST located near the intersection of Stone St. and Lake Gertie Rd. is proposed. The GST provides the needed increase to pressures in the surrounding area. Approximately 14,000 LF of 16" is proposed to upsize the 12" along US 92 from Jacobs Rd. to N. Spring Garden Avenue.

DeSoto County Funding Analysis, Recommendation and Funding Management Hull Road Water System | DeSoto County, FL

Provided funding strategy, grant application, grant agreement coordination, grant administration, project closeout. The 8-inch water main, dead-ended on West Hull Avenue will be extended on West Hull Avenue down to SW Prairie Avenue and then through SW Collins Street, where it will tie into the existing 16-inch main located on the west side of Highway-17 at the 128th Street intersection. A new flow control valve will be installed on the 16-inch main at this connection to divert a portion of the water coming from the Peace River Water Supplier through the Hull portion of the Digital Control Unit (DCU) system. The project also includes modifications at the remaining two dead ends on Hill and Oak Creek Roads. The 4-inch line that currently dead-ends on Oak Creek Road will be looped back to the main 8-inch line on SW Hull Avenue. This loop will allow two additional residents in the area access to the potable water. The 8-inch line that currently dead-ends on Hill Street will be looped back on itself with a new 8-inch line and isolation valve to route the water through the new Hill Street loop. The new piping and flow control valve will be used to fully loop the dead-end pipes within the Hull area and will enable the four automatic flushers to be taken offline. These improvements on the DCU distribution line will net a savings of about 46 million gallons of flush water annually.

Timothy Devine, PE, MBA

Grant Management

Mr. Devine, a skilled financial analyst, has assisted numerous municipal water and wastewater utilities in optimizing investments. His expertise in project funding analysis has enabled clients to secure over $950 million in low or no-interest state revolving fund financing for capital improvement projects.

Education

MEM, Environmental Management, Duke University, 2012

MBA, University of North Carolina at Chapel Hill, 2012

BS, Environmental Engineerings, United States Military Academy at West Point, 2004

Certification/License

Professional Engineer: NC, NY

Areas of Expertise

- Utility Financial and Economic Analysis
- Master Planning and Capital Planning
- Environmental Permitting and Analysis
- Municipal Water and Wastewater Mechanical Design

Experience

- 16 total years
- 11 years with Hazen

Professional Activities

Water Environment Federation

North Carolina OneWater

American Water Works Association

East Central Regional Water Reclamation Facility Funding Assistance | West Palm Beach, FL

Served as Financial Lead for the development of a funding plan to assist the ECRWRF Operations Board in the implementation of a 10-year $150 million capital improvements program. Developed a dynamic dashboard funding model to evaluate total program costs for various financing alternatives.

City of Graham WWTP Process Optimization and Preliminary Engineering Report | Graham, NC

Mr. Devine served as Financial Task Lead. Performed a detailed evaluation of potential grant and low interest loan funding opportunities available to the City of Graham for financing an expansion of their Graham Wastewater Treatment Plant. Evaluation led to a recommendation to apply for grants and loans from both the North Carolina Department of Environmental Quality Clean Water State Revolving Fund and Additional Supplemental Appropriations for Disaster Relief Act (ASADRA) funds. This funding proposal included the opportunity to obtain as much as $7.5 million in grant funding assistance.

Town of Holly Springs Funding Assistance | Holly Springs, NC

Mr. Devine served as Project Manager. Led a team of engineers and financial analysts in assisting the Town of Holly Springs prepare four funding applications for the Spring 2022 NC Division of Water Infrastructure funding round. The applications included requests for funding assistance for the Town's participation in the City of Sanford WTP expansion project, the construction of a new water distribution pipeline to connect the Town to the City of Sanford WTP, and develop asset management plans for both the Town's water and wastewater systems. The total application request was for $40 million in low interest loan funding and $400k in planning grant funding.

City of Graham WWTP Expansion to 5.0 mgd Design | Graham, NC

Mr. Devine served as Funding and Financial Analysis Lead. Assisted the City in evaluating potential funding opportunities to find the optimal

financing for their WWTP Expansion Project. Was able to assist the City in obtaining over $1 million in grant funding and $45 million in low interest loan financing to fund the expansion project, which provided a significant financial benefit to the City and their wastewater customers. Developed a rate analysis model to determine the revenue requirements needed to fund the expansion project and ensured that user rates were established to meet all operational and financial goals.

Town of Broadway Watson Lake Dam Funding Opportunities Evaluation | Broadway, NC

Mr. Devine served as Technical Advisor. Completed an infrastructure funding opportunity evaluation on behalf of the Town of Broadway to explore federal, state, and local infrastructure funding options available to fund the design and construction of needed infrastructure improvements for the rehabilitation of Watson Lake, a high hazard dam, currently under-designed for 2022 Dam Safety criteria, and in disrepair.

City of Sanford WTP Expansion Regional Cost Sharing Analysis | Sanford, NC

Mr. Devine served as Financial Analysis. Developed a custom-built dashboard-based cost sharing model to determine an equitable method of funding the expansion of the Sanford WTP to best allocate capital costs between five potential project partners. The model facilitated the evaluation of different cost allocation methods for both capital and operations and management expenses. The model was used to inform the regional planning efforts of five utilities who did not have an existing regional partnership. The cost model was used in the development of a multi-utility inter-local agreement that established the governance structure for the new regional water utility.

City of Greenville WTP Expansion Project Funding Analysis | Greenville, NC

Mr. Devine served as Task Lead. Assisted GUC in analysis of available below market rate funding opportunities for their WTP expansion project and led the development and submittal of applications for identified financing alternatives. Project was approved for over $65 million of low interest funding through a combination of both NC State Revolving Fund loans and EPA WIFIA financing. Enabled the entire project to be funded at a lower interest rate than if funded by traditional sources such as revenue bonds, saving GUC millions of dollars on annual debt service payments over the lifetime of the loans. Was the first project in NC to be selected for both SRF and WIFIA financing.

City of Stockton Stormwater Master Plan | Stockton, CA

Mr. Devine served as Technical Advisor. Mr. Devine is developed an analytical tool to support the City's financial analysis to support the City's Stormwater Master Plan. He is using estimates being prepared for the Stormwater CIP to assist the City in optimizing their projected capital expenditures over the planning horizon of the Master Plan. This entails developing annualized costs, prioritizing projects, assessing potential affordability issues, and assisting the City in preparing a financing strategy that will include leveraging State and Federal grant and loan programs to the maximum extent possible.

South Central Wastewater Authority (SCWWA) Nutrient Reduction Improvements Financing Assistance | Petersburg, VA

SCWWA is preparing to respond to regulatory mandates associated with Virginia's third phase Watershed Improvement Plan (WIP) to meet the Chesapeake Bay TMDL. Specifically, improvements to the SCWWA WWTP are necessary to reduce nitrogen discharges in accordance with the TMDL. The SCWWA facility is the sole remaining significant discharger in the Lower James River Basin, which is part of the Chesapeake Bay watershed, to upgrade to enhanced nutrient removal (ENR). In order to improve nitrogen and phosphorus removal at the South Central WWTP, a Preliminary Engineering Report (PER) was prepared along with a Value Engineering (VE) report to supplement an application to the Commonwealth's Water Quality Improvement Fund. Mr. Devine prepared an analysis impacts to consumer monthly sewer charges under a variety of funding scenarios to support this application, which resulted in SCWWA securing in excess of $70 million in funding, the highest value award in the Fund's history.

1021-646

Jean Paul Silva, PE

Structural

Mr. Silva has expertise in structural design and construction administration for water and wastewater treatment plants, stormwater collection systems, water distribution, and water storage. His background encompasses new facility design, structural condition assessments, rehabilitation, upgrade of existing facilities, and construction administration with a focus on structural and special inspections.

Education

MS, Civil/Structural Engineering, University of New York, 2000

BS, Civil Engineering, Universidad del Valle Republic of Columbia, 1996

Certification/License

Professional Engineer: FL

Areas of Expertise

- Structural Analysis and Design
- Steel Design and Detailing
- Concrete Design
- Shop Drawing Review
- CAD Drafting
- Specialty Inspection
- Condition Assessment

Experience

- 28 total years
- 21 years with Hazen

Professional Activities

American Society of Civil Engineers

American Concrete Institute

American Institute of Steel Construction

American Water Works Association

City of Riviera Beach Rehabilitation and Replacement of Lift Stations Number 10 and 50 | Riviera Beach, FL

Engineer responsible for the structural and architectural design of a new inline wastewater booster pump station and the rehabilitation of a wastewater lift station. The new inline wastewater booster pump station will include an electrical/office building with an open area for pumps and a precast concrete security fence. The rehabilitation of the wastewater lift station will include concrete restoration of the wet well and design of proposed miscellaneous structures on piles to avoid load transfer to an adjacent sea wall.

Town of Jupiter 17-mgd Nanofiltration Plant | Jupiter, FL

Mr. Silva played a major role in the structural design and coordination of architectural components of the $38 million Nanofiltration Plant. Design consisted of a two-level reinforced concrete/masonry building to house cartridge filters and membrane feed systems, nanofiltration skids, chemical storage, degasifiers and odor control systems, clearwell and transfer pumps.

City of Arcadia Ion Exchange WTP | Arcadia, FL

Mr. Silva served as Structural Engineer for this 1.5-mgd Ion Exchange water treatment plant. The project included treatment process selection followed by pilot testing, a new production well, new cation and anion treatment process, disinfection and pH adjustment, a new operations center, a new warehouse, and an assortment of improvements to the City's water infrastructure.

St. Lucie County Platts Creek Alum Facilities | St. Lucie County, FL

Mr. Silva worked on the design of the Platts Creek Alum Facilities, and the design of Lakewood Park Stormwater System Improvements and Canal "D" drainage improvements.

City of Melbourne Booster Pump Station | Melbourne, FL

Mr. Silva served as Structural Engineer for this remote booster pump station to receive and repump potable water to the barrier islands. The facility included a new ground storage tank and pump station as well as a new electrical control building.

City of Fort Lauderdale Dixie Wellfield Improvements | Fort Lauderdale, FL

Mr. Silva provided Structural Design. The City of Fort Lauderdale replaced their existing lime softening facilities at the Peele-Dixie WTP with a 12 mgd finished water capacity nanofiltration water treatment plant. The City retained the services of Hazen and Sawyer to evaluate, permit, and design wellfield improvements for the Dixie Wellfield.

City of Plantation Regional Wastewater Treatment Plant Diffused Aeration | Plantation, FL

Project included upgrade to the 20-mgd RWWTP for conversion of existing aeration basins from mechanical surface aeration to fine bubble diffused aeration, related air piping and blower installation, construction of a new laboratory/office building, new site lift station, and SCADA system upgrades. Mr. Silva was responsible for Structural Design and provided specialty inspections.

City of Miramar Wastewater Reclamation Facility Expansion to 4 MGD | Miramar, FL

Mr. Silva provided structural engineering services through design and construction for the first Miramar Wastewater Reclamation Facility Reuse Expansion project. The reuse facilities were expanded from 2 mgd to 4 mgd. New facilities included two filter feed pumps, sand filters, expansion to the existing sodium hypochlorite system, an emergency generator, a ground storage tank, and high service pumps.

Miami-Dade Water and Sewer Department South District Wastewater Treatment Plant High Level Disinfection (SDWWTP HLD) Project | Cutler Bay, FL

Mr. Silva participated in the design and construction of the 285-mgd, $618 million SDWWTP HLD project. He was part of the structural design team for several of the 14 bid packages and also assisted during the construction phase with shop drawing review, response to contractor's request for information and site inspections.

Sarasota County South Gate Master Pump Station Improvements | Sarasota County, FL

Structural Engineer for the first phase of this project, which consisted of alternative assessment, hydraulic review, PDR development, and design of interim improvements at the existing master pump station. Hazen modified and reviewed the Bee Ridge and Central County Water Reclamation Facility hydraulic models, with updated flows and assessment of hydraulic impact of potential improvements. Hazen reviewed line size improvements, pump station improvements, and potential flow diversions to help the system accommodate future flows. After the completion of the PDR, Hazen prepared a detailed design for the recommended interim SGMPS improvements, which included new 250-hp submersible pumps, wetwell modifications, yard piping improvements, and electrical and controls improvements. The County elected to install the new pumps under a separate contract. This project was imperative to the County due to a future increase in influent flows from Siesta Key pump station and potential issues at the SGMPS.

Evan Curtis, PE

Instrumentation and Controls

Mr. Curtis is a water and wastewater treatment instrumentation and controls (I&C) design expert, serving as Hazen's Corporate I&C Discipline Group Leader. In this capacity, he develops shared technical standards and resources. On project assignments, Mr. Curtis takes on roles such as lead I&C engineer, technical advisor, or project manager, particularly for projects with a significant I&C focus.

Education

BS, Civil Engineering, Carnegie Mellon University, 1994

Certification/License

Professional Engineer: FL, NY

Areas of Expertise

- Project Management
- Instrumentation and Controls Design
- Radio Communication Studies
- SCADA System Design
- Construction Phase Services
- PLC and HMI Programming
- Design/Build Services

Experience

- 29 total years
- 22 years with Hazen

Professional Activities

Instrumentation, Systems and Automation Society

American Water Works Association

Florida Section AWWA, Past Chair of Automation Committee

Broward County Water and Wastewater Services General Wastewater and Water Engineering Services | Broward County, FL

Mr. Curtis served as I&C Engineer. Hazen has provided general professional consulting services to Broward County Water and Wastewater Services under the 2002 and 2008 General Consulting agreements in the following areas: water and wastewater treatment plants, water collection and wastewater distribution, hydraulic modeling, pumping stations, water wells and effluent disposal wells, water reclamation, ocean science and marine engineering, financial studies and regulatory assistance. Hazen completed over 100 projects under the two agreements.

Loxahatchee River District General Consulting Services | Jupiter, FL

Mr. Curtis served as I&C Engineer. Hazen has assisted the Loxahatchee River District with both planning and plant improvement projects from 1980 until today. Various project efforts have included Collection System Master Plan, Treatment Plant Upgrades, Effluent Disposal Options, Irrigation Reuse Master Plan, Sludge Management Master Plan and Stormwater Management Plan.

City of Riviera Beach Water and Wastewater Master Plan | Riviera Beach, FL

Mr. Curtis served as I&C Engineer responsible for evaluating existing instrumentation and control systems and recommending capital improvements at the City's water treatment plant and remote pumping stations. The project included interviewing plant operations and maintenance staff and inspecting instrumentation and control systems. Developed capital improvement cost estimates and implementation schedules.

City of Hallandale Beach Membrane Softening Plant | Hallandale Beach, FL

Mr. Curtis served as I&C Engineer responsible for inspection services during startup and first year operational assistance. The project included a 6-mgd membrane softening facility, pre-treatment facilities, related chemical storage and feed facilities, air strippers/clearwell, concentrate booster pump station, and integration of the existing lime softening water treatment plant control system.

ECRWRF Aeration Basin 5 and Blower Building Upgrades | West Palm Beach, FL

Mr. Curtis served as I&C Engineer responsible for design of improvements to Aeration Basin 5 and Blower Buildings at the 70-mgd East Central Regional Water Reclamation Facility. The design included instrumentation and controls related to the addition of fine bubble diffusers, process air piping and valves, anaerobic zone and swing zone vertical mixers, automatic dissolved oxygen (DO) control, and automatic ammonia based control to optimize DO set points. The project also included the design of new/rehabilitated blowers and integration into the existing plant control system.

Broward County Water and Wastewater Services North Regional Wastewater Treatment Plant SCADA System Replacement | Broward County, FL

Mr. Curtis served as Project Manager and I&C engineer responsible for design, bidding, and construction phase services for the replacement of a distributed control system operating a 95 MGD wastewater treatment plant. The design includes the replacement of all distributed controllers and workstations with programmable logic controllers, computer systems, human-machine interface (HMI) software, network equipment, and integration of the existing radio telemetry system. The HMI software design features modern concepts to maximize the operator's situational awareness such as providing high level dashboard style overview displays in accordance with ISA-101.

City of Marco Island Water System | Marco Island, FL

Mr. Curtis served as the I&C engineer responsible for analysis of I&C and information systems within the City's water supply, treatment, and distribution infrastructure to assess potential vulnerabilities in accordance with the Bioterrorism Response Act.

Palm Beach County Indirect Water Reuse Pilot Plant | Palm Beach County, FL

Mr. Curtis served as I&C Engineer responsible for programming and installing a SCADA system for a wastewater treatment pilot plant. Inspected and maintained field instruments, programmed Modicon PLC ladder logic, and programmed Intellution HMI graphical operator interface for remote monitoring via spread-spectrum radio communications.

City of Cooper City Pine Island Road Pump Station | Cooper City, FL

Mr. Curtis served as I&C engineer responsible for design and construction phase services for a new 4 MGD water distribution re-pump station. The design includes three variable speed pumps with fully automatic pressure and flow controls, a hydraulically actuated back pressure sustaining valve to fill the water storage tank with remotely adjustable pressure setpoint, an emergency power generator, digital security cameras and a high-speed communication link to the water treatment plant for monitoring and control. The control strategy included features to help improve water quality by promoting daily turnover of the storage tank water.

City of Riviera Beach Lift Stations 10 and 50 Rehabilitation | Riviera Beach, FL

Mr. Curtis served as I&C Engineer. Hazen provided professional consulting services to City of Riviera Beach for the design and construction management of improvements to an existing wastewater lift station and a new inline wastewater booster pump station. The control system features PLC based automated controls for the variable speed booster pumps, discharge throttling valves, human-machine interface software, local area network, and radio telemetry to existing Data Flow Systems base station.

Alfredo Jimenez

Instrumentation and Controls

Mr. Jimenez is an instrumentation and controls engineer with more than 10 years of experience providing automation and control services for water and wastewater treatment facilities and the private sector. He has extensive knowledge of I&C procedures and has expertise in PLC programming, SCADA systems and shop drawing reviews.

Education

BS, Electrical Engineering, Florida International University, 2016

Certification/License

Professional Engineer: FL

Areas of Expertise

- Instrumentation and Controls
- PLC and HMI Programing
- Project Management
- SCADA System Design
- Control Panel Design
- Telemetry
- Networks

Experience

- 13 total years
- 1 year with Hazen

Professional Activities

International Society of Automation (ISA)

Underwriting Laboratories (UL)

City of Deerfield Beach West Water Treatment Plant Chemical Line Replacement | Deerfield Beach, FL

Mr. Jimenez serves as I&C Engineer for this project that includes design of a new chemical system. The design includes a modern control strategy for the chemical system, modifications to the existing network as well as SCADA system improvements. Mr. Jimenez was responsible for designing all P&IDs processes, controls descriptions, and specifications.

City of Coral Springs Water Treatment Supply Wells Rehabilitation | Coral Springs, FL

As I&C Engineer, Mr. Jimenez provided integration of the newly rehabilitated supply wells with the existing SCADA system. This project required a multi-protocol converter to send data via Modbus RTU through the existing telemetry infrastructure, and HMI graphics modifications to incorporate historical data, reports, and security features. Another key feature of the project included configuration and integration of the pump's VFD over the network.

Town of Manalapan Water Treatment Plant | Manalapan, FL

Mr. Jimenez served as the Project Engineer for implementing plant-wide upgrades involving Booster Station Telemetry and Instrumentation integration. PLC Control Strategy, local HMI, and Scada Design. The scope of the project included redesign of the telemetry system to optimize communications with remote sites. The project also involved integrating remote sites with the existing SCADA System, as well as upgrading the booster station controls and local HMI.

City of Hallandale Beach High-Service Pump Station Replacement | Hallandale Beach, FL
This project required the implementation of a modern control strategy for the pump station. The project also involved the design of a new PLC control panel with a state-of-the-art monitoring system; integration of third-party equipment (pressure transmitters, pressure switches, flow meters, VFDs and analytical instrumentation) with the existing SCADA system; development of new graphics for the pump station local HMI; deployment of modified and new graphics to the existing SCADA system; and modification of the existing PLC logic to provide a comprehensive control strategy.

City of Miramar WWRF Reuse Expansion Phase I | | Miramar, FL
Mr. Jimenez served as Lead Instrumentation and Controls Engineer for the implementation of the hypochlorite feed system. The improvements featured a feed- forward flow paced sodium hypochlorite control with residual feedback trim. The project required integration of the newly-added instrumentation (pressure transmitters, turbidity analyzers, and valve actuators) as well as modification of the existing SCADA and historian servers, drivers, and remote workstations.

Atlantic Sapphire Salmon Farm Phase I | Homestead, FL
Mr. Jimenez serves as Lead Instrumentation and Controls Engineer responsible for implementing control strategies for supply and injection wells, cooling water wells, saltwater filtration system, as well as odor control and chemical dosing. Main areas of expertise featured DLR network configuration, which means to detect, manage, and recover from single faults in a ring-based network. The project also includes VFD communication table configurations to provide pump controls over EtherNet/IP™ protocol; network-based instrumentation and controls system including flow meters, ultrasonic level transmitters, salinity analyzers, valve actuators, and pressure transmitters; and custom server configuration with remote access capabilities and HMI screens for all process areas including network diagnostics.

John Burke, PE

Electrical

Mr. Burke brings over 57 years of experience in the planning, design and project management of power, control and instrumentation systems associated with electrical distribution, transmission and substation facilities; water and wastewater treatment plants; airport, roadway and recreational lighting; and industrial and institutional facilities.

Education

BS, Electrical Engineering, University of Florida, 1966

Certification/License

Professional Engineer: FL

Areas of Expertise

- Power, Control and Instrumentation Systems
- Design and Construction Management
- Water and Wastewater Treatment Plants

Experience

- 57 total years
- 19 years with Hazen

Professional Activities

National Society of Professional Engineers

Florida Engineering Society

Institute of Electrical and Electronic Engineers

City of Boca Raton Water and Wastewater Facility On-Site Sodium Hypochlorite Generation System Rehabilitation | Boca Raton, FL

Mr. Burke served as Electrical Engineer-of-Record for the City of Boca Raton on a $10-million water and wastewater facility on-site sodium hypochlorite generation system rehabilitation project. Electrical design included power, controls, and instrumentation wiring for the new on-site generation system.

City of Miramar Wastewater Reclamation Facility | Miramar, FL

Mr. Burke served as Lead Electrical Engineer for the conceptual planning and development of a Design Criteria Package for expansion of the City of Miramar's Wastewater Reclamation Facility from 8.4 mgd to 10.5 mgd. The Design Criteria Package was used by the City during the selection process of a design/build contractor. New facilities include an aeration basin, modifications to existing aeration basins, a clarifier, additional blower capacity, an injection well pump, and a new PLC network.

Florida Keys Electric Cooperative Association 20-Year Long Range Plan | Tavernier, FL

Mr. Burke prepared a long-range system plan for an electric cooperative in Florida. The plan included generation, transmission and distribution analysis, cost estimates, evaluation of alternatives, and preparation of the final plan. The plan was accepted for implementation.

City of St. Augustine 13 Lift Stations Rehabilitation, Repair, and Replacement Project | St. Augustine, FL

Mr. Burke served as the Electrical Engineer-of-Record. This project, administered via CMAR and partially funded by FEMA, involved rehabilitation or replacement of 13 lift stations, which were damaged during Hurricane Matthew. Lift station capacities range between 100 to 900 gallons per minute and are located in areas subject to storm surge and

sea level rise. The force main included 4,000 lf of 8-inch force main installed via horizontal directional drilling, which involved challenging alignments due to right-of-way curvature and width along with non-ideal geotechnical conditions.

City of Cooper City Pine Island Road Pump Station and Storage Tank | Cooper City, FL

Mr. Burke served as Electrical Engineer-of-Record for design and permitting. This $1.8 million project included design of a new pumping station to convey water from an existing 2-mg water storage tank into the City's transmission system at a pressure of 60 PSI. The pump station design included three horizontal split case pumps equipped with variable frequency drives. Pump 1 was a lower flow (700 gpm at 152 feet TDH) "jockey" pump. Pumps 2 and 3 were higher flow pumps (1,400 gpm at 160 feet TDH). Electrical design included new primary power, variable frequency drives, and a diesel engine emergency generator.

South Florida Water Management District SCADA Stilling Well Walkway Replacement – Steel Piles | South Florida, FL

Mr. Burke served as the Electrical Engineer on this project to design a template for a walkway and platform which support SCADA stilling well equipment and personnel. In addition, Hazen conducted study, meetings and design to determine the best alternative for the District and an economical template to be applied to sites throughout the SFWMD service area.

JEA General Consulting Miscellaneous Electrical Projects | Jacksonville, FL

Under this contract, Mr. Burke serves as Project Manager/Electrical Engineer-of-Record for the Arlington East WRF Site Lighting Upgrade and Reliability Improvements projects at the Arlington East WRF and the Southwest WRF. Projects include preliminary design, final design, and bid/construction-phase services. Mr. Burke also served as Project Manager for the Pump Station Electrical Condition Assessment project, where three critical JEA wastewater pump stations were evaluated to provide recommendations for each of the various electrical and control components within each pump station.

Palm Beach County Water Utilities Department Southern Region Water Reclamation Facility, Phase I | Palm Beach County, FL

As Electrical Project Manager, Mr. Burke provided complete electrical, control and instrumentation interface design and construction services for a new 12-mgd water reclamation facility (facility is now a 35-mgd facility). A 4,000 amp, 4,160-V electrical service was installed to handle both the initial plan and a proposed expansion to 48 mgd. Six, 1,200 amp, 4,160 V feeders, including two primary feeder loops, distribute power throughout the site. Three, 1,360 kW generators provided emergency power and incorporated peak shaving controls to take advantage of utility rate savings.

Miami-Dade Water and Sewer Department North District Wastewater Treatment Plant Electrical Distribution Building No. 3 (NDWWTP EDB 3) Design | Miami, FL

Mr. Burke serves as Lead Electrical Engineer for design of the NDWWTP's Electrical Distribution Building No. 3. This new facility will replace the existing Electrical Building No. 1 and will provide additional resilience to the NDWWTP. EDB 3 will be a two-story facility with nine 2,500-kW CAT Tier 4 generators. Additionally, a state-of-the-art emergency operations center is proposed to provide a safe, centralized location for plant staff to operate the NDWWTP during emergency conditions.

City of Hallandale Beach High Service Pump Replacement | Hallandale Beach, FL

Mr. Burke served as the Electrical Engineer-of-Record. Hazen located the proposed pump station electrical equipment in an unutilized FPL room, which will significantly reduce the complexity of the construction sequencing resulting in a $200,000 cost-savings.

Jose Cano, PE

Electrical

Mr. Cano specializes in designing power distribution systems for water and wastewater treatment facilities. His expertise extends to evaluating existing electrical systems, along with skills in lighting design, fire alarm systems, building automation systems, and grounding/ lightning protection.

Education

BS, Electrical Engineering, Florida International University, 2017

Certification/License

Professional Engineer: FL

Areas of Expertise

- Low and medium voltage power distribution systems
- Power system analysis
- Electrical construction administration
- Existing electrical equipment data collection

Experience

- 6 total years
- 1 year with Hazen

Professional Activities

American Water Works Association

Florida Water Environment Association

Cuban American Association of Civil Engineers

Miami-Dade Water and Sewer Department North District Wastewater Treatment Plant Electrical Distribution Building No. 3 Design | Miami-Dade County, FL

Mr. Cano is responsible for design of the new Electrical Distribution Building No. 3, which will replace the existing Electrical Distribution Building No. 1 at the wastewater treatment plant. Design includes new medium and low voltage arc resistant switchgears with main-tie-tie-main configurations, nine medium voltage generators, medium voltage transformers and low voltage motor control centers, and other low voltage distribution equipment.

South Florida Water Management District S-8 Upgrades | West Palm Beach, FL

Mr. Cano is responsible for the design of all electrical improvement at the existing pump station. Upgrades include the replacement of two existing generators and associated power distribution equipment, power and controls for a new fuel farm facility and new lift station, new layout of site and security lighting, and addition of lightning protection system to the building and other outdoor facilities. Cost: $1,460,000 (est. fee). Specific Role: Electrical Engineer. The project is ongoing.

City of Sunrise Springtree Water Treatment Plant Electrical Improvements | Sunrise, FL

Mr. Cano was responsible for the construction phase services associated with the project. This includes reviewing electrical-related shop drawings and requests for information, construction inspections, progress review meetings, and change management. The project consists of replacement of the plant's 5kV electrical distribution system and replacement/modifications to the paralleling generator equipment.

City of Sunrise Sawgrass Wastewater Treatment Plant - DAF Thickening Process Improvements Design and Bidding Services | Sunrise, FL

Mr. Cano is responsible for design of all electrical improvements at the City's WWTP's existing dissolved air flotation (DAF) thickening building. Improvements include new VFDs for existing pumps, control panels for DAF system, and lighting system for the building.

Atlantic Sapphire Salmon Farm Project, New Wastewater Treatment Plant | Homestead, FL

The project includes design of the new WWTP at Atlantic Sapphire's fish farm. Design includes low voltage distribution equipment to supply power to other facilities in the site with provisions for a portable generator.

East Central Regional Water Reclamation Facility Headworks Bypass and AB5 | West Palm Beach, FL

Mr. Cano served as the Electrical Engineer. Mr. Cano was responsible for review of electrical related shop drawings and RFIs. The project is currently under construction.

City of Oakland Park Stormwater Pump Station | Oakland Park, FL

Mr. Cano served as the electrical Engineer. Mr. Cano was responsible for the electrical design of a new Stormwater Pump Station for the City of Oakland Park.

City of Plantation Regional Wastewater Treatment Plant Electrical Switchboard Upgrades | Plantation, FL

Mr. Cano served as the Electrical QA/QC Reviewer. Mr. Cano was responsible for QA/QC of the electrical plans. Scope of the work included the replacement of the existing main switchboard with a new while maintaining the existing plant under operation.

City of Boca Raton Water Treatment Plant Building 11 Upgrades | Boca Raton, FL

Mr. Cano served as the Electrical QA/QC Reviewer. Mr. Cano was responsible for QA/QC of the electrical plans. Scope of work included the replacement of all mechanical equipment and their associated electrical components, and the relocation of loads to different power sources.

Ryan Nagel, PE, PMP, ENV SP

Sewer Rehabilitation

With 29 years of consulting expertise, Mr. Nagel excels in developing and implementing asset management programs, strategic plans, and performance improvement initiatives. His proven track record includes digital strategy, executive dashboard implementation, workforce development, and financial services for major municipal utilities.

Education

MS, Environmental Engineering, North Dakota State University, 1998

MBA, Finance, University of Kansas, 2002

BS, Civil Engineering, North Dakota State University, 1996

Certification/License

Professional Engineer: KS, MD, NY, VA, DC

Areas of Expertise

- Asset Management
- Utility / Organizational Optimization
- Strategic Business Planning
- Financial Services

Experience

- 29 total years
- 8 years with Hazen

Professional Activities

American Water Works Association

Society of Professional Engineers

Virginia Water Environment Association

Water Environment Federation

City of Fort Lauderdale Strategic Watershed Asset Management Program Development | Fort Lauderdale, FL

Mr. Nagel served as Technical Lead to develop the City's first Strategic watershed asset management plan with a defined implementation roadmap for the future. Led the performance of an official endorsed assessment of its current related program activities against sound industry standard practice, as defined by the Institute of Asset Management. First, a series of structured interviews of Public Works staff was conducted, along with a review of existing documentation to assess the Public Works existing approach, policies, procedures, and methodologies to asset management and identify gaps based upon the IAM Anatomy framework. The results of the IAM Anatomy Endorsed Maturity Assessment identified a total of 59 potential improvement opportunities across the six IAM subject groups and established the framework upon which the City's first Strategic WAMP was subsequently developed. Following the Maturity Assessment findings, presented the corresponding recommendations and implementation roadmap to delineate the activities, processes, and documentation needed for Public Works to close the gaps identified and to implement a strategic asset management plan over the next three fiscal years.

City of Fort Lauderdale Sewer Design and Implementation Program | Fort Lauderdale, FL

Mr. Nagel serves as Technical Advisor for this $150-million, sewer design and implementation program. The purpose of the program is to provide documentation, planning, design and construction engineering and inspection (CEI) services to assist the City with compliance to a Consent Order from the State of Florida. The specific scope of work includes: mapping the entire sanitary sewer system, including 137 miles of force main, 500 miles of gravity sewer, and over 150 pump stations; preparing an updated geodatabase and integrating with electronic field inspection

tools and web-based mapping applications; condition assessment of all sewer systems assets, including gravity system and force mains; capacity assessment of the sewer system via an updated system-wide hydraulic model and detailed collection system models in high growth and known capacity limited basins; CMOM and Asset Management Program development; integration of the CityWorks Enterprise Asset Management System; design and construction management of 70,000 linear feet of force main; and managing submittals for 51 consent order deadlines and milestones.

Gwinnett County Department of Water Resources (GCDWR) Strategic Asset Management Plan (SAMP) Development Assistance | Gwinnett County, GA

Mr. Nagel served as Project Manager. He was engaged by the GCDWR to facilitate the development of a SAMP and subsequent Tactical Asset Management Plan (TAMP) framework, and to establish policies, processes, and procedures to allow GCDWR to sustain the SAMP and TAMPs as a part of normal course of business long-term.

Renewable Water Resources (ReWa) Capital Project Management Tool | Greensville, SC

Mr. Nagel served as Project Director. He was responsible for the development and provision of a Project Management (PM) solution that allows the tracking of capital project progress and effectiveness, project schedule, and budget adherence - and makes projections on staffing and construction inspection needs. Specific tasks included assessing existing digital strategy associated with its capital program management processes, conducting a data needs assessment and commercial off-the-shelf project management application review, developing improved business process workflows to enhance PM and CIP execution effectiveness, developing an enhance PM and CIP Tracking application and associated design documentation, and providing system administrator and user training to staff on the effective use of the PM and CIP Management application.

City of Virginia Beach Computerized Maintenance Management System (CMMS) Work Management Process Review | Virginia Beach, VA

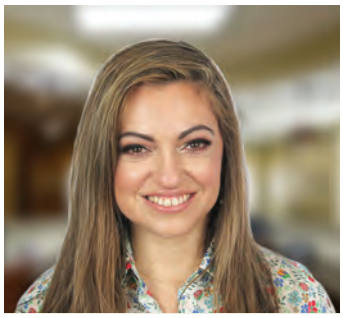
Project Manager. Responsible for reviewing Public Works' CMMS work management processes as they relate to storm water, traffic, streets and highways to ensure data integrity, optimize work management processes and service request/work order workflows, and identify necessary training needs associated with more efficient and effective work order management.

WSSC Water Asset Management Program Development and Implementation Support | Laurel, MD

Mr. Nagel served as Program Manager. He was responsible for providing comprehensive asset management services on a multifaceted program, including asset registry data collection, asset condition assessment, risk determination (consequence of failure), level of service (includes assignment to asset level, where applicable), operations & maintenance analysis, asset management modeling, asset management plan report preparation, asset management training (content and on-line modules), economic analysis, optimization analyses, asset management network and enterprise analysis, business logic development and configuration of WSSC's asset management decision support system (RIVA DSS), along with related uncertainty analyses.

Newport News Waterworks Professional Engineering and Water Utility Management Services | Newport News, VA

Mr. Nagel served as Technical Lead and Project Director. He assisted with the development and implementation of an integrated, multi-phased utility and asset management program, enabling cohesive maintenance and management of infrastructure assets and resources, meeting customer service goals, and ensuring regulatory compliance.



Marta Alonso, PE, ENV SP

Permitting

Ms. Alonso specializes in planning, funding, permitting, design, and construction of water and wastewater infrastructure projects. Her experience extends to environmental compliance, management, and restoration of large-scale infrastructure projects.

Education

MSE, Environmental Engineering, John Hopkins University, 2003

BS, Civil Engineering, John Hopkins University, 2002

Certification/License

Professional Engineer: FL, MD

Areas of Expertise

- Environmental Compliance/ Permitting
- Environmental Management
- Project Funding/Planning
- Project Management
- Program Management
- Conveyance
- International Water and Sanitation
- Stormwater Management

Experience

- 20 total years
- 16 years with Hazen

Professional Activities

American Society of Civil Engineers

Water for People

American Water Works Association

Water Environment Federation

City of Miami Beach Public Works Department – In-House Consulting Services | Miami Beach, FL

Ms. Alonso served as in-house consultant at the City of Miami Beach Public Works Department (City), providing environmental support services to help achieve and maintain regulatory compliance on City projects. To ensure regulatory compliance on future City projects, Ms. Alonso was part of a team that developed a permit control tool that City project managers can utilize to identify potential permits required on their projects, as well as to obtain permit application guidance, and to track the project's regulatory compliance status. She was also involved in coordination with the Miami-Dade Regulatory and Economic Resources Department, providing environmental support services to achieve compliance on the City's Class II stormwater permits. Ms. Alonso monitored and provided guidance on environmental permitting, particularly for key City projects such as the Indian Creek flood mitigation project. Ms. Alonso also prepared permitting and regulatory compliance progress updates for the Public Works Department and updated the City's permit tracking database.

Seminole Tribe of Florida Water and Wastewater Treatment Plant Injection Well Design/Permitting | Hollywood/Brighton, FL

Ms. Alonso prepared Conceptual Design Reports and preliminary cost estimates for the injection well disposal systems of the Brighton Reservation Water Treatment Plant and the Hollywood Reservation Water and Wastewater Treatment Plants, and prepared subsequent construction and operation permit applications for the Environmental Protection Agency.

Miami-Dade Water and Sewer Department Ocean Outfall Legislation Program |
Miami Dade County, FL

Ms. Alonso served as Regulatory Compliance Senior Technical Consultant/ Permitting Lead on the Miami-Dade Water and Sewer Department's $2.2 billion program (11-year program), which includes upgrades to the County's three existing wastewater treatment plants, including the addition

of injection wells for effluent disposal. The scope of work consists of delivery of a comprehensive, technically sound, long-term program that encompasses planning, design, procurement, construction, and commissioning of over 20 capital projects. Ms. Alonso's responsibilities on the program include: environmental support services to support and maintain regulatory compliance of 24 projects (in planning, design and construction), environmental permitting, identifying and tracking the permitting requirements on the program, identifying environmental impact minimization measures on each project, identifying measures to accelerate the regulatory agency approval process, presenting the program components to local regulatory agencies, supervising air quality permitting, reviewing environmental/biological assessments and reports, identifying project environmental considerations including protected environmental resources and contamination sites, progress reporting, and the evaluation of program planning alternatives utilizing the Envision sustainability framework. Ms. Alonso also assisted with applying for and obtaining over $2B in WIFIA funding.

Miami-Dade Water and Sewer Department Government Cut Utility Relocation Projects | Miami-Dade County, FL

Ms. Alonso served as Permitting Engineer/Project Engineer on the design-build team of the Government Cut Utility Relocation Projects. The projects consisted of a 54-inch force main replacement via micro-tunneling, and a 24-inch water main replacement via horizontal directional drilling. The projects were being completed in preparation for the opening of the newly expanded Panama Canal, which required deepening the access channels to the Port of Miami. Ms. Alonso's responsibilities included permitting, preparation and compilation of the design work packages issued for construction, coral relocation and post-construction monitoring, and environmental compliance. Ms. Alonso assisted in the preparation of the environmental compliance plan, which out-lines measures for the protection of water quality, air quality, benthic resources, endangered species, and historic and archaeological resources. Ms. Alonso also worked on an evaluation of alternatives for the second phase of the project, in which a second micro-tunnel was selected.

City of Cooper City Pine Island Road Pump Station | Cooper City, FL

Ms. Alonso served as Project Engineer for permitting and design of the new 6-mgd pump station, which included a new pump station building, a diesel generator and enclosure, influent and effluent metering vaults, a transformer, and other appurtenances. The pump station was designed to convey water from an existing 2-million-gallon water storage tank. The pump station design included three horizontal split case pumps equipped with variable speed drives. Additionally, the project included design of backup power generation system along with extensive landscaping to meet the City's land development code.

Broward County Water and Wastewater Services North Regional Wastewater Treatment Plant Ocean Outfall Rehabilitation Permitting/ Mitigation | Broward County, FL

Ms. Alonso served as Project Engineer on various projects at the Broward County North Regional Wastewater Treatment Plant (WWTP), in Pompano Beach, Florida. Projects included the design and permitting of the plant's ocean outfall cover rehabilitation, which included the preparation of a coral relocation and post-construction monitoring plan.

3 Past Experience

3 Past Experience

Hazen is a nationally and internationally recognized environmental engineering consulting firm that has **provided complete in-house engineering services focused on all things water in Florida since 1968.** Hazen is ready to assist the Town of Highland Beach with projects released under this RFQ for Continuing Professional Engineering Services.

The Hazen team provides a proven track record of delivering successful projects of similar scope for many other municipalities throughout Florida and nationwide.

Hazen and Sawyer is pursuing the following services:

- **Civil Engineering**
- **Water/Wastewater/Stormwater**
- **Mechanical/Electrical/Plumbing**

Plus other services:

- **Construction Inspection Engineering**
- **Construction Supervision and Administration**

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The Hazen Team provides the full range of discipline services for this contract.

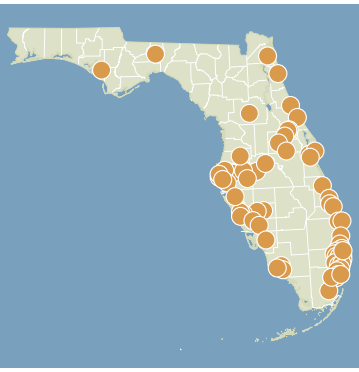
Hazen has served as general consultant for more than 60 utilities in Florida.

The following pages provide an overview of our wide range of services, with specific project examples. Many of these utilities have retained us for multiple continuing contracts and are long-standing, repeat clients. South Florida Engineering Services, Inc. provides specific skill sets that complement Hazen's own to provide the Town with a range of services requested in the RFQ.

1021-646

Hazen and Sawyer

General Consulting Experience



Hazen has served as general consultant for more than 60 utilities in Florida. Many have retained us for multiple continuing contracts and are long-standing, repeat assignments.

Our general consulting assignments include water, wastewater, and stormwater master planning experience. We are also providing planning, design, permitting, construction, start-up, and troubleshooting of membrane treatment plants along with the refurbishment and replacement of water and wastewater infrastructure.

Water Supply
Led the design and permitting of **more than 50 facilities in Florida with an installed capacity of over 1.5 billion gallons per day**

Hydraulic Modeling
Modeling expertience includes **2,000+ sewer lift stations and 4,000+ miles of water and force mains**

Water Treatment
Designed **1+ billion gallons per day of plant upgrades** over the last 15 years (cumulative capacity)

Water Distribution
Designed more than 3.2 million linear feet of water pipe larger than 6 inches

Pumping Systems
Designed new or upgraded **more than 150 pump stations throughout Florida**

Asset Management
Physically assessed **more than 10,000 assets and 20 treatment plants** throughout Florida

Resilience
Assisted many coastal communities with **planning for sea level rise and stormwater impacts**

Stormwater Management
Assisted many communities with master planning for stormwater impacts

Construction Management
Oversaw construction of **more than $2.5 billion in water infrastructure** over the past decade

Effluent Disposal
Designed and overseeing construction of **deep injection wells along the Gulf Coast.**

Instrumentation
Instrumentation & control system design and process optimization studies **on all projects since the firm's founding in 1951,** with expertise apparent in 60+ facilities.

Reclaimed Water
Worked on reclaimed water projects at **24 facilities in Florida** and involved in Florida's regulation process for direct and indirect potable reuse.

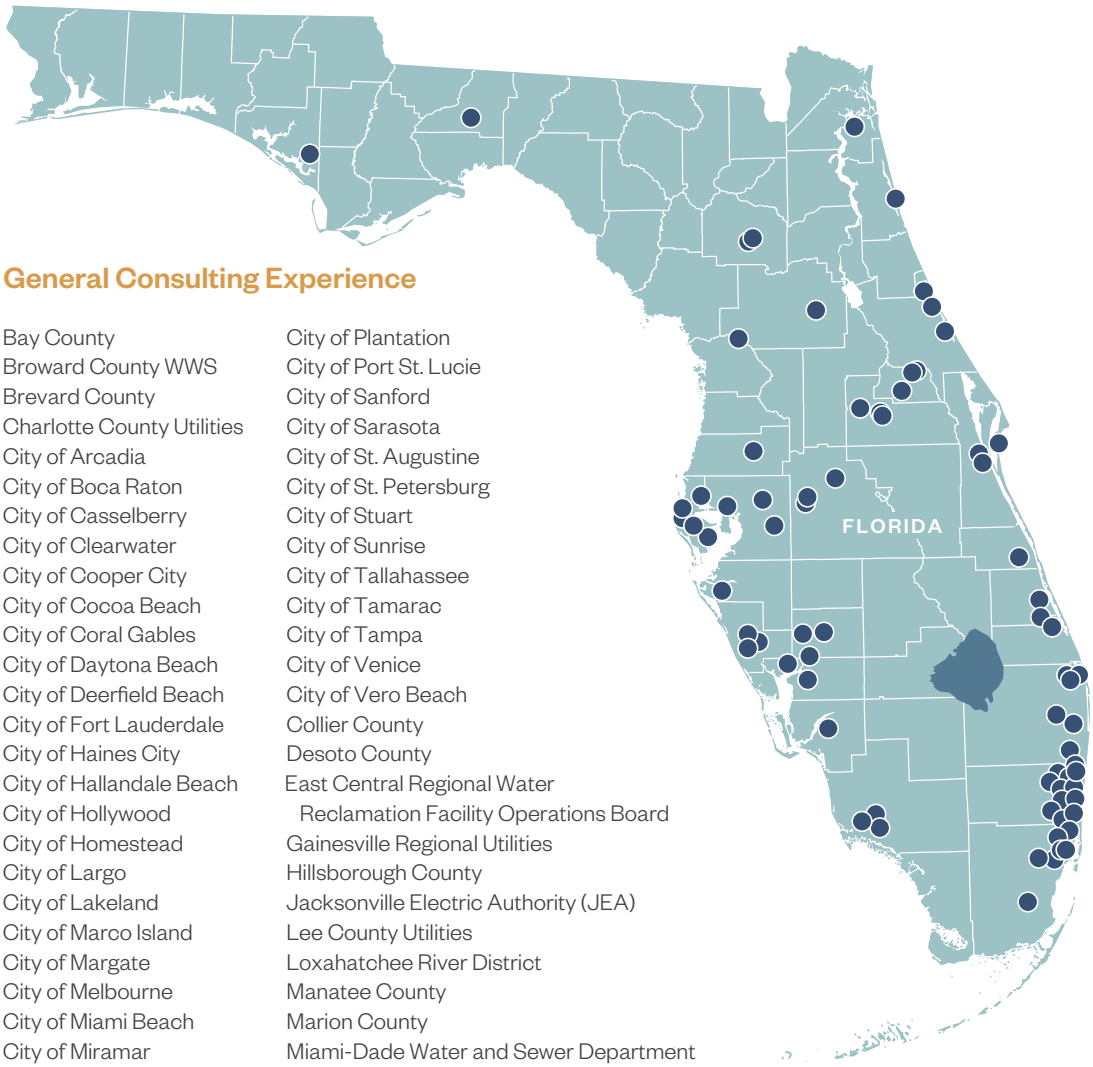
Wastewater Treatment
Designed **1+ billion gallons per day of plant upgrades in the last 10 years** (cumulative capacity)

Wastewater Collection
Provided I/I flow reduction and rehabilitation for **6,740+ miles of sewer**

1021-646

Similar General Consulting Experience

Hazen has provided complete in-house engineering services in Florida since 1968 and has extensive experience successfully completing projects similar in scope to this contract. We have provided general consulting services for more than 60 utilities throughout Florida, as demonstrated in the map below.



General Consulting Experience

Bay County
Broward County WWS
Brevard County
Charlotte County Utilities
City of Arcadia
City of Boca Raton
City of Casselberry
City of Clearwater
City of Cooper City
City of Cocoa Beach
City of Coral Gables
City of Daytona Beach
City of Deerfield Beach
City of Fort Lauderdale
City of Haines City
City of Hallandale Beach
City of Hollywood
City of Homestead
City of Largo
City of Lakeland
City of Marco Island
City of Margate
City of Melbourne
City of Miami Beach
City of Miramar
City of Naples
City of North Lauderdale
City of North Miami
City of North Miami Beach
City of North Port
City of Oakland Park
City of Ocoee
City of Orlando
City of Ormond Beach
City of Pembroke Pines
City of Plant City
City of Plantation
City of Port St. Lucie
City of Sanford
City of Sarasota
City of St. Augustine
City of St. Petersburg
City of Stuart
City of Sunrise
City of Tallahassee
City of Tamarac
City of Tampa
City of Venice
City of Vero Beach
Collier County
Desoto County
East Central Regional Water Reclamation Facility Operations Board
Gainesville Regional Utilities
Hillsborough County
Jacksonville Electric Authority (JEA)
Lee County Utilities
Loxahatchee River District
Manatee County
Marion County
Miami-Dade Water and Sewer Department
Miami-Dade Aviation Department
Orlando Utilities Commission (OUC)
Palm Beach County Water Utilities Department
Pasco County Utilities
Peace River
Pinellas County
Polk County Utilities
St. Lucie County
Sarasota County
Seminole County
Seminole Tribe of Florida
South Central Regional Wastewater Treatment and Disposal Board (SCRWTDB)
Tampa Bay Water
Town of Jupiter
University of Florida
Utilities Commission, City of New Smyrna Beach
Village of Wellington
Withlacoochee Regional Water Supply Authority

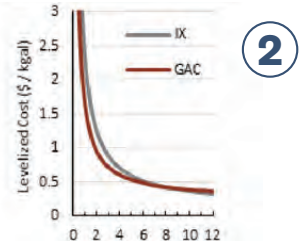
1021-646

Hazen and Sawyer

Water Treatment Plant Experience

Designed more than
1 BILLION
gallons per day
of plant upgrades
over the last
15 years

Since 1984, Hazen has provided general consultant services for water treatment plant projects to multiple South Florida clients. Our experience includes reverse osmosis, nanofiltration, and lime softening plants. We have designed more than 15 membrane plants in South Florida alone (new and improvements to existing membrane and lime softening facilities).



1. Fort Lauderdale Peele Dixie Membrane Plant

Design and construction oversight for a 12-mgd membrane softening facility, two 4-MG storage tanks, related chemical storage and feed facilities, air strippers/clear well, and high service and transfer pump stations.

2. PFAS Management Plan for MDWASD

Assisted MDWASD in proactively developing an understanding of PFAS occurrence patterns, wellfield management, and treatment options available for reducing levels of PFAS in the finished drinking water.

3. North Miami Winson Water Treatment Plant

Design and permitting of upgrades to aging facilities at the lime softening water treatment plant including pumping facilities, filters, storage tanks, raw water supply wells, etc. Design team included civil, process mechanical, HVAC, structural, architectural, electrical, controls, landscaping, and irrigation disciplines.

4. Town of Jupiter Nanofiltration Facility

Design, permitting, and pilot testing oversight services for a new 14.5-mgd Nanofiltration Facility (expandable to 17 mgd). Innovative center-feed design provides annual 30% savings in electrical costs.

5. Hallandale Beach Water Treatment Plant

Design, bidding, permitting, and construction management services, as well as oversight, pilot testing, start-up coordination, and first-year operational assistance for the 6-mgd nanofiltration plant; design for addition of a RO skid to the existing plant, including appurtenant pretreatment and chemical facilities; condition assessment of the WTP's facilities; and preparation of an R&R report.

6. Cooper City Bench-Scale Testing

Conducted bench-scale testing with Hazen's mobile laboratory to assess the impact on disinfection by-products of changing the chlorination strategy from monochloramine to free chlorine in the water tanks.

1021-646

Hazen and Sawyer

Lead and Copper Corrosion Control

A selection of our relevant experience within the last five years is presented in the table below. **Many of these projects are for municipalities of similar size and complexity to the Town.**

The Hazen Team possesses the necessary in-house expertise to ensure that Highland Beach achieves an inventory in compliance with EPA's Lead and Copper Rule Revisions.

LCRR Project Experience

Client/Location	Customers	LCRR Compliance	LSL Inventory	LSL Identification	LSL Replacement Plan	Sampling and Monitoring	Customer Outreach	Funding Support	GIS and Program Tracking Dashboard	Geospatial LSL Likelihood Analysis Modeling or ML	Implementation Assistance	Multi-Year Program	Regulatory Coordination
Town of Jupiter, FL	88,000	■	■	■		■							■
Miami Beach LCRR Program Assistance, FL	90,000	■	■	■	■	■	■	■	■	■	■	■	
City of Tallahassee, FL	200,000	■	■	■		■	■						■
City of Fort Lauderdale, FL	220,000	■				■					■		■
City of Tampa, FL	720,000	■	■	■									■
Miami-Dade WASD, FL	2,300,000	■	■	■	■	■	■	■	■	■	■	■	
Sweetwater Authority, CA	200,000	■	■	■	■		■	■	■				
City of Richmond, VA	230,000	■	■	■	■	■	■				■	■	■
Los Angeles Department of Water & Power, CA	4,000,000	■	■	■		■	■	■	■	■	■	■	■
City of Tempe, AZ	185,000	■	■	■		■	■	■		■		■	■
Baltimore, MD	400,000	■	■	■	■	■	■	■		■	■	■	■
City of Kingman, AZ	33,000	■	■								■		
Soldier Canyon, CO	65,000	■	■	■	■	■	■	■	■	■	■	■	■
City of Englewood, CO	49,000	■	■	■	■	■	■	■	■	■	■	■	■
City of Glendale, AZ	250,000	■	■	■		■	■	■		■		■	■
City of Peoria, AZ	200,000	■	■	■		■	■	■		■		■	■
Charles County, MD	75,000	■	■	■	■	■	■	■	■	■	■	■	■
Leesburg, VA	60,000	■	■	■	■	■	■	■	■	■	■	■	■
Washington Suburban Sanitary Commission, MD	1,800,000	■	■	■	■		■						■
City of Chesapeake, VA	200,000	■	■	■	■			■	■	■	■	■	■
Connecticut Water, CT	105,000	■	■	■	■	■	■				■		
City of Gainesville, GA	159,000	■	■	■		■	■		■	■	■		■
Clayton County, GA	275,000	■	■	■		■	■		■	■	■		■
City of Buffalo, NY	276,000	■				■	■				■	■	■
Cobb County-Marietta Water Authority, GA	950,000	■				■	■				■		■
Virginia Beach, VA	450,000	■	■	■					■	■	■	■	■
Spotsylvania County, VA	230,000	■	■	■					■	■	■		
City of Winchester, VA	30,000	■	■	■	■				■	■			■
Cape Fear Public Utility Authority, NC	190,000	■					■				■	■	■
Charlotte Water, NC	818,000	■									■		■
City of Greensboro, NC	290,000	■				■					■		■
City of Atlanta, GA	1,200,000	■				■					■		■
Erie County Water Authority, NY	920,000	■				■			■		■	■	■
Chandler, AZ	260,000												
Goodyear, AZ	102,000												

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Hazen and Sawyer

Water Supply Experience

Hazen designed, permitted and planned **65 water wells** since 2000

Hazen offers extensive experience in water use permitting, demand forecasting, water supply well design, testing and rehabilitation. We have assembled some of the **most experienced water supply and wellfield development professionals in Florida to help the Town with its water supply needs.**

Hazen offers extensive experience in water use permitting, demand forecasting, water supply well design, testing and rehabilitation. We have assembled some of the most experienced water supply and wellfield development professionals in Florida to help the Town of Highland Beach with its water supply needs. **Hazen is a State of Florida Registered DBPR Geology Business.**

Hazen is leading many water supply well projects throughout the State and locally in South Florida, which provides us with an in-depth understanding of the regulations, permitting, design, drilling, testing, operation and maintenance of both surficial aquifer and Floridan aquifer wellfields. Our team of Florida registered Professional Geologists and Professional Engineers led by **Gerrit Bulman, PG, George Brown, PE, Rama Rani, PG,** and **Angela Giuliano, PG,** have spent their careers focused on Florida's unique water resources challenges, wellfield management and water use permitting.

- **Mr. Brown** and **Mr. Bulman** have designed numerous water supply wells, wellheads and raw water conveyance systems throughout South Florida.
- **Mr. Bulman** and **Ms. Giuliano** have provided the hydrogeologic services for well permitting, construction, testing and rehabilitation throughout South Florida.
- **Ms. Rani** brings two decades of experience with the South Florida Water Management District, leading the groundwater modeling group.

The Hazen team is prepared to support the Town's water supply and wellfield needs as evidenced by our qualified staff and relevant experience summarized on the following pages.

District 2 Wells No. 8 & 9 Replacement

Hazen was retained by Broward County to provide engineering services during construction for the rehabilitation of Biscayne Aquifer Wells 8 and 9 serving as a raw water source to the 2A Water Treatment Plant.

Production Well-9 (PW-9)

Hazen designed Hallandale Beach's Biscayne Aquifer production well PW-9. The well will be equipped with a 2,100 gpm submersible pump.

Floridan Aquifer Wells

Hazen designed the City of Fort Lauderdale's two Floridan Aquifer Wells. These wells provided crucial data to develop planning documents to layout a road map for expansion of the Peele-Dixie WTP with reverse osmosis treatment of the Floridan Aquifer.

2021 Water Use Permit

This project for the City of Margate included forecasting population growth and associated increase in water demand as well as ground water modeling. The permit was successfully obtained , including the addition of future alternative water supply for a 50-year period.

Hazen and Sawyer

Water Distribution Experience

Hazen's experience in water conveyance systems covers the full range of services, including initial planning, preliminary and detailed design, permitting, hydraulic modeling including numerous hydraulic studies and network analyses, and construction management. We have supported municipalities in the relocation of utilities for road conflicts, expanded distribution systems to create loops for improving water quality, and assisted with the rehab and replacement of water distribution piping.

The major capital investment of a water utility is in the water distribution system. These systems consist of transmission mains, distribution lines, services, and meters.

Our recent water main experience includes a key project with Fort Lauderdale, the Las Olas Boulevard Intracoastal Waterway Crossing. For this project, Hazen prepared a design criteria package (DCP) for replacing a 16-inch sub-aqueous water main with a deeper 20-inch water main to cross the Intracoastal Waterway at Las Olas Boulevard, as well as provided permitting assistance. The City decided to install a new 16-inch diameter sub-aqueous wastewater force main on the south side of the Las Olas Boulevard Bridge. Hazen partnered with another firm to prepare the DCP documents for the sewage force main.

The Las Olas Boulevard Intracoastal Waterway Crossing was recognized with the 2017 **Design-Build Institute of America's Florida Region Best Overall in Water/Wastewater Award**.

Las Olas Boulevard Intracoastal Waterway Crossing

City of Fort Lauderdale, FL

Dredging planned for the Intracoastal Waterway (ICW) required rapid replacement of the City of Fort Lauderdale's water main at the Las Olas Boulevard bridge at a deeper elevation or risk cutting of the water main. The City completed the replacement water main crossing of the ICW at Las Olas Boulevard in record time (6 months) via collaborative design-build procurement to accelerate project delivery. The design-build resulted in completing the project 20 percent faster than traditional methods. Hazen served as the design criteria professional for the water main replacement. **Craven Thompson** prepared the DCP drawings for 16-inch force main intracoastal waterway crossing.

Qualifications of specific people assigned to this contract:

- ☑ **George Brown, PE** served as Lead Design Criteria Professional for this project. He has 27 years of experience in the design of mechanical systems; has designed 0.5 billion gallons per day of pumping facilities and 95,000 feet of pipelines. He began serving as Hazen's Civil Discipline Regional Leader in 2012; he is responsible for Hazen's civil design standards. Mr. Brown holds a BS, University of Florida, 1996, Environmental Engineering.
- ☑ Project located in Florida.
- ☑ Project completed in the last five years. *(Completed in 01/2017)*

DBIA Design-Build '17
BEST OVERALL IN WATER/WASTEWATER
Las Olas Boulevard Intracoastal Waterway Crossing, City of Fort Lauderdale
Florida Region Design-Build Institute of America Awards

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Hazen and Sawyer

Wastewater Collection Experience

Hazen's Florida staff has designed

$1.5 BILLION

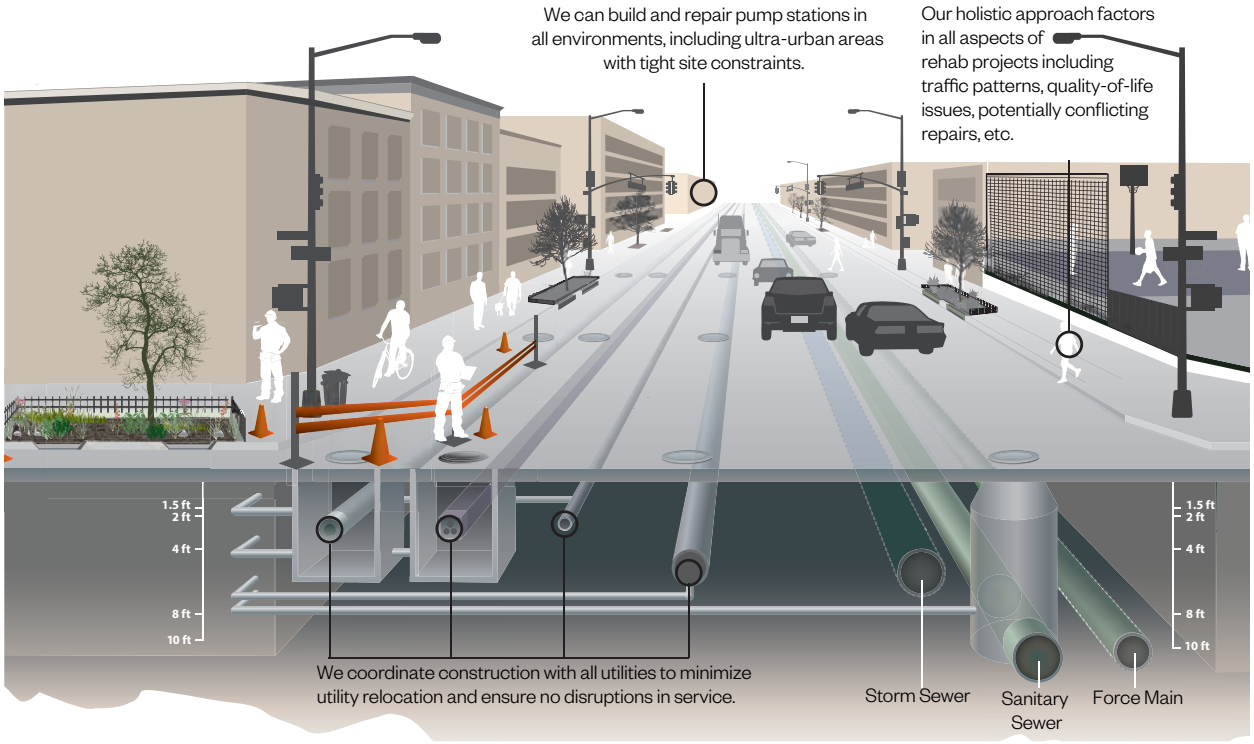
worth of water and sewer pipelines.

Hazen has been designing Wastewater Collection & Transmission elements for over six decades in the United States and overseas. Our staff has experience with almost every available pipe material offered in both domestic and international markets.

The backbone of any wastewater system is the network of pumps and pipes that collect and convey wastewater to be treated. Much of this aging infrastructure is reaching a point of deterioration and, in many cases, has limited or no additional useful life. Failure of these systems can result in significant disruptions in service, property damage, and serious public health consequences.

Our projects within collection and transmission systems frequently include site-related design components such as stormwater systems or sidewalk and road improvements. Our goal is to address these components so they have a positive impact on the surrounding community.

Whether assessing and rehabilitating existing assets or building new assets, we combine top technical know-how with innovative, informed, responsive service on conveyance projects of all scopes and sizes. We specialize in a variety of construction methods, including horizontal directional drilling (HDD), microtunneling, jack-and-bore and other trenchless techniques. Hazen's extensive buried infrastructure capabilities are complemented by our award-winning pump station design and construction management solutions, which have provided immediate operational benefits and long-term cost savings to clients nationwide.



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Hazen and Sawyer

Pump Station & Lift Station Experience

Hazen has designed over **10.9 BILLION gallons per day** in pumping capacity firmwide.

Hazen's Florida pump station and booster station design experience includes more than 200 projects.

Projects range from new regional stations to rehabilitation of existing prefabricated pumping units.

Our staff has experience with almost every available pump technology and pump drive offered. Through this experience, we have developed knowledge regarding the main pump manufacturers on the current market, allowing us to assess the best technology for each application.

In addition, many of our lift station and pump station projects have included hydraulic modeling analysis for pump and distribution system operation, and ground storage tank design. CFD models allow Hazen to evaluate operational scenarios and design modifications for storage tanks. These proactive efforts allow our team to identify the best mixing and tank operation approach during design.

Pump Station Services

Hazen is synonymous with hydraulics and pumping.

Stormwater	Wastewater	Water
8	23	11
Facilities Over 100 mgd	Facilities Over 100 mgd	Facilities Over 100 mgd

1. Hallandale Beach High Service Pump Replacement

Design, permitting, bidding and services during construction for replacement of the high service pumps including four new horizontal split-case pumps designed for 4,500 gpm at 175 feet total dynamic head equipped with variable frequency drives.

2. North Miami Beach Pump Station Improvement Program

Design and permitting of two of the stations on a fast-track basis to obtain approval from DERM as well as the State Revolving Loan Fund (SRF), the entity funding the project. Once complete, the City requested that Hazen perform a constructability review of all 10 stations based on our knowledge of the City's standards and experience.

3. Hialeah, FL Pump Station Improvement Program

As part of the Pump Station Improvement Program (PSIP), the City proposed upgrades to 14 pump stations. Improvements were performed to satisfy regulatory requirements, replace aging infrastructure, increase reliability, and standardize all stations on a submersible type configuration. Improvements replaced mechanical, electrical, structural, and instrumentation components in 14 submersible pump stations along with associated force main improvements ranging in size from 8 - 16 inches. This project has been ongoing for more than 15 years and Hazen has designed upgrades for over 35 pump stations, including 2 master pump stations.

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Hazen and Sawyer

Infiltration/Inflow (I/I) and SSES Experience

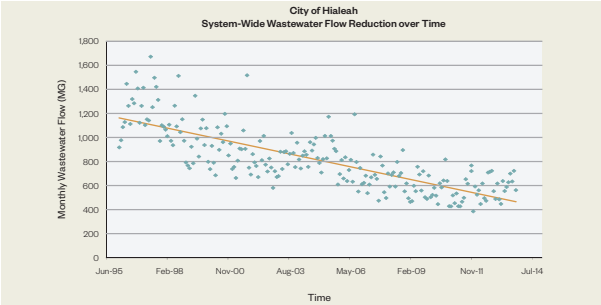
Hazen has provided **I/I FLOW** reduction and rehabilitation for more than **6,740 Miles of Sewer**

Hazen has provided I/I and sewer rehabilitation program management services to utilities across Florida, including Pembroke Pines, Coral Gables, Hialeah, Homestead, and Broward and Miami-Dade Counties. **Hazen knows each step of the I/I flow reduction program, sewer system evaluation survey (SSES), and sewer rehabilitation.**

Emphasis has shifted in many local utilities to rehabilitating existing collection systems, to reduce excess leakage caused by broken pipes or fittings or stormwater entering the system. Excessive Inflow and Infiltration (I/I) causes an economic burden. Rainwater and groundwater, which normally do not require treatment, enter the collection system and increase the amount of wastewater flow that must be collected and treated. Increased flows translate into higher pumping and treatment costs, unnecessary utilization of available treatment and transmission capacity, and, in the worst case, can lead to sanitary sewer overflows.

City of Fort Lauderdale Sewer Design and Implementation Program

Hazen serves as Program Manager for this effort and is responsible for implementation and coordination of projects to satisfy 40 Consent Order deadlines. Scope of work includes I&I reduction programs including CCTV inspection and remediation where in six pump station basins. Hazen is also providing training of City I&I staff so that they can manage the program independently.



City of Hialeah

Hazen has assisted the City of Hialeah with its sewer condition assessment and rehabilitation program for many years, and has performed activities required to identify all of the key steps in the inflow and infiltration, including

- Manhole inspection
- Smoke testing
- Night flow isolation
- Flow and rainfall monitoring
- Wet weather hydraulic modeling
- Video inspection review
- Repair alternatives analysis
- Cost estimating, repair prioritization

1021-646

Hazen and Sawyer

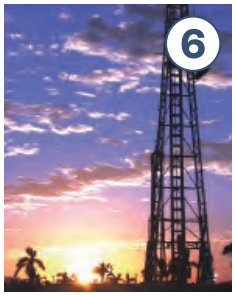
Deep Injection Wells Experience

Hazen designed **50%** of the **44 Class I injection wells** currently operating in Broward County.

Hazen has been involved in design, permitting, testing, and construction management of Class I deep injection wells in South Florida since 1978.

Hazen maintains local staff and a full support team, led by **Gerrit Bulman, PG**, to assist with injection well permitting and mechanical integrity testing. Mr. Bulman has extensive experience related to water resources, including effluent disposal and deep well injection programs, aquifer storage and recovery (ASR), wellfield design and evaluation, saltwater intrusion analysis, water supply, permitting, and regulatory development.

> *"I highly recommend Hazen ... for any management, inspection and analytical studies of deep injection wells and associated monitoring wells."*
>
> **Larry Duemmling**, former Assistant Director of Utilities, City of Plantation



1. SCRWTDB WWTP

Design, permitting, and construction oversight of first 24" DIW system, including operational assistance, MITs, and permit renewals.

2. SCRWTDB Injection Well No. 2

Design, permitting, and construction oversight of second 24" DIW.

3. Broward County North Regional WWTP

Design, permitting, and construction management of eight 24" DIWs and six dual-zone monitor wells. Multiple MIT and operating permit renewals.

4. City of Fort Lauderdale Peele-Dixie WTP

Design, permitting, and construction management of one 16" DIW and one dual-zone monitor well. Multiple MIT and operating permit renewals.

5. City of Plantation East WTP, Central WTP, Regional WWTP

Design, permitting, and construction management of one dual-zone monitor well at RWWTP. Tubing replacement design and construction management for one 11.8" DIW at CWTP. Construction management for one 11.8" DIW at EWTP. MIT and operating permit renewals.

6. City of Hallandale Beach WTP

Design and permitting of one 11.8" DIW. Construction management for two 11.8" DIWs. Design, permitting, and construction management of one dual-zone monitor well. Multiple MIT and operating permit renewals.

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Hazen and Sawyer

Stormwater Experience

Hazen has provided **STORMWATER** services for **33 Florida Clients** since **1968**

Hazen has provided stormwater consulting services in Florida for over four decades and served as general stormwater consultant to numerous municipalities. Hazen has implemented over $2 billion in local public works infrastructure projects over the past 10 years, including a significant volume of stormwater management improvements.

Hazen understands the importance of leveraging existing stormwater infrastructure to aid in the improvement of the system

to address the dynamic flood management, coastal resiliency, and water quality challenges that municipalities continue to face in Florida.

Efforts include numerous completed projects related to stormwater management design and permitting; stormwater utility development, implementation, and operations; and regulatory assistance, including NPDES programs and projects. Much of our experience is related to Clean Water Act resultant programs and retrofitting existing drainage/stormwater management systems to improve flood control and meet water quality objectives. Hazen has completed Stormwater Master Plans (or plan updates) for the Cities of Hollywood, Plantation and Stuart, St. Lucie County, Sarasota County, and the Town of Jupiter. Additionally, we have completed numerous basin studies throughout Florida.

1. Town of Jupiter Stormwater Consultant

Hazen has served as the General Stormwater Consultant for the Town of Jupiter for over 15 years, and in this capacity has provided stormwater planning, design, permitting, plan review, and construction oversight services. During this time, Hazen has become an extension of the Town's staff and has helped ensure the continued reliability of the stormwater system. This experience helps demonstrates our vast understanding of the potential climate change impacts in Southeast Florida.

2. Fort Lauderdale Stormwater Master Plan Modeling and Design Implementation Services

Hazen was selected in 2016 as the Program Manager for delivery of a new stormwater master plan and implementation of designs to address chronic flooding, other stormwater management challenges, and sea level rise adaptation. The City covers 23,000 acres of highly-urbanized neighborhoods, with much of its coastal land area within the floodplain and numerous rivers and tributaries running throughout the City. The project team evaluated long-range solutions that perform effectively over a broad range of climatological and other uncertain future conditions.

1021-646

Hazen and Sawyer

Climate Change/Resilience Experience

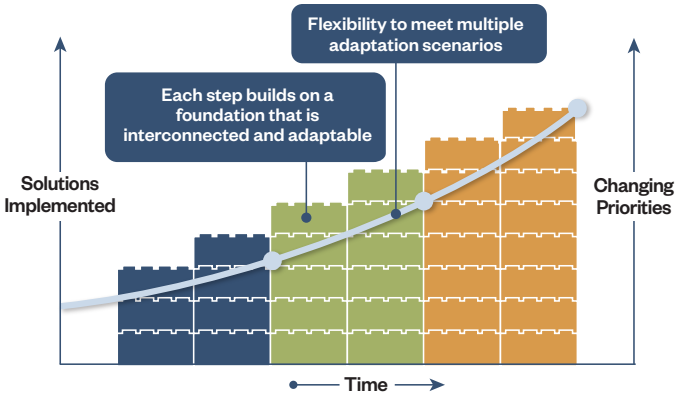
Hazen has provided **RESILIENCE** services for **28 FLORIDA CLIENTS** since **1968**

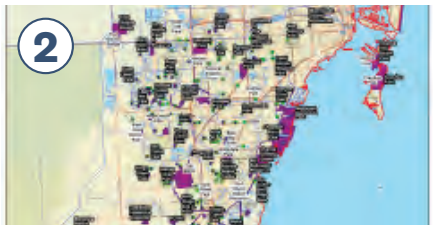
Hazen understands the importance of characterizing and communicating climate-related risks that span source water availability, source water quality, and infrastructure integrity in terms of magnitude, timing, and consequence.

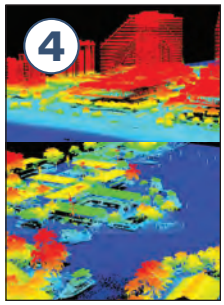
Hazen has influenced and managed sustainable, resilient infrastructure development in Florida and around the globe for over six decades.

Our approach demonstrates our expertise in evaluating and preparing for the possible effects of climate uncertainty. Our climate adaptation strategies concentrate on maintaining the highest level of protection for our communities at a sustainable investment rate.

Implementation of Adaptable Solutions







1. Broward County County-wide Risk Assessment and Resilience Plan

Providing an **actionable resilience plan consisting of a detailed hydrologic (stormwater) model, robust economic model, visualization platform** (to aid regional planning and project tracking), and a written plan to provide the foundation for collective mitigation of future flooding throughout the County.

2. Miami-Dade WASD Rapid Action Plan

Developed methodology to establish criticality and vulnerability rankings of County facilities based on flood potential under current and future conditions.

3. Peace River Regional Reservoir No. 3 Siting & Feasibility Study

Modeling system-wide reliability impacts of design decisions for new Peace River intake and above-ground reservoir. Projected river flows & water quality under current and future sea levels, precipitation, & water use conditions.

4. City of Fort Lauderdale Stormwater Master Plan Modeling and Design Implementation Services

Program Manager for new stormwater master plan and implementation of designs to address chronic flooding & other stormwater management issues.

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Hazen and Sawyer

Grant Management Experience

Hazen has helped clients obtain & administer over **$4 BILLION** **in state and federal funding** for W/WW in the last ten years, including over **$1 BILLION** in Florida.

Hazen provides comprehensive funding assistance for a wide range of projects, including major expansion, rehabilitation, and replacement, energy incentives, and disaster relief.

Funding Assistance Approach

Proactive Approach to key emerging opportunities.

Hazen's four-step approach allows us to respond to the quickly-changing infrastructure funding landscape.

Strategize

Strategize about applicable, available, and achievable funding options

Inform

Inform design decisions to maximize the funding sources and amounts

Conform

Conform to all permitting, engineering report, and contract requirements

Secure

Secure funds from application through contract phase

Hazen's funding success includes the following sources:

WIFIA PROGRAM
$1.4 Billion
in funding approvals over 4 years

FEMA
$1.1 Billion
in funding to recover from disasters and harden infrastructure

$350 Million
to fund resilient infrastructure

Clean Water State Revolving Fund
$1.0 Billion
across the country

Hazen also provides funding strategy and implementation plan development, funding application preparation and supporting documentation (planning, environmental, financial), and reporting and compliance for the life of a project.

- Hazen offers funding experts locally and nationally who are solely dedicated to funding planning, administration, and compliance.
- Our team knows the process from all angles of funding—from project management to including boots-on-the-ground experience. We have experience in funding a multitude of projects "all things water." Our team offers experts in hazard mitigation and lead service line funding.

Sharon Simington
Southeast Regional Funding Program Lead

Hazen and Sawyer

Instrumentation and Controls Experience

Our large volume of experience with these systems gives us **the highest level of expertise** of the state-of-the-art in SCADA hardware, software, and communication systems.

Hazen is recognized as a leader in Florida in the design and implementation of integrated instrumentation, process control, telemetry and information systems for utility systems in the rapidly advancing field of computer control and data communications.

Almost since the firm's inception, Hazen has provided instrumentation, control, and SCADA system design and construction services. Our capabilities rival those of specialty automation consultants. Hazen is often chosen to perform stand-alone automation and SCADA projects and to provide these services to other consultants. Our control system engineers are dedicated to projects in water and wastewater.

Our goal on every project is to provide a practical and cost-effective system that uses the latest technology and meets the needs of each client. Each system design includes input from the client regarding functionality and technology. Our large volume of experience gives us the highest understanding of the state-of-the-art in SCADA hardware, software, and communication systems. Our engineers are expert in these areas:

- Field investigations
- SCADA-related renovations
- PLC/PAC hardware applications and programming
- HMI software specification configuration
- Data management software systems
- Communication subsystems
- Security measures for SCADA infrastructure.

Our instrumentation and control professionals are solely dedicated to water projects, **giving us a thorough understanding of the unique design and reliability requirements specific to these facilities.**

Our Instrumentation and Control team will be led by Engineers Evan Curtis, PE, and Alfredo Jimenez.

1. Broward County North Regional Wastewater Treatment Plant SCADA System Replacement

Hazen is providing software needs assessment, process control system hardware requirements, software functional evaluation, design, permitting, procurement assistance, and construction management services related to the SCADA system replacement project.

2. Seminole Tribe of Florida Brighton Reservation RO WTP North Regional Wastewater Treatment Plant SCADA System Replacement

Hazen provided pilot testing of RO membranes for a 1.6-mgd water treatment plant upgrade based on a new water supply source. The project included evaluation of various membranes and anti-scalants. Hazen provided the associated electrical and control system modifications for the above improvements.

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Hazen and Sawyer

Asset Management Experience

Assessments for over **7,800 assets** and **14 treatment plants** in Southeast Florida

Our Asset Management Services Group combines top technical knowledge with innovative, informed, and responsive solutions that have resulted in immediate and long-term cost savings to clients nationwide.

Hazen's Asset Management Services Group includes nationally-recognized professionals in engineering, asset management strategic planning, asset management business processes and principles, infrastructure assessment and planning, risk assessment (condition and criticality), rehabilitation and renewal planning, data collection and management, and information technology assessments.

Rising operating costs, aging infrastructure, regulatory pressures, simultaneously ongoing programs, and a customer base that is resistant to rate increases means the Utility must find ways to extract greater value from their existing assets. Many utilities already implement several of the elements of asset management programs—they just may not refer to these tasks collectively as asset management. The Hazen Team provides an integrated suite of asset management services and tools for both above- and below-ground assets that cover all aspects of the asset's whole life cycle, including safety, operational performance, levels of service, contractual requirements, and maintenance requirements.

More than **200 Asset Management Projects** in the past 5 years

Asset Management Services

Our approach is to provide expertise, tools, technologies, and procedures that will empower clients to achieve excellence in assets that require excessive maintenance.

We realize that one size does not fit all, so we are flexible in our approach and can work with utilities to implement a full asset management program, or alternatively, a primary approach which targets key assets.

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Hazen and Sawyer

Construction Engineering & Inspection Experience

Hazen has extensive experience with the bidding process and **construction engineering & inspection** of many types of facilities.

Hazen offers unique value in managing the construction of upgrades and new facilities. We can proactively identify potential claims and delays and address them before they happen, not after.

Construction Management Services

Project Planning
- Project Administration
- Cost Controls
- Document Management
- Scheduling

Resident Engineering
- Inspection
- Constructability Reviews
- Quality Control

Cost Management
- Cost Estimating
- Budget Control

Vendor Management
- Change Order Management
- Claims Prevention & Resolution
- Equipment Pre-Purchase

Risk Management
- Quality Assurance
- Startup & Testing
- Commissioning
- Project Closeout

In addition to offering experienced construction managers and resident engineers to keep projects on schedule and minimize change orders, we use proven methods such as prebid reviews, partnering, disputes review boards, and the timely handling of all documents and requests. We incorporate best-practice technologies to expedite requests for information, review and markup of drawings, and permitting, reducing delays and preventing errors. Our goal to provide regular and effective communication to help keep the project moving forward and make sure any issues are brought up in a timely manner.

Hazen's Startup, Training and Operations Services

Operation and Maintenance (O&M) of a water facility can pose challenges for even the most seasoned utility staff personnel. Hazen can help the City meet those challenges.

Hazen's O&M professionals offer a mix of learning approaches tailored to the specific needs of your organization. Our user-friendly training allows attendees to bring new concepts and skills back to their workplace.

With over half a century of experience in the design and operation of environmental infrastructure, along with over 1,000 of the most experienced and specialized engineers, operators, and administrative staff in the industry, Hazen is ready to meet your O&M challenges and help solve your toughest problems.

From individual O&M services to multi-million dollar, large-scale O&M programs, Hazen has the experience and resources to meet all your O&M needs.

Make Your First Step a Success

Successful start-up and facility operation depends not only on design, but also on operating personnel who understand the interaction between systems and equipment. This is where expertise from our O&M professionals can help.

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Hazen and Sawyer
Permitting Experience

Hazen has developed excellent relationships with local regulatory agencies and has an **extensive understanding of their regulatory practices.**

With decades of experience providing utility engineering permitting and monitoring regulatory compliance, Hazen can assist our clients with as-needed permitting. This familiarity stems from Hazen's 50-plus-years of providing engineering services to municipalities in Florida.

Hazen possesses technical strength coupled with an understanding of the varying environmental regulatory issues that our clients face. We have developed excellent relationships with local regulators and have worked closely with operations staff of local utilities to review plant records, perform detailed facility inspections, coordinate sampling and testing programs, and develop tools based on the computerized operational system to track permit compliance. This allows us to quickly prepare and process permit applications, avoiding potential permitting delays. In addition, these relationships enable Hazen to expedite the permitting process with various regulatory agencies including FEMA, Florida Department of Transportation, Florida Water Management Districts, and the Florida Department of Environmental Protection. This ability to quickly secure permits from the various regulatory agencies that have jurisdiction over our client's projects, allows for the rapid implementation of improvements.

Hazen has successfully assisted numerous Florida Utilities

with navigating the dynamic nature of regulatory policies regarding domestic wastewater treatment and disposal, to achieve:

- Compliance with Chapter 403, Florida Statutes and Chapter 62-600, Florida Administrative Code
- New Facility Operating Permits
- Consent Order Regulatory Compliance
- Continued Operation of Existing Facility Operating Permits
- Cost Saving Sampling and Monitoring Compliance
- Plant Capacity Up-ratings

Utilities include:

Broward County NRWWTP
2013, 2018, and 2023 Renewals

Hollywood SRWWTP
2012 and 2017 Renewal

Plantation RWWTP
2017 and 2022 Renewals

City of Boca Raton Public Utilities
2017 and 2022 Renewals

South Central Wastewater Treatment & Disposal Board
All Renewals since 2000

City of Sunrise Sawgrass, Spinrgtree and Southwest WWTFs
2018 Renewals

City of Margate WWTP
2015 and 2020 Renewals

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Hazen and Sawyer

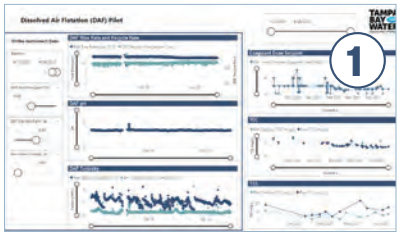
GIS/Data Management Experience

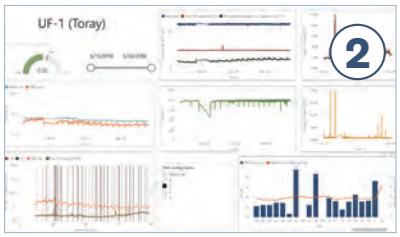
Hazen designs and deploys

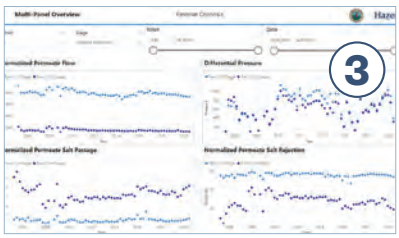
DATA MANAGEMENT SOLUTIONS

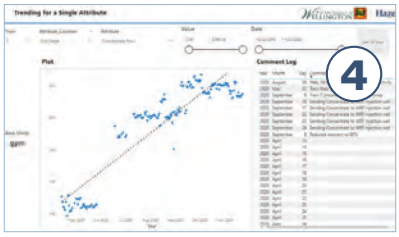
using **Tableau, Power BI,** and the **Hazen Azure Cloud.**

Hazen has deep experience using modern data management and dashboard platforms such as Tableau and Power BI and has cloud-based deployment capability and integration with GIS through Hazen Azure Cloud.









1. Tampa Bay Water Desalination Pilot

Pilot data management database, online pilot performance data, laboratory reports, and field measurements. Cloud-based dashboard updates automatically.

2. City of Dunedin Pilot

Pilot data management database and cloud-based dashboard that automatically updated with new pilot performance data.

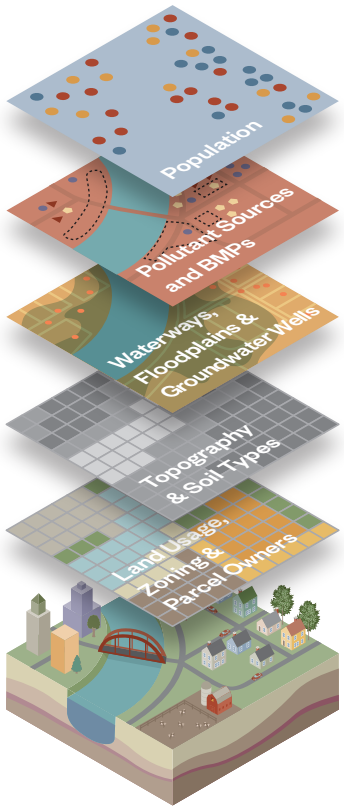
3. Town of Jupiter

Interactive dashboard to enhance review of membrane performance data recorded by full-scale plant. Assess treatment performance and cleaning effectiveness.

4. Village of Wellington

Interactive dashboard to enhance reviews of full-scale membrane performance data by developing tailored dashboard focusing on key performance indicators.

Nadita Ajuha, PE
Lead, GIS/Data Management Experience



A Robust GIS Model for Watershed Characterization and BMP Planning & Analysis

We also balance the use of off-the-shelf business intelligence tools with site-specific tools and models as necessary.

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City of Boca Raton Water, Wastewater, and Reclaimed Water Engineering Services

Boca Raton, Florida

Since 1995, Hazen has served as general consultant for the City of Boca Raton, responsible for completing a variety of projects over the last 29 years.

Hazen has assisted the City of Boca Raton with planning, design, and construction projects since 1995. Various City projects completed by Hazen include:

- **Critical Infrastructure Condition Assessment Master Plan:** The City of Boca Raton provides water and wastewater services to approximately 130,000 customers. It owns approximately 700 miles of water mains, 242 sewer pumping stations and 590 miles of force mains. The City retained Hazen in 2020 to develop its Critical Infrastructure Condition Assessment Master Plan. The Hazen team was responsible for development of a comprehensive 20-year plan for cost-effectively assessing the internal condition of key piping and prioritizing infrastructure renewal. The planning will utilize a risk assessment model to define the City's long-term investment needs.
- **Water and Wastewater Telemetry Reliability Improvements Plan:** Hazen provided design and construction management services for replacement of an existing radio telemetry system including two radio base stations and 286 remote telemetry units at wastewater lift stations, reuse distribution sites, raw water wells, and water distribution pump stations. The telemetry system design included a field radio survey, changing

Project Highlights

- Capital Improvement Program
- Multiple Contracts
- Construction Management

Core Project Team

Kurt Pfeffer, PE
Monica Pazahanick, PE
George Brown, PE
Evan Curtis, PE
Jean Paul Silva, PE

Project Profile

Design Duration:
1995-Ongoing

Construction Duration:
Varies based on project

Total Fee:
$5.8 million (fees to date)

Project Cost:
Approximately
$65 million (to-date)

Approximately
$60 million (to begin in 2024)

Reference

Justin Barrington
Deputy Director
City of Boca Raton
Utilities Service Department
1401 Glades Road
Boca Raton, FL 33431
561.338.7382
jbarrington@myboca.us

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Additional projects under this general consultant contract include:

- Final Clarifier Rehabilitation
- Solids Processing Facility Improvements
- Pressure Pipe Repair and Installation Technical Specification Project

frequencies from 928 MHz to 220 MHz, and upgrading the communication protocol. The construction cost was approximately $4.5M.

- **Water Treatment Plant - Lime Softening Building Improvements:** Hazen provided design services for the complete rehabilitation and hardening of the existing WTPs Lime Softening Process Building. The design includes replacement of the lime, polymer, and brine process equipment as well as ancillary equipment, structural improvements to harden the building, and rehabilitation of the dedicated electrical room. The estimated construction cost is $23.0M and is anticipated to begin in 2024.
- **Capacity Analysis and Operation and Maintenance Reports:** In 2017 and 2022, Hazen prepared and completed these reports as part of the City's wastewater treatment plant permit renewal process. The Capacity Analysis Report demonstrated that the City's existing wastewater treatment plant facilities provided adequate treatment and disposal of flows through the year 2032 based on its current permitted capacity of 17.5-mgd annual average daily flow.
- **Aeration Upgrades:** Hazen provided design and permitting services for the conversion of the WWTPs existing aeration basins from mechanical aeration to fine bubble diffused aeration. The project also includes construction of a new blower building with dedicated electrical room, replacement of the in-plant lift station, and modifications to the 30in and 42in influent piping. The estimated construction cost is $25M and is anticipated to begin in 2024.
- **Primary clarifier and Scum System Rehabilitation:** Hazen performed design, permitting and construction management services for the rehabilitation of two primary clarifiers including replacement of one geodesign dome, re-coating of the clarifier mechanisms and interior walls, and replacement of the FRP scum tanks and pumps. The work in the existing aeration basins including replacement of the weir and baffle, piping modifications and structural repairs to the interior walls. Construction was completed in 2022 and the cost was approximately $4.5M.
- **Headworks Improvement Project:** Hazen performed design, permitting and construction management services for the rehabilitation of the existing headworks building including replacement of the grit pumps, grit classifiers, and structural repairs and recoating the influent channel interior walls. This project also included demolition of the existing primary sludge pump station and replacement with a new pump station and electrical building. Construction was completed in 2020 and the cost was approximately $4.5M.

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Town of Jupiter Professional Engineering Services for Stormwater and Water Capital Improvements

Jupiter, FL

Since 2000, Hazen has served as general consultant for the Town of Jupiter, providing assistance to the Town in almost every aspect of its stormwater program.

As General Stormwater and Water Consultant, Hazen has provided services related to master planning, stormwater planning and modeling, design, NPDES permitting, asset management, rate/financial analysis, plan review, and construction oversight, among many other services.

At the peak of the Town's Community Investment Program, Hazen largely acted as a Program Manager and extension of Town staff, assisting the Town with implementation of its Capital Projects, helping coordinate Town infrastructure with that of the development of community and sister governments, and assisting with the oversight of numerous utility-related programs and initiatives.

Developer Plan Engineering Peer Review: Hazen provided review of several site plans submitted by developers to the Town utilities department, for compliance with Town Codes and standards. Projects reviewed recently include Circle K, Inlet Waters P.U.D, Jupiter Hospital, Compass Self Storage, Jupiter Landings, Corner Stone, Maltz Theater, Sonoma Isles, Jupiter West Plaza, Water Pointe, and more.

Stormwater and Water Master Plans: Hazen has completed multiple Town Water and Stormwater master plans, most recently the Stormwater Master Plan – 2022 Update and Water Master Plan – 2022 Update. The stormwater

Project Highlights

- Since 2000, Hazen has served as general consultant for the Town of Jupiter, providing assistance to the Town in almost every aspect of its stormwater program.
- Hazen has provided master planning, stormwater planning and modeling, design, NPDES permitting, asset management, rate/financial analysis, plan review, and construction oversight.

Core Project Team

Robert Taylor, Jr., PE
George Brown, PE
Janeen Wietgrefe, PE, PMP
Jennifer McMahon, PE
Lucia Medina, PE
Taylor Bomarito, PE
Jean Paul Silva, PE
Evan Curtis, PE
Eric Stanley, PE

Project Profile

Design Duration:
2000-Ongoing

Construction Duration:
Varies based on project

Total Fee: $16 million (fees to date, stormwater and water)

Project Cost: Varies based on project

Reference

Amanda Barnes, PE
Director of Utilities
Town of Jupiter
210 Military Trail
Jupiter, FL 33458
561.741.2537
amandab@jupiter.fl.us

plan included an evaluation of impacts of climate change and sea level rise projections for planning purposes. Neighborhoods where inundation were likely to occur were identified. Eighteen capital projects, with an estimated capital cost of $22 million, were identified for the purposes of improving flood protection and water quality treatment throughout the Town within the five to ten-year planning horizon. The Water Master Plan – 2022 Update developed a summary of over 50 projects that will continue to sustain the Town and improve the resilience of the water treatment plant operations. Hazen provided cost estimates for all projects.

Stormwater Drainage and Watermain Improvements - Elsa and Paulina Roads: Hazen provided design, permitting, cost estimating, and construction administration services for stormwater drainage improvements and a water main replacement in the Yacht Club Estates neighborhood in Jupiter, Florida. Stormwater improvements consisted of 1,200 lf of 18 to 24-inch storm drain, 17 structures, new outfall to the intracoastal waterway, and installation of a stormwater pump station wet well (for future outfitting with pumps). Water main improvements included 1,450 lf of 6-inch PVC watermain, and associated valves and hydrants.

Penn Park Water Infrastructure Improvements: Hazen provided design and permitting of the Penn Park Water Infrastructure Improvements project. The project includes construction of approximately 3 miles of new 6-inch diameter water mains, services, and meters within road right-of-ways (ROWs) of residential and commercial areas, and installing new valves and hydrants for improved fire protection and better isolation of the distribution system. The project included a preliminary design report to determine the optimal pipeline routing and installation method, including consideration for existing underground utilities, regulatory requirements, accessibility for future maintenance, constructability, locations for horizontal directional drilling (HDD), and impacts to local residents and businesses.

Clemons and Saturn Street Drainage Improvements: Hazen provided design, permitting, and construction administration of construction of stormwater conveyance improvements to provide water quality treatment in right-of-ways for approximately 12.2 acres of commercial/residential zoned land draining to the Jupiter Inlet/Intracoastal Waterway. The project consisted of approximately 300 lf of exfiltration trench, 700 linear feet of 30-inch RCP, and associated stormwater structures discharging to the Jupiter Inlet and A1A stormwater system along Clemons and Saturn Street. The project also included 460 lf of 8-inch diameter gravity sewer piping and sewer manholes along Clemons Street. On short notice, the design team was successful in meeting the Town's fast-track schedule to comply with fiscal year matching funding requirements for the Loxahatchee River Preservation Initiative.

Clemons and Saturn St. Stormwater and Sewer Improvements

Juno Street Pump Station: Hazen provided design, permitting, and construction administration for this project, which entails design of a new 47 cubic foot per second (CFS) capacity stormwater pump station with duplex submersible propeller pumps and jockey pump and internal wetwell baffling for improved hydraulic performance, stormwater filtration structure, and valve vault in the public right-of-way. A 36" diameter underground utility crossing beneath the FEC railroad through a 60" diameter casing constructed by jack and bore, 36" diameter open-cut underground utility crossing across Alternate A1A (FDOT roadway), and outfall structure to a FEC owned canal comprises the discharge of the pump station. 48" diameter RCP and stormwater manholes and inlet structures were also designed, connecting new pump station to the existing stormwater system. This project required intense permitting services and utility rerouting coordination. Hazen provided permitting services and applied for permits with FDOT, SFWMD (dewatering and ERP), FEC railroad, Loxahatchee River District, and the Town of Jupiter, and coordinated rerouting of utilities and gaining access easements with private AT&T, Comcast, Crown Castle, Loxahatchee River District, Palm Beach County (for mangrove mitigation), and a private property owner.

City of Fort Lauderdale
General Water Consultant Agreement

Fort Lauderdale, FL

Hazen has provided general water engineering services to the City of Fort Lauderdale Utilities Department under a general consultant contract since 1999.

A sample of projects completed or ongoing under this contract during the last five years is listed below:

- Fiveash WTP HS Pumps
- Fiveash WTP Upgrades
- Fiveash WTP Operational Control Plan Design
- Poinciana Park and 2nd Ave. Storage Tank and PS Replacements - Design and Construction Services
- Saltwater Intrusion Monitoring
- Fiveash WTP BODR Study
- Water Master Plan 2006 Update
- Peele-Dixie Membrane Procurement Bid Package Study
- Dixie Wellfield Modeling
- Peele-Dixie WTP Hourly Tasks for Construction Field Services
- Fiveash WTP Consolidated Phase 1 Construction Services
- Dixie Wellfield Design and Construction Services
- Fiveash WTP Upgrades Phase II
- Fiveash WTP Upgrades Phase III

Project Highlights

- Hazen has been providing general water engineering services to the City of Fort Lauderdale under two general consultant contracts or over 25 years (1999 to 2000), and (2001-Present)
- $172M bid value of projects designed by Hazen since 1999
- 36 years working for Fort Lauderdale since the George T Lohmeyer WWTP since 1984.

Core Project Team

George Brown, PE
Janeen Wietgrefe, PE, PMP
Jennifer McMahon, PE
Jean Paul Silva, PE
Sean Fitzgerald, PE
Evan Curtis, PE

Project Profile

Design Duration:
1998 -Ongoing

Construction Duration:
Varies based on project

Total Fee:
$20.5 million (fee-to-date)

Project Cost:
Varies based on project

Reference

Miguel Arroyo
Water/Wastewater Treatment
City of Fort Lauderdale
949 NW 38th Street
Oakland Park, FL 33309
954.828.7806
marroyo@fortlauderdale.gov

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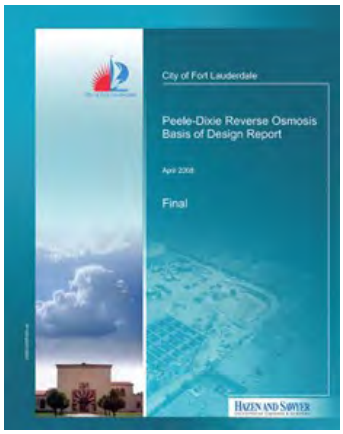

- South Andrews Avenue Water Main Improvements
- Peele-Dixie Membrane Softening WTP Design and Construction Services
- Central New River Water Main Crossings
- Second Avenue Pump Station Improvements Design Services
- Dixie Wellfield Well Abandonment Design Services
- Water Supply Planning Assistance

City of Hallandale Beach General Consulting Services

Hallandale Beach, FL

Hazen is providing general consulting services for water treatment and wastewater transmission system projects under our current contract as well as under our previous general consulting services contract.

General consulting services are provided on an as-requested basis and consist of engineering services ranging from studies, hydraulic models and master planning services through detailed design and construction oversight services.

Project Highlights

- Water supply planning saved the City $12 million in wellfield relocation costs.
- Designed membrane plant to blend with lime-softened water, saving $6 million in capital and $400K in annual operating costs.

Core Project Team

Janeen Wietgrefe, PE, PMP
George Brown, PE
Jennifer McMahon, PE
Evan Curtis, PE
Jean Paul Silva, PE
Guillermo Regalado, PE

Project Profile

Design Duration:
03/2001 - Ongoing

Construction Duration:
Varies based on project

Total Fee:
$1.9 million (fee-to-date)

Project Cost:
Varies based on project

Reference

Jeff Odoms, MA, FAEM
Director, Public Works
City of Hallandale Beach
630 NW 2nd Street
Hallandale Beach, FL 33009
(954) 457-1669
JOdoms@hallandalebeachfl.gov

Wastewater Master Plan

Under the current general consulting (GC) agreement (2016 Continuing Professional Architectural and Engineering Services Firms), Hazen recently completed the Wastewater Master plan that defined both short- and long-range planning goals through the year 2035. This plan also identified the operational and maintenance needs of the City for the wastewater system. The City utilized this plan for adjustment of future Capital Improvement Plan (CIP) needs.

Water and Wastewater Model Updates

The wastewater master plan was developed based on the wastewater model that was developed by Hazen under the 2014 Water and Wastewater Model Updates project under the previous GC agreement. The model update involved reforecasting water demand projections and wastewater flow projections, updating the hydraulic model configuration to match updated piping throughout the City, calibrating the hydraulic model, running various scenarios through the hydraulic model, and determining what potential improvements are necessary

to correct any present and future system deficiencies. The model updates project formulated the basis for the water improvements and wastewater transmission improvements CIP.

Water Treatment Plant Renewal and Replacement Planning

Hazen provided the City of Hallandale Beach a team of senior mechanical, electrical, controls, and water treatment process engineers to assess the condition of the above-ground assets at its lime softening/membrane water treatment plant. Hazen's expertise in lime softening treatment facilities allowed the team to rapidly assess the remaining useful life of the WTP's major lime softening assets to develop a 20-year plan of capital improvements to sustain the capacity of the existing infrastructure. The City is presently using the recommended improvements and associated budgetary costs for planning CIP projects.

Additional Projects

In addition to the above described projects, Hazen also completed the following projects under the current GC Agreement:

- Water Distribution Master Plan (2022)
- Fire Hydrant Model
- Salt Water Wells Services During Construction
- Deep Injection Well Operating Permit 2015
- Injection Well Mechanical Integrity Test
- Biscayne Aquifer Modeling for Regional Water Availability Rule
- Operational Assistance FY 2014-2015
- CRS Verification Services
- Utility Rate Study Update
- Chateau Square Development Review
- Diplomat Development Review
- Nine Hundred Development Review
- Oasis Phase II Development Review
- Operational Assistance FY 2015-2016
- Wastewater Master Plan
- SSES Planning Activities Under SRF Funding
- Operational Assistance FY2016-2017
- Water Treatment Plant Infrastructure Assessment/Renewal and Replacement Planning
- Operational Assistance FY 2017-2018
- SFWMD Water Use Permit Renewal
- Operational Assistance FY 2018-2019

Additionally, Hazen prepared the Water Supply Plan Update 2019 based on the SFWMD Lower East Coast Water Supply Plan Update in 2018. Hazen performed the Risk Assessment and Emergency Response Plans for compliance with the Water Infrastructure Act of 2018.

Under the previous GC agreement (Transportation Planning and Engineering, Traffic Studies, Utilities, Roadways, Geotechnical Consulting and Testing Services), Hazen completed the design of a new Biscayne Aquifer well (PW-9) and the design of a third membrane treatment skid. The design of the membrane skid is flexible for future water supply considerations (increased salinity in City wells, blends with County water supply solely). Hazen assisted the City with long term water supply planning considerations while adapting the design of both facilities (well and membrane skid) accordingly. Construction of PW-9 was completed in 2022 and construction of the RO Skid is ongoing.

Membrane Plant

In addition to the general consulting services contracts, Hazen also provided services for the expandable membrane softening facility from 2001 through 2007. Hazen provided pilot testing, design, bidding, permitting, and construction management services for the membrane facility which included 6 mgd membrane skids initially with all associated pretreatment facilities (chemicals, cartridge filters) and all post-treatment facilities (degasifiers, chemical stabilization, and blending with lime softened water). Hazen designed the facility with flexibility for the future and the City is presently benefiting from the foresight. Hazen continues to provide operational assistance services to the membrane facility on an as-requested basis under the general consulting agreement.

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City of Deerfield Beach Continuing Services Contract for Water Treatment Plant, Wellfield Engineering, and Environmental Engineering

Deerfield Beach, FL

Since 2018, Hazen has provided water treatment plant, wellfield engineering, injection well regulatory compliance, risk/resilience, stormwater, and other environmental engineering services under a continuing services contract with the City of Deerfield Beach.

Services provided under this contract range from planning and design to permitting, bidding, and construction administration services in connection with water treatment and supply/distribution and wastewater collection facilities, effluent disposal and reuse, environmental assessment, and/or miscellaneous infrastructure improvements. Work also includes general consulting, stormwater and environmental engineering design, on-site representation, and cost estimating services.

Select assignments awarded under the contract are highlighted below:

West Water Treatment Plant (WTP) Chemical Systems Replacement. Hazen led the design and permitting of upgrades to the West WTP Chemical Storage and Feed Facilities. The West WTP utilizes several chemicals as part of the overall nanofiltration (NF) and reverse osmosis (RO) treatment processes, including sulfuric acid, antiscalant, corrosion inhibitor, and sodium hydroxide (a.k.a., caustic). These chemical systems were

Project Highlights

- General consultant for water and wastewater projects
- Stormwater Utility
- Water Treatment Plants
- Deep Injection Wells
- SCADA and PLC
- AWIA Compliance

Core Project Team

Tyler Davis, PE
George Brown, PE
Monica Pazahanick, PE
Janeen Wietgrefe, PE, PMP
Gerrit Bulman, PG
Angela Giuliano, PG
Evan Curtis, PE

Project Profile

Design Duration:
2017-Present

Construction Duration:
Varies

Total Fee:
$988,000 (fee-to-date)

Project Cost:
Various

Reference

Joshua Niemann
Water Plant Manager
City of Deerfield Beach
290 Goolsby Boulevard
Deerfield Beach, FL 33442
(954) 480-4369
JNiemann@
deerfield-beach.com

Hazen has assisted the City with meeting all regulatory milestones for the injection wells under this contract.

Hazen assists the City with resolving injection well operation and regulatory compliance issues by collaboratively tracking changes in performance and designing a rehabilitation program to restore capacity. **Hazen's efforts have protected the use and reliability of existing infrastructure.**

designed as part of the original membrane plant design under prior building code requirements and as such, required improvement to achieve current code requirements. Because maintenance challenges associated with the underground piping for these chemicals has increased, the City decided to replace these chemical systems along with all associated piping. The project includes demolition of existing sulfuric acid, antiscalant, corrosion inhibitor, and caustic storage and feed facilities and replacement with new improved facilities.

Deep Injection Well System Mechanical Integrity Testing. Hazen prepared planning documents for the mechanical integrity testing of the City's Class I industrial deep injection well at the West WTP. Work included management of field services and regulatory communication during testing and submittal of a certified report to FDEP following successful testing of the well.

Deep Injection Well System Rehabilitation and Rerating. For this multi-phase project, Hazen is providing services to investigate and restore capacity of the City's Class I injection well. The first phase involved planning, permitting, contract document preparation, and procurement assistance. Hazen prepared a technical memorandum (TM) for the evaluation of the deep injection well system performance as well as planning documents, specifications, and contract for rehabilitation and rerating of the City's Class I industrial deep injection well at the West Water Treatment Plant. The TM outlines the history of performance issues, previous work and recommendations, and current capacity losses. Hazen also prepared a plan for investigating and mitigating additional capacity losses. The second ongoing phase includes injectivity testing, oversight of contractor rehabilitation activities including geophysical logging, tubing brushing, reverse air development, and acidization to restore injection capacity.

Hazen avoids conflicts during construction by preparing a detailed Maintenance of Plant Operations (MOPO), ensuring the contractor understands the limits of construction at the fully operational WTP.

West WTP FDEP UIC Class I Injection Well, IW-1, FDEP Operation Re-permitting. Hazen prepared the application for operation re-permitting, coordinated with the FDEP, reviewed operational data, and updated the injection well system Operation and Maintenance Manual. We continue to provide post-application services and correspondence with FDEP.

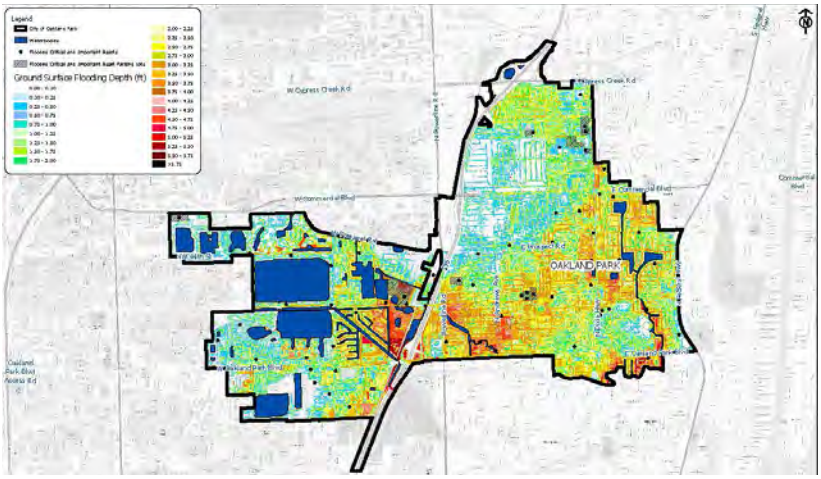
Stormwater Utility Fee Update and Non-ad Valorem Implementation. Hazen provided assistance to the City in the update and modification of the City's Stormwater Utility Program. Work was accomplished in two phases. Phase I will update the most recent impervious area GIS and develop stormwater utility fee financing scenarios in accordance with the City's existing Citywide Stormwater Master Plan. The fee adjustment will cover future capital improvement expenses as described in the City's CIP and will evaluate the impact of different funding methods including PayGo and financing through a government loan program or commercial lending. Phase II will encompass the work required to implement the stormwater fee as a non-ad valorem stormwater assessment on the property tax bill starting in Fiscal Year 2024.

America's Water Infrastructure Act (AWIA) Compliance. The City developed the Risk and Resilience Assessment (RRA) in compliance with the AWIA and requested Hazen complete the AWIA compliance by preparing the Emergency Response Plan. Hazen developed the ERP based on the City's RRA and ensured the City submitted certification to the EPA to confirm completion of the ERP prior to the deadline. Further, Hazen identified incident specific responses to be developed under future efforts.

1021-646

City of Oakland Park General Civil Engineering, Building Architectural, and Landscape Architectural Services

Oakland Park, FL



Since 2018, Hazen has provided stormwater and water/wastewater services to the City of Oakland Park. Services range from planning and design to permitting, bidding, and construction administration services.

Select assignments awarded under the contract are highlighted below:

Project Highlights

- General civil, building architectural and architectural services.
- Stormwater master planning
- Flooding vulnerability assessments
- Compliance AWIA
- Funding Assistance

Core Project Team

Robert Taylor, Jr., PE
Janeen Wietgrefe, PE, PMP
Michael Wengrenovich, PE
Rachel Loffing, EI

Project Profile

Design Duration:
2017-Present

Total Fee:
$875,000 (fees to date)

Construction Duration:
Varies

Project Cost:
Varies per project

Reference

Albert Carbon III, PE
Public Works Director
Engineering and
Construction Management
3801 NE 5th Avenue
Oakland Park, FL 33334
(954) 630-4458
albertc@oaklandparkfl.gov

Stormwater Master Plan. Hazen developed a detailed stormwater model in ICPR4 to understand the City's composition, known vulnerabilities and to identify critical and important assets. Modeling results facilitated the identification and prioritization of specific vulnerabilities throughout the City, which directed recommendations for adaptation strategies and effective solutions to increase resilience to climate change. The City is presently designing improvements recommended under the Master Plan. Hazen's work allows the City to prioritize and plan future projects to strengthen the City's infrastructure as well as identify procedures to better prepare for and recover from the risks associated with climate change.

Hazen developed a Citywide stormwater master plan as well as a flooding vulnerability assessment. The City is presently engaged in the design of pump stations and pipelines developed under those efforts.

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Hazen

Flooding Vulnerability Assessment. Hazen completed the flooding vulnerability assessment in parallel with the Stormwater Master Plan under a separate grant funded assignment. Hazen performed the project in strict adherence with the grant requirements and met all deadlines and grant stipulations. Through this effort, Hazen secured the City's funds through the City's Florida Department of Environmental Protection Grant.

NPDES Permit Assistance. Hazen assisted the City with maintaining regulatory compliance with the National Pollutant Discharge Elimination System (NPDES) for the last four years. The City is a co-permittee with Broward County and other municipalities and as such requires significant coordination and documentation. Hazen services also included preparation of a bacterial pollution control plan.

Compliance with AWIA. Hazen prepared the Risk and Resilience Assessment (RRA) for compliance with America's Water Infrastructure Act for the City. Hazen identified assets of the City's water system that could be impacted by malevolent acts and/or natural hazards; assessed the risk and resilience of critical assets of the water system, identified the highest risks to mission-critical operations, assisted the City in the submission of certification statements to EPA to confirm completion of the RRA. Following completion of the RRA, Hazen completed the Emergency Response Plan (ERP) for the City and ensured proper certification with EPA.

North Andrews Garden Pump Station. Hazen prepared a design for the North Andrews Garden Pump Station and completed permitting efforts to ensure discharge through the DOT infrastructure.

Sailboat Pointe Water Audit. Hazen analyzed water meter data to assist the City with identifying the source of water loss.

Funding Assistance. In addition to preparing for applications for Florida Resilient Grants, Hazen is presently providing services for compliance with the Clean Water State Revolving Funds requirements.

Hazen assists the City with resolving immediate flooding issues while planning long term solutions to make the City more resilient

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City of Margate
Water and Wastewater General Engineering Consultant

Margate, FL

Hazen has served as one of the City of Margate's general consultants for Water and Wastewater General Engineering Services since 2007. In this capacity, we have undertaken multiple assignments for the City and gained a valuable understanding of Margate's facilities, operations, and priorities.

Projects have ranged from small, specialized studies to large, complex designs, and have addressed numerous aspects of the City's operations including the treatment and distribution of potable water as well as the treatment, reuse, and disposal of wastewater.

Hazen's most recent assignments during the last several years of the contract have included the following projects:

- Water Supply Plan Update, 2020
- Water Use Permit, 2020
- Wastewater Treatment Plant Operation Permit Renewal, 2020
- Injection Well Permit Renewal, 2020
- Comprehensive Plan Update
- West Wastewater Treatment Plant Design Criteria Package
- Structural Analysis of East Wastewater Treatment Plant Aerobic Digester and Aeration Tank
- Risk and Resilience Assessment under AWIA
- Emergency Response Plan under AWIA
- Ground Water Rule Challenge Study, MIEX Evaluation, and Computational Fluid Dynamics Modeling
- Breakpoint Chlorination and Disinfection By-Product Jar Testing
- Hypochlorite System Evaluation
- Wastewater Treatment Plant Operating Permit Renewal Application and Capacity Analysis Report
- West Wastewater Treatment Plant Digester Rehabilitation
- Injection Well Mechanical Integrity Testing

Project Highlights

- General consultant for water and wastewater projects
- Water supply, treatment and distribution
- Wastewater treatment
- Reclaimed water treatment and distribution
- Life-cycle management for aging utility infrastructure

Core Project Team

Janeen Wietgrefe, PE, PMP
Jennifer McMahon, PE
George Brown, PE
Michael Wengrenovich, PE
Jean Paul Silva, PE
Evan Curtis, PE

Project Profile

Design Duration:
2007-Present

Construction Duration:
Varies

Total Fee: $2.9 million
(fee-to-date)

Project Cost:
Varies

Reference

Gio Batista, PE
Public Works Director
City of Margate
102 Rock Island Road
Margate, FL 33063
gbatista@margatefl.com
954.972.8126

Previous projects include the Alternative Water Supply Evaluation, Wastewater Secondary Treatment Alternatives Evaluation, Reclaimed Water Facility Water Use Planning, East Wastewater Treatment Plant Membrane Bioreactor Feasibility Study, Reclaimed Water Directional Drill Design Criteria Package, Ground Water Rule Assistance, Reclaimed Water Directional Drill Services During Construction, Reclaimed Water Filtration Facilities Design, Hydropneumatic Tank Replacement, and Large User Delivery Method Hydraulic Modeling and Cost-Benefit Evaluation task orders.

Select projects are highlighted below.

Design Criteria Package (DCP) for West WWTP Upgrades

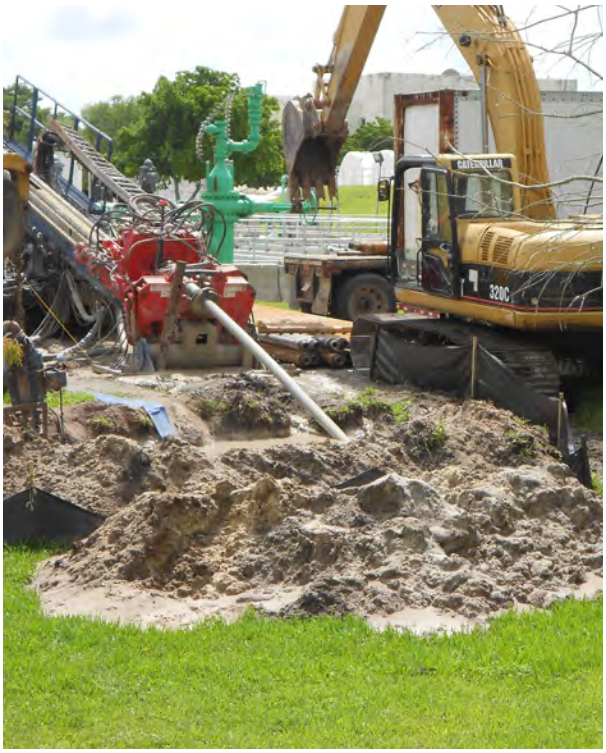
Hazen is presently preparing the DCP for the West WWTP Upgrades, which includes rehabilitation of the existing headworks and replacement of the rotating biological contactors (RBCs) with a fine bubble activated sludge system. Hazen will issue the DCP for the City to issue with an RFQ. Hazen will assist the City with evaluation of proposals and oversight of the contract.

Risk and Resilience Assessment (RRA) and Emergency Response Plan (ERP)

Under America's Water Infrastructure Act (AWIA), Hazen prepared both the RRA and the ERP for the City's water infrastructure. Hazen identified risks and mitigation efforts for those risks for the City to implement. Hazen also developed the ERP to provide incident response procedures to the City. The City maintains a checklist to ensure recommendations are implemented.

Design Criteria Package for Pipeline Crossing by Horizontal Directional Drilling

Projects associated with the Reclaimed Water Facility included a Financial Forecast and Rate and Fee Study to provide a financial plan of action related to construction and operation of a reclaimed water system, hydraulic modeling for reclaimed water delivery to large users, and design of necessary transmission



piping for installation via traditional open cut methods as well as directional drilling. In the case of the directionally drilled pipeline installation, Hazen prepared a Design Criteria Package (DCP) to assist the City in soliciting competitive proposals for a 20-inch HDPE pipeline crossing of a canal bordering the City's West WWTP. A key driver for the project was that the City had taken advantage of then low real estate values to purchase a property adjacent to the plant, allowing a path for the pipeline installation.

The project was implemented via a design-build approach to help expedite the construction schedule. The DCP included geotechnical boring results and identified a schematic design along with material specifications the DBF was required to design, permit, and construct. The DCP set forth requirements for design, permitting, and maintenance of traffic, as well as project management, scheduling, operations and maintenance, and coordination with other agencies and entities such as County and State government, utilities, environmental permitting agencies and the general public. The project was competitively awarded to a design-build firm, based on criteria including qualifications and price, and construction was completed in 2011.

City of Cooper City Continuing Professional Engineering Services (2009-Present)

Cooper City, FL

Since 2009, Hazen has served as one of Cooper City's consultants for Continuing Professional Engineering Services.

Work assignments under this contract encompass a range of disciplines including technical, institutional, and regulatory aspects of water, reclaimed water, wastewater, sanitary sewer, stormwater and water and wastewater treatment facilities. Projects have included the Pine Island Road Pump Station, Lift Station 2 and 49 Improvements, Master Plan Update of the Feasibility Review of Infrastructure Improvements for Wastewater, and the Effluent Reuse and Disposal Master Plan. Selected projects are highlighted below:

Pine Island Road Pump Station

Hazen provided design, permitting, bid/award phase, and construction oversight services for a pump station (with three high-service pumps) to convey water from a water storage tank to the distribution system. Hazen served as Engineer-of-Record for civil, mechanical, electrical, structural, architectural, controls, and plumbing.

The project was completed on time and on budget. The City's original budget was $2.2 million. The construction cost was $1.8 million with net zero change in contract price. Our team delivered the design and all permits nearly one month ahead of the 370 calendar day schedule.

Project Highlights

- Constructed Pine Island Pump Station below budget and one month ahead of schedule.
- Identified potential for 41% savings at WWTP.
- Performed design/build of two neighborhood lift stations.

Core Project Team

Janeen Wietgrefe, PE, PMP
George Brown, PE
Michael Wengrenovich, PE
Evan Curtis, PE
Jean Paul Silva, PE

Project Profile

Design Duration:
04/2009 - Ongoing

Construction Duration:
Varies based on project

Total Fee:
$2.6 million (fee to-date)

Project Cost:
Varies based on project

Reference

Raj Verma, PE, Utilities Director
City of Cooper City Utilities Department
11791 SW 49th Street
Cooper City, FL 33330
954.434.4300, ext. 111
RVerma@coopercityfl.org

Design-Build for Lift Stations 2 and 49

Hazen was responsible for overall project management for the design-build project of Lift Stations No. 2 and No. 49. Work included upgrades to Lift Stations 2 and 49. The project included installation of necessary connections and startup of bypass pipes and pumping equipment, demolition of existing structures, pumps and piping, applying special coating to wetwell, installing discharge piping and submersible pumps, and testing and startup of lift stations.

Effluent Reuse and Disposal Master Plan

The City owns and operates three package wastewater treatment plants that discharge treated effluent to an onsite injection well and to the City of Hollywood Southern Region Wastewater Treatment Plant (SRWWTP) where it is primarily further treated by filtration and disinfection and utilized for public access reuse. Because the City discharges to Hollywood SRWWTP, and because the City of Hollywood occasionally directs the City's effluent to the ocean outfall, the City was included as a required participant in the July 2008 Ocean Outfall Rule. The "Ocean Outfall Rule" is the common name to House Bill 7139 and Senate Bill 1302 which required the cessation (later modified to allow for peak flows) of ocean outfall based wastewater effluent disposal and mandate the implementation of effluent reuse programs. Under this project, Hazen calculated the required reclaimed water implementation to be roughly 1 mgd (0.956 mgd) and identified the cost of alternatives for reclaimed water production and distribution (or injection). As a result of this study, which identified significant costs for the production and treatment of such minimal flows, Hazen recommended partnerships with other utilities for the production of reclaimed water. As such, the City explored multiple virtual solutions and culminated their planning efforts by negotiating a deal with City of Miramar to produce 1 mgd at the Miramar Reclamation Facility.

Master Plan Update and Feasibility Review of Infrastructure Improvements

In 2007, the City completed a 20-Year Water and Wastewater Capital Improvement Master Plan (Master Plan). Subsequently, revised population growth data was published and indicated a decrease in projected wastewater capacity needs. As a result, the CITY authorized Hazen to prepare an update to Section 7.2.5 of the Master Plan ("Projected Wastewater Flows") addressing revised wastewater projections and their impact on proposed wastewater capacity requirements. In addition, the City also requested that Hazen prepare and update to Section 7.3.6 ("Additional Capacity Needs") based on the revised wastewater projections.

Hazen evaluated multiple alternatives, including purchasing an existing steel package plant from another utility; construction of a new steel plant, construction of a prestressed concrete tank. Multiple configurations existed for each alternative, including whether additional treatment capacity was added and/or digestion capacity. Hazen prepared cost estimates and summarized the benefits of each alternative for the City's consideration.

Hazen is presently preparing the 2024 Master Plan Update for Water and Wastewater.

Membrane Plant Replacement Project

Hazen designed the replacement of the nanofiltration elements along with refurbishment of the existing four membrane skids at the George A. Haughney WTP. Hazen provided design for replacement of 1,204 membrane elements, first stage permeate throttling valves, concentrate check valves, one additional pressure vessel and appurtenances on each skid, and SDI testing apparatus. Hazen is presently assisting with award to the contractor and will provide on-site construction oversight.

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4 Approach to Project Management

4 Approach to Project Management

This section describes our overall execution plan, and our general approach to similar projects to those identified in scope of work presented in the RFQ.

Overall Project Execution

This section of our proposal focuses on overall project execution. It documents our approach to working within the Town's budget and time constraints and presents the following key elements requested in the RFQ:

- Coordination with other government agencies
- Initial involvement and consultation which includes establishment of communication procedures to ensure clear lines of communication with the Town Manager and Town staff
- Contract document preparation
- Project monitoring which include project management systems to track and control project issues (continuous communication)
- Approach to budgetary limitations
- Approach to Town deadlines, including methods to maintain schedules and recover should delays occur

Other methods we employ include:

- Quality control procedures (doing things right the first time)
- Subconsultant supervision (selection of qualified personnel and firms we know will deliver)
- Contract compliance and enforcement of industry standards
- Development of cost estimates and value engineering

Some of these methods are discussed in more detail below.

Working Within the Town's Budget and Time Constraints

Meeting budget and schedules begins with development of a detailed scope of work and Work Plan. The detailed scope of work defines the activities and milestones for completion of activities. As the detailed scope of work is being developed, we begin creating a Work Plan specifically tailored to each task assigned under this contract.

Work Plans should clearly identify tasks, level of effort (i.e., resources), and realistic milestones. We firmly believe that proper up-front planning and doing things right the first time are key ingredients for delivering a quality work product.

Work Plans are the vehicle used by Project Managers to provide the direction and information needed by team members to **execute the scope of work within the Town's budget and time constraints.**

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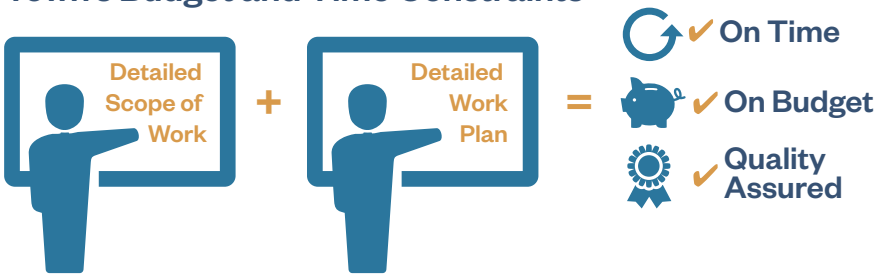
Using Work Plans is key to Hazen's project management system

and provides the tools needed to work within a project's budget and time constraints.

Our work plans include a detailed Work Breakdown Structure (WBS) that lays out activities and relationships, so the entire project team understands their specific roles. We utilize network-logic based scheduling software (i.e., Microsoft Project or Primavera P6) to develop "realistic" schedules for the entire project, including preliminary design, final design, permitting, bidding and award, construction, and startup. The backbone of the schedule is the WBS. We hold ourselves to the same industry standards that we require of construction contractors to plan the work, identify sequencing and constraints, and optimize the overall schedule to expedite the work.

Hazen is Committed to Meeting the Town's Budget and Time Constraints

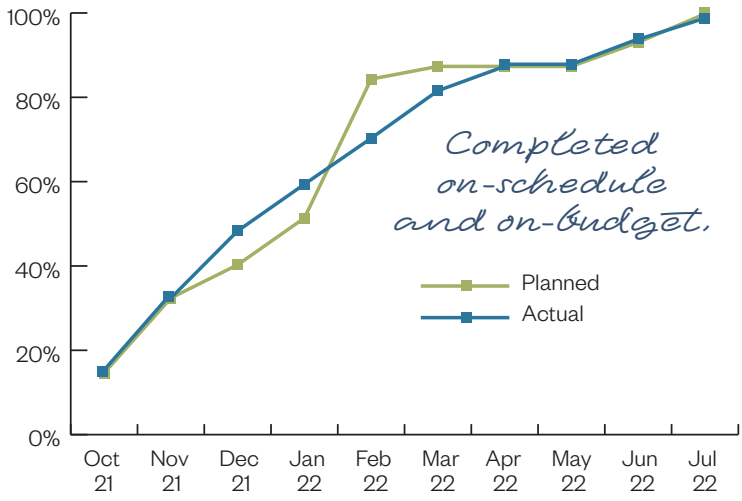


The Project Manager and Project Director routinely monitor progress

throughout the entire task to ensure work meets quality, budget, and schedule requirements.

Project instructions are issued with easily understood guidance and instructions to design team members. Project instructions describe the work product to be produced, a schedule that is agreed to by team members, and level-of-effort in terms of hours. The Project Manager and Project Director routinely monitor progress throughout the entire task to ensure work is being performed on a timely basis and within budget. The graphic below illustrates one of the many tools that Hazen uses in its work plans to monitor project progress.

Cumulative % Complete Example



Using Work Plans is key to Hazen's project management system

and provides the tools needed to work within a project's budget and time constraints.

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Quality Control Implementation Procedures

A key reason for Hazen's success is our continuous attention to quality. To achieve the high level of quality we expect of ourselves, we have developed design guidelines for all aspects of water treatment plant design, stormwater and wastewater collection system design. Our design guidelines enhance the quality of our designs, directly benefiting our clients; high-quality designs typically have lower bids.

Every work product produced requires review by appropriate professionals prior to submission. This practice applies to all work performed by Hazen and the work of our subconsultant.

Hazen's Quality Assurance program begins with the opening of a project once our client provides authorization to commence work. A Quality Assurance plan must be submitted for a project to be opened. Our commitment to quality control is demonstrated in our Quality Assurance Policy specifically designed to ensure our engineering services and work products are of highest quality throughout all phases of the project. Hazen also recognizes the talent of our employees and encourages their contribution to the Quality Assurance Policy to further improve our quality processes. At Hazen, the Project Manager is responsible for implementing our Quality Assurance Policy with assistance from the Project Director.

Equally important to Hazen's internal review practice, is the quality control that is applied to the entire team. Each of our subconsultants is required to comply with the stringent requirements that are outlined in our internal Quality Assurance Policy. This approach further defines the quality of engineering services our clients can expect from Hazen.

Every project is required to have a QC Plan, and execution and adherence to the plan is strictly enforced.

Quality Control Approach

Develop QC Plan

- Establish QC reviewers
- Identify QC review milestones
- Set review schedule and budget

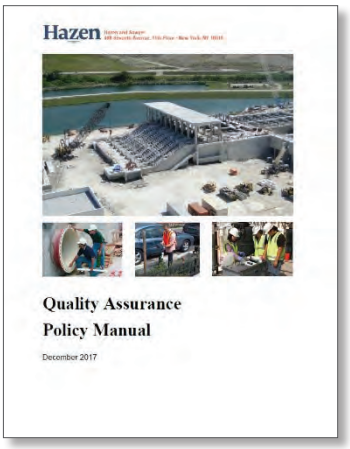
Perform QC Reviews

- Receive and document comments
- Document how comments are addressed

Update Documents to incorporate comments

- Meet with QC reviewers to discuss/resolve comments
- Inform QC reviewers how comments were addressed

Submit to Town for review



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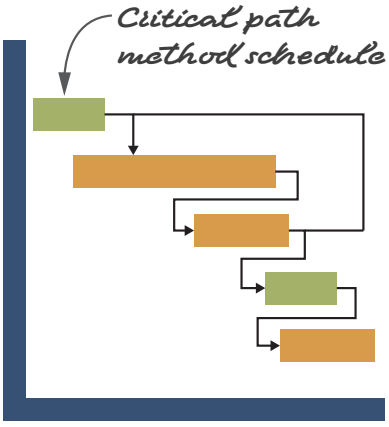
Subconsultant Supervision

Hazen has a culture of utilizing local and qualified resources whenever possible. We develop full-service offices near our clients and support our communities in many ways. Use of local and qualified firms is always a goal to supplement our team's qualifications. We incorporate team members as though they are part of our family. Our clients recognize this effort and often comment on how seamless our professional services are. As with our own staff, we work with team members to require and commit them to the same level of excellence that we require of our own staff. This unity results in high quality of services expected when clients retain Hazen.

Contract Compliance and Enforcement of Industry Standards

Hazen has a proactive approach to project management to ensure our contract compliance. We focus on critical elements such as manufacturing standards, factory testing checkouts, on-site soils, concrete placement, pipe testing, equipment testing, and normalization of RO membrane performance. During the construction phase, daily checks are performed to confirm compliance with contract documents and adherence to industry standards.

Construction oversight is key to ensure compliance and enforcement and you are in good hands with Aaron Cutler, CGC, who has provided these same services to the Town under previous employment for many years. Hazen understands the need to maintain a high standard of care to deliver high quality services.



Proactive management and working the critical path of a project **typically avoids schedule delays.**

All of Hazen's team members, including our proposed subconsultant, commit to the Town that they will dedicate the necessary time to successfully complete all assigned tasks to the satisfaction of the Town's staff and stakeholders.

Schedule Control

To ensure that delivery deadlines are met, project schedules are developed along with the project scope and updated to reflect the notice to proceed date immediately following its issuance for each individual assignment. For lengthy and complex projects, a detailed project schedule will be developed in Primavera P6 or Microsoft Project.

The project schedule details the steps required to complete the project utilizing a critical path methodology. Using scheduling software provides a time management tool to better track progress of the project in real time. These types of scheduling techniques are tailored to the complexity of the project and reporting preferences of our clients. **Our Project**

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Director, Kurt Pfeffer, PE, and Project Manager, Tyler Davis, PE, will be responsible for ensuring that all task schedules are met. Hazen subscribes to a strong project manager approach where all lines of communication are via the project manager. The project manager is responsible for maintaining full knowledge of all aspects of the project. This approach is designed to provide one person answerable to the Town at all times.

Proactive management and working the critical path of a project ensures projects are delivered on-time.

Risk Register

Avoiding potential project delays is feasible by developing mitigation measures early in the project development cycle. This is accomplished by developing a Risk Register. The Risk Register develops "what if?" scenarios that might result in project risk, such as cost escalation, schedule delays, or permit challenges. The Risk Register identifies mitigation measures to avoid risks, including schedule delay risks. An example risk register is presented below.

Projects that stay on schedule through careful, well planned systems are typically on budget and of high quality. **Completing work correctly the first time saves both time and effort and results in a higher quality product since no re-work is needed.** This simple concept applies to both design and construction and is important to maintain schedule and quality.

Example Risk Register

Informed, Contingency-Based Design Decisions

Risk Type	Specific Risk/Hazard(s)	Mitigation Measures
Design schedule delay	Delay in design decisions	Prepare detailed Process and Instrumentation Diagrams at the 10% design stage to accelerate design decisions.
Health and safety of workers	Fall	Require contractor health and safety plan
Commissioning delay	Bacterial contamination	AWWA C651 and C653

Budget Control

Hazen is committed to cost control in all phases of the project. This commitment is supported by effective design management, construction cost management, and an estimating group committed to highly accurate estimates.

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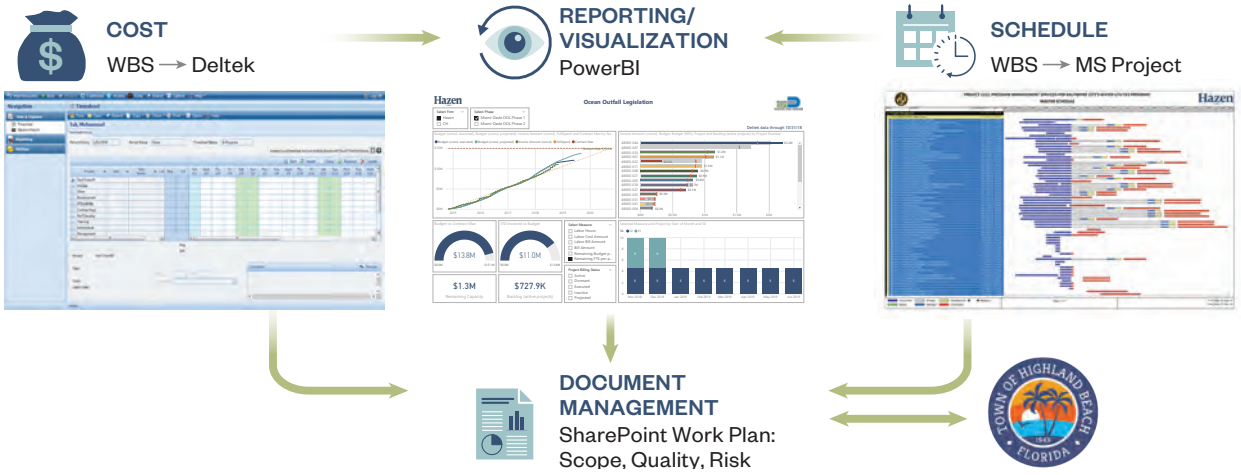
Cost Control of Design Process

This process begins with development of a work plan that defines deliverables and due dates, assigns staff and resources needed for the duration, details the effort and expertise required by each task, and overlays a defined project schedule.

Our proposed Project Manager, **Tyler Davis, PE,** will closely monitor the progress of each activity to identify any issues that could negatively impact the budget and/or schedule, and if issues arise, develop a corresponding corrective action plan. We will provide the Town with monthly progress reports and utilize Deltek Vision for project planning and progress tracking including the work of our subconsultants.

Hazen uses Deltek Vision to provide rapid and accurate accounting of project labor, subconsultants, and other expenditures. These project data facilitate keeping the project on schedule and on budget. We also use reporting visualization tools such as PowerBI® to keep track of progress schedule and budget. These tools can be used to facilitate communication and reporting to the City.

Work Plan



Designing to Budget

Cost estimating is a critical part of our design process and cost control methodology. **Cost control starts with close coordination with the client to develop a clear, detailed project scope, ensuring the project is designed to budget.**

Hazen will maintain costs within the defined goals using constructability analysis, value engineering, budget constraints, and scheduling to achieve the Town's goals. We will produce cost estimates during milestone phases of the design and review and refine the design to maintain the project's budget.

Designing to budget is important to meet client expectations. We understand that each project has a budget, and we will commence development of an opinion of probable construction costs from the 30% complete phase through final design (i.e., bid documents). The formulation of project costs will be estimated using Hazen's construction database and recent bids. A range of anticipated costs will be prepared using procedures outlined by the AACE International (formally the Association for the Advancement of Cost Engineering) professionals. Constructibility reviews will also occur with at 30%, 60%, 90%, and 100% complete documents to further evaluate opportunities for cost savings.

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Contract Scope Development

- Work Breakdown Structure
- Detailed Scope of Work
- Initial Budget

Basis of Design Report

- Process Evaluations
- Life-Cycle Cost Analysis
- Project Definition
- 30% Design Documents
- 30% Cost Opinion
- Preliminary Construction Schedule

BODR Workshop

- Visualization of Project
- Client Input
- Adjustments to Project Scope to Meet Budget (if needed)
- Project Definition Set for Detailed Design

Detailed Design

- 60%, 90%, 100% Design Documents
- Constructability Reviews for MOPO Sequencing and Cost Savings
- Avoid Scope Creep
- 60%, 90%, 100% Construction Cost Opinions
- Workshops with Client at Each Phase
- Adjustments to Project Scope to Meet Budget (if needed)

Hazen's Cost Estimating Group

Hazen's Cost Estimating Group provides transparent, defensible construction cost estimates by utilizing recommended practices of the AACE, real data on cost, and construction knowledge. Various strategies are used including crew-based estimating, productivity-based estimating, general condition costs, and assessment of market conditions. We not only use databases such as RS Means to gather information, but our experience in water and wastewater projects has allowed us to create our own database using cost estimates from similar projects. Assessment of the expected schedule of work is also accounted for and extraordinary conditions are taken into account. Within our group of estimators comes a wealth of knowledge from those who have worked for contractors, owners, and construction managers. Our engineers and estimators collaborate throughout the design process to provide continuous value engineering and to understand the cost influencers as design is developing.

We utilize Dodge Data & Analytics, Gordian Group, and Turner Indices, and closely follow *Engineering News-Record (ENR)* indices to track material and construction cost throughout the country. We utilize databases such as RS Means to gather information, but our experience in water and wastewater projects and close tracking of local bid results, has allowed us to create our own database using cost estimates from similar, local projects. **Assessment of the expected schedule of work as well as consideration of global supply chain issues are taken into account when developing cost estimates.** In this respect, our experience with other similar clients in South Florida will allow us to develop accurate cost estimates for the Town.

Rose Jesse will serve as the Lead Estimator for this contract. As a Certified Professional Estimator (CPE) through the American Society of Professional Estimators, she will provide leadership and estimating best practices throughout the life of each project.

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We will leverage our AACE-certified Cost Estimators

to provide accurate budgets for the Town's CIP projects.

We specialize in providing defensible cost estimates for budgeting and decision-making

155 **estimates in 2021** were worked on from the conceptual design through bid phase

$4.3B **Total value of that work**

Over the last two quarters **we have come within** **5%** **of the low bids** submitted by contractors

Our knowledge of construction market conditions will inform the cost estimate. We understand the changing dynamics of the industry.

$15B+ **available** for LCRR-related work

+27% **rise in construction cost** prices this year

13% **increase in construction wages** due to a skilled labor shortage

Hazen's Cost Estimates to Actual Construction Costs

Hazen is committed to cost control in all phases of the project. This commitment is supported by effective design management, construction cost management, and an estimating group committed to highly accurate estimates.

Hazen will work closely with the Town to help ensure all schedules and budgets are met.

Sharepoint Dashboard – a Key Communication Tool

Web-based project dashboard allows rapid collaboration to accelerate production.

All project files are stored digitally and are accessible to the Tow n of Highland Beach.

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Cost Control During Construction Phase

Managing costs during the construction phase begins with a robust design. Our experience with tried and tested technical specifications, well-understood geotechnical conditions, and well-detailed design will keep change orders to a minimum. In addition, Hazen's value engineering capabilities often identify significant savings before construction when evaluating processes and construction methods, while maintaining quality.

Hazen uses several standard processes in meeting construction costs including:

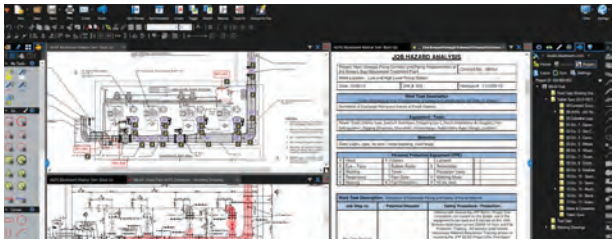
- Construction management plans that identify communication plans for stakeholders and responsibilities.
- Standardized, discipline-specific, inspection forms to capture all relevant data for specific work tasks and schedule and constructability review checklists.
- Use of technology such as programs like PROCORE, Bluebeam or Revit (BIM), and tablets have allowed for greater efficiency in cost control during construction.

Hazen Embraces the Use of Technology

The utilization of technology has allowed for greater efficiency in Hazen's CM practice

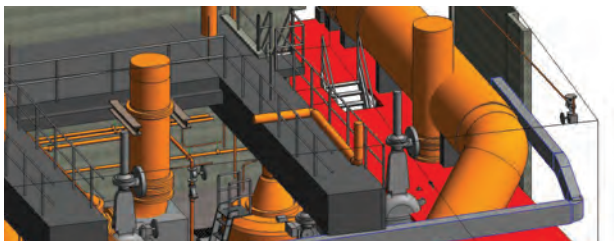
PROCORE *All members of the Hazen team are familiar with, embrace and actively utilize Procore.*

- System generates logs on demand for efficient tracking of RFIs, correspondence, permits, action items, etc.
- All project information/records are available at all times.
- Common file cabinet allows for project infoto be shared with the entire team.



Bluebeam© *At Hazen we run Bluebeam software on all devices (phones, tablets, and laptops).*

- Provides instant access to details, shop drawings, RFIs, etc., through hyperlinks on contract drawings. No need to open more windows or carry extra documents.
- Allows invites to all team members, at no additional cost, to collaborate concurrently on project issues using the same drawing.
- Creates redline drawings as work is installed, initiating closeout as project progresses.



BIM *Hazen CM embraces the use of the BIM model.*

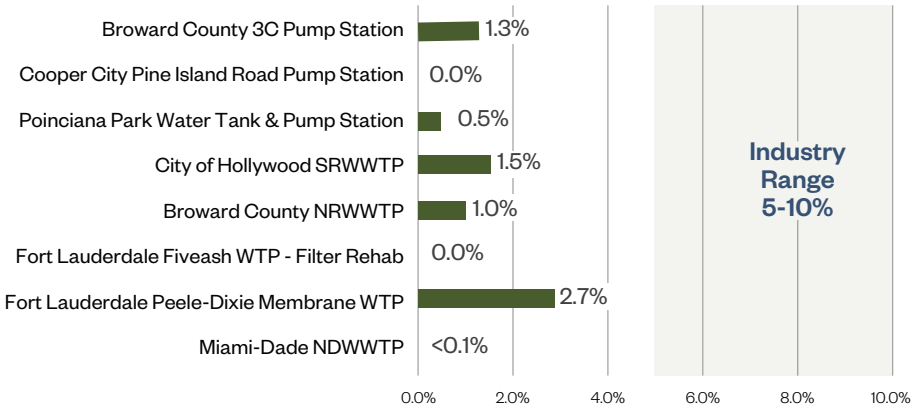
- Facilitates coordination between the various project trades (i.e., electrical, piping, HVAC, equipment).
- Simulates critical and dangerous work activities. Can run various scenarios through the model to identify clashes, risks and develop remedies.
- Creates a final as built project record.

Tablets *We use tablets extensively in the field. All project information is available to our staff in the field in real time.*

- Information is stored on tablet. Field staff has access to information needed when they need it, at the location where it is needed, not back in the trailer.
- In the case of issues or questions, photos can be taken with the tablet, correlated to and affixed to a specific drawing and location and transmitted to the appropriate project team members for resolution.
- Provides access to the full project record, including shop drawings, BIM models, etc., on site at the point of the work allows for more collaborative interaction with the contractor facilitating safety, quality and efficiency.

Demonstrated Minimization of Change Orders/Amendments

Hazen has found the keys to minimizing change orders are to have a quality design and effective contact documents, as well as a strong field team with state-of-the-art tools to manage the construction phase of the project. This is demonstrated by our strong track record of less-than-industry-average final change order costs.

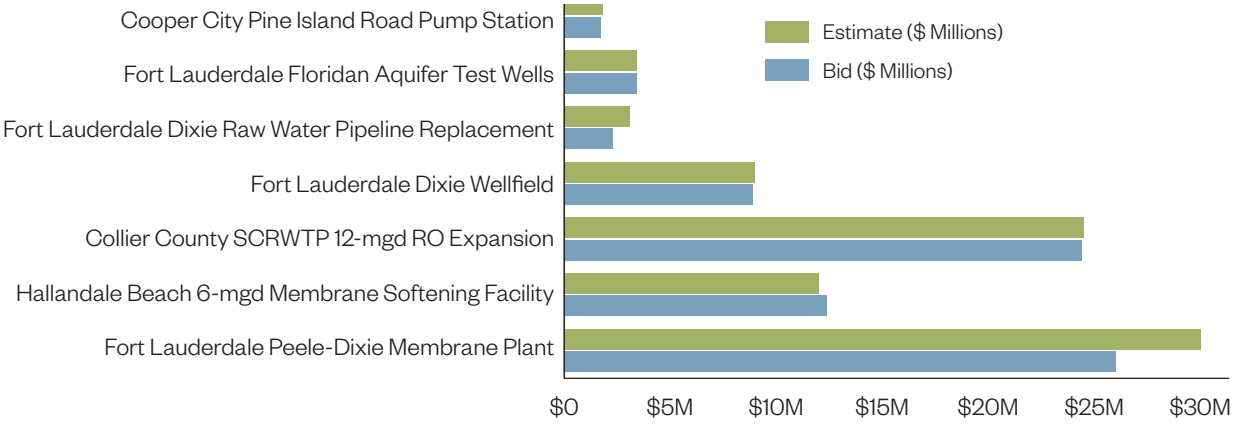


We are proud of the fact that construction change orders for Hazen design projects have historically been

< 3%

of the contractor's bid price (industry range is 5-10%)

Hazen's Cost Estimates are on Target



These data demonstrate our **ability to design to meet budget expectations.**

Project Management Systems to Track and Control Project Issues (Continuous Communication)

Hazen tracks and controls project issues through all design phases using an Action Item List. This management tool is maintained by the project team through the life of the project. It adds significant value and moves the project forward in a positive fashion. The action items are reviewed with the project team during weekly project coordination meeting. The Action Item List tool ensures project issues are tracked and documents how each was resolved.

During the construction phase, concerns are also documented, and corrective measures are discussed with both the client and contractor to resolve the issue in a mutually beneficial manner that does not impact the intent of the design. Tracking and controlling project issues is a critical step in delivering a successful project.

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Example Action Item List

City of Hallandale Beach WTP
Transfer Pump Replacement

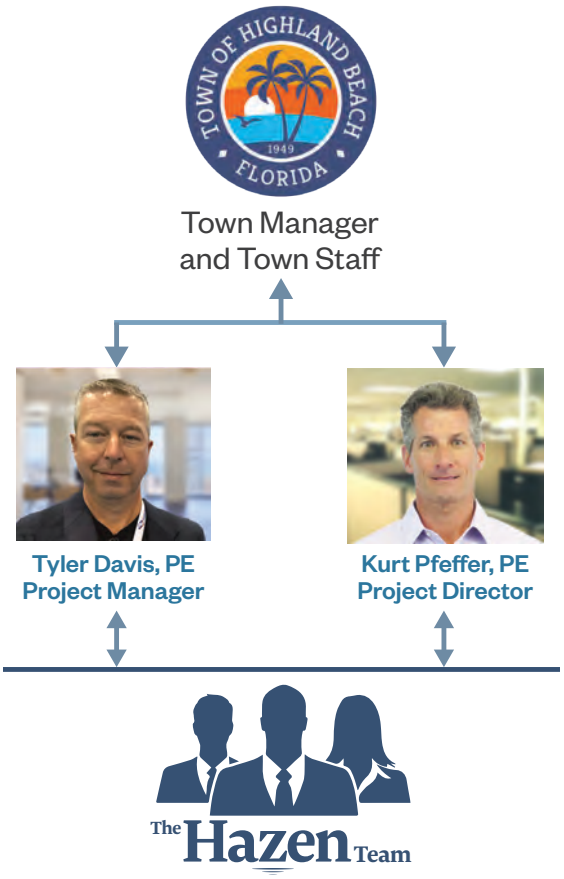
Updated on: 8/27/2018

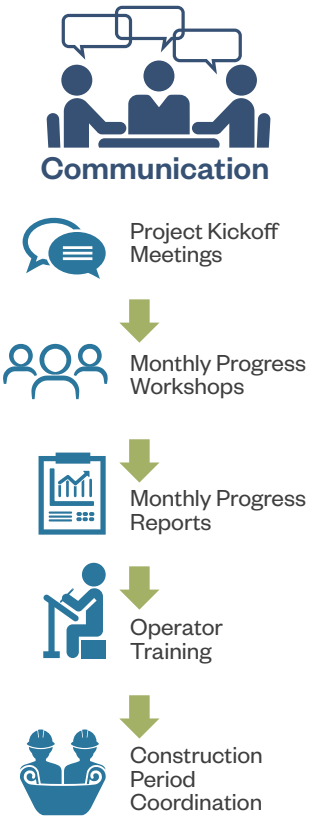
No.	Date Added	Action Item	Resolution	Responsible Party	Target Completion Date	Status	Comments
1	04/09/18	Setup project folder.	Prepared project folders.	G. Brown	04/13/18	Complete	
2	04/09/18	Prepare subcontract for lead and asbestos survey.	Subcontract executed by EE&G.	L. Medina	05/17/18	Complete	
3	04/09/18	Select background drawings from High Service Pumps to use to setup Transfer Pumps CAD Files.	Drawings are setup.	L. Medina	05/23/18	Complete	
4	05/17/18	Get insurance certificates and QC plan from EE&G.	Insurance certificates and QC plan saved in project folder.	L. Medina	05/23/18	Complete	
5	05/17/18	Get budget quote, pump selection and dimension drawings from Afton (Fred Trippenssee)	Documents received and saved in project folder.	L. Medina	05/23/18	Complete	

The Action Item List tool ensures that project issues are tracked and documents how each is resolved.

Communication Procedures to Ensure Clear Lines of Communication with Town Manager and Town Staff

Communication, communication, communication! Effective communication with all members of a project team, especially the client, are critical to success. Hazen will provide monthly updates to communicate project status, areas of concern, and pending work during the project. During design, we will submit monthly updates that present work completed, work to be completed, and any items that require further vetting. This written communication will be discussed at the project kick-off meeting and a format to present project progress will be presented for acceptance by the Town.





Ensuring clear lines of communication is essential to achieving productivity. Tyler Davis, PE, our proposed Project Manager, will be the main point of contact between the Town Manager and Town Staff. Kurt Pfeffer, PE, our proposed Project Director, will support Mr. Davis.

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Detailed Project Approach

Hazen's approach is centered around the Town's project goals and our commitment to delivering the highest quality deliverables that exceed Highland Beach's expectation for meeting budget and schedule. We will accomplish this by using our highly experienced senior engineers to lead the major tasks, who are focused on producing cost-effective and sustainable solutions.

Our Approach is Simple and Direct

Hazen's approach for project execution is simple and direct. We begin by:

1ST
Listening to the Town of Highland Beach and understanding your specific concerns and goals.

2ND
Formulating innovative, but sound and technically feasible solutions **as if we were spending our own money.**

3RD
Developing a design that is easily understood by contractors as expeditiously as possible using tried and proven project management methods.

Managing Foreseeable Construction Challenges

There are foreseeable construction challenges where cost and risk can be managed using the Risk Register as described on page 4-5.

Managing Unforeseeable Construction Challenges

There are also unforeseeable construction challenges caused by combination of human error and insufficient record information. An example would be failure of a water pipe caused by the contractor trenching in an area believed to be free of underground utilities. It is our standard practice to require the contractor to prepare an emergency response plan. This document requires the contractor to identify (in consultation with the Town and Hazen) likely failure modes, responses and response material and equipment needs. It organizes the response activity so that the Town can recover as soon as possible. An excerpt from our standard emergency response plan specification is illustrated below.

PROJECT NO. 12197

SECTION 01535 - EMERGENCY RESPONSE PLANNING

PART 1 -- GENERAL

1.01 EMERGENCY RESPONSE PLAN REQUIREMENTS

During construction of the improvements described in these documents, it is conceivable that water piping critical to the production of drinking water in the City of Fort Lauderdale (OWNER) could be impacted by construction activities such as, but not limited to vibration, excavation, sheeting, etc. Depending on the magnitude of the impact, the OWNER's ability to produce water could be compromised. Consequently, the CONTRACTOR shall develop an emergency response plan as described herein.

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All Available Grant/Funding Opportunities for this Contract Will be Pursued

Sharon Simington
Grant Management

In addition to the State Revolving Fund, grant and funding opportunities such as the Alternative Water Supply grant program should be explored as a means to fund projects under this contract. **Over the past 20 years, Sharon Simington** has depth of experience working with local governments to fund infrastructure projects that better communities. As the Southeast Regional Funding Program Leader for Hazen, she focuses her experience on water, wastewater, and stormwater utilities projects and provides the planning, application, and administration for capital improvement projects.

Ms. Simington has many relationships with funding agencies, community members and leaders, and consulting engineers. She helps clients in various industries and disciplines to identify potential funding sources. She leads efforts to secure alternative funding for a variety of clients and projects, acting as the liaison between agency and community, providing a smooth funding experience and cohesive working environment. Ms. Simington has been responsible for creating funding strategies that lays out groundwork for funding for either a single project or an entire CIP's worth of projects.

SFES Construction Services (President and Founder Aaron Cutler, CGC, PMP)

Mr. Cutler will provide a trusted level of service and detailed oversight of all the Contractor's plans, phasing, and installation methods so that the construction of your vital infrastructure project goes smoothly. The below key components were established by Mr. Cutler through his long history with the Town of Highland Beach and are the foundation of SFES.

Aaron Cutler, CGC, PMP
Construction Inspection

- **Responsiveness:** The nature of construction services is such that responsiveness is the key to resolving construction issues in the field so that the Contractor's crews are not ever on stand-by, which could result in contractor claims or project delays. SFES takes great pride in ensuring that they are immediately accessible and responsive to their client's needs. This has been demonstrated over the last 15 years and numerous successful projects, Mr. Cutler has personally steered to the finish line for the Town of Highland Beach.
- **Leadership:** It is extremely important for the Town of Highland Beach's Construction Management Scope of Work, that the Town is provided a lead Construction Manager as the primary point of contact during construction who can respond to issues and needs pertaining to each phase of the Contract. This person must be knowledgeable of the projects and provide an efficient means of communication between the Town of Highland Beach, Permit Agencies, Design Engineering Team, General Contractor, and all Sub-Contractors. Mr. Cutler will personally perform and oversee all construction management services for this contract and will be the Town's central point of contact during construction. **Mr. Cutler is a State Licensed Certified General Contractor (CGC), Project Management Institute Certified Professional (PMP), and Senior Construction Manager** with over 20 years of construction management and

Mr. Cutler will bring all of his past experience and success to your future projects, while meeting your technical standards, budget, and schedule needs. The Town of Highland Beach will be his primary focus and SFES will always give 110% commitment to complete every project task within the required time and budget constraints.

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inspection experience. He has built his career on a hands-on approach and doing "whatever it takes" to confirm project success. Mr. Cutler has demonstrated on numerous past Town of Highland Beach Water & Sewer projects that he will take personal ownership of any construction project assigned and will confirm your satisfaction.

It is SFES' primary goal to provide the Town with an experienced, responsive, and accessible construction management team who will oversee and administer successful projects to the Town, their residents, and all project stakeholders.

Operation and Maintenance (O&M) of a water facility can pose challenges for even the most seasoned utility staff personnel. **Hazen can help you meet those challenges.**

Hazen's Startup, Training and Operations Services

With over half a century of experience in the design and operation of environmental infrastructure, along with over 1,700+ of the most experienced and specialized engineers, operators, and administrative staff in the industry, Hazen is ready to meet your O&M challenges and help solve your toughest problems.

From individual O&M services to multi-million dollar, large-scale O&M programs, Hazen has the experience and resources to meet all your O&M needs.

Make Your First Step a Success

Successful start-up and facility operation depends not only on design, but also on operating personnel who understand the interaction between systems and equipment. This is where expertise from our O&M professionals can help.

A sampling of the wide spectrum of services Hazen can provide includes the following:

- Personnel training
- Plan of operation, Standard Operating Procedures (SOP), O&M manuals, and pocket guides
- First-year operations certification
- Process troubleshooting and optimization
- Computerized maintenance manuals and equipment maintenance databases
- Effective predictive and preventive maintenance programs
- Safety program preparation
- Vulnerability analysis and emergency planning

The Hazen Difference

Nearly 100 percent of our business is in the water and wastewater fields. Hazen is one of the very few engineering firms in the *Engineering News-Record* Top 500 listing who share this specialization. This focus enables us to achieve excellence in water resources engineering and facilities O&M. As a client, you can rest assured that we anticipate and solve problems before they turn into setbacks for your organization.

Hazen's O&M professionals offer a mix of learning approaches tailored to the specific needs of your organization. Our user-friendly training allows attendees to bring new concepts and skills back to their workplace.

Hazen's portfolio of work ranges from smaller facilities to many of the most sophisticated plants in the world. We provide O&M assistance, from bringing a new piece of equipment on line to analyzing your entire operation.

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Start-up, Shakedown, and Testing

Drawing on Hazen's in-depth knowledge of process design and environmental engineering, our start-up, shakedown and performance/acceptance testing services assist with a broad range of facilities, processes, and equipment.

User-Friendly Training and Safety Support Services

In collaboration with your staff, Hazen's O&M professionals offer hands-on classroom training, innovative training facilitation, as well as the creation of O&M manuals, SOPs, SEMPs, and related documents.

We also have extensive knowledge of Occupational Safety & Health Administration (OSHA) regulatory requirements and have years of experience helping personnel put these requirements into practice at water and wastewater facilities. Hazen instills a proactive, "safety first" attitude, whether we are writing OSHA-compliant, site-specific safety procedures and written safety programs; conducting facility safety audits and existing safety program peer reviews; or providing safety training of your facility personnel.

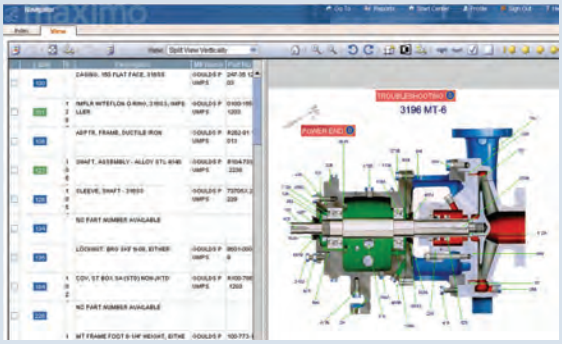
Hazen places a strong emphasis on user-friendly training and facilitation to keep your facilities in optimal condition and your employees safe and healthy.

Troubleshooting and Improved Operations

Hazen has helped some of the world's largest and most complicated water and wastewater facilities with troubleshooting services and money-saving operations improvements, such as Process Control Systems (PCS) and consumables optimization. We also offer assistance with regulatory compliance issues.

Maintenance Management: A Predictive Approach

Our predictive, preventive, and corrective maintenance services use a mix of real-world condition assessments and advanced techniques. Hazen utilizes a Computer Maintenance Management System (CMMS) to help our clients effectively manage assets and avoid costly unplanned failures.



A CMMS can help streamline maintenance tasks and maximize up-time. Shown above is a screen capture depicting spare parts inventory for a pump.

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5 Resources, Availability, and Commitment

5 Resources, Availability, and Commitment

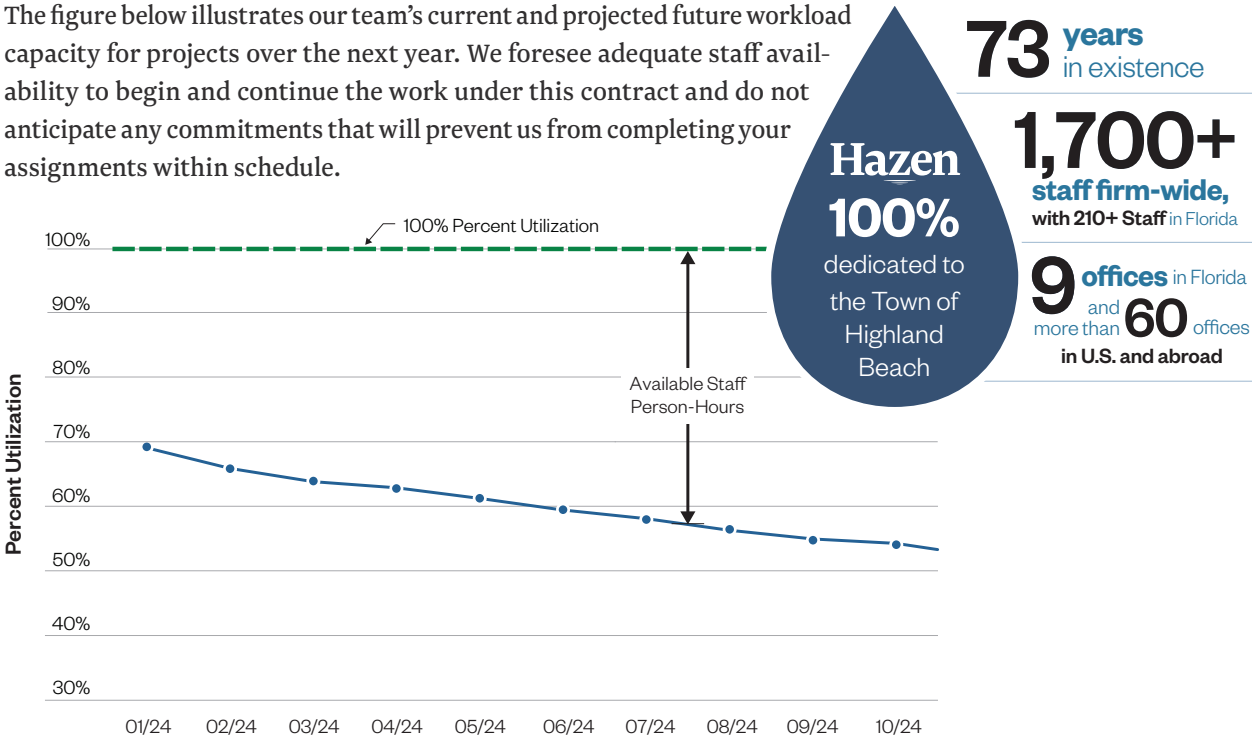
The Hazen Team understands the importance of maintaining schedule and budget, and realizes that this enables the Town to provide the quality of service promised to its customers. **The Hazen Team commits to meeting your schedule and budget requirements, and being responsive to your requests on every work assignment.**

Current and Projected Workloads

Hazen has a continuing and ongoing process to track workload of our staff in all of our offices. We have staff available to provide the complete range of services required for the expected duration of this contract. The Florida staffing team works diligently to identify any staffing overages or shortfalls and can respond quickly to any staffing need. For the Town of Highland Beach, the process will allow our local staff to always be available for any project assigned to Hazen.

A careful examination of the Hazen Team's current and planned workloads confirms that the appropriate resources are available to work on assignments awarded under this contract. If additional resources are necessary to support our team, Hazen maintains sufficient staff in our nine Florida offices and also has the capacity to draw upon our firm-wide staff members of >+1,700 resources should unforeseen circumstances occur or if specific expertise is required. In addition, Hazen employs more than 90 people working in the Boca Raton and Hollywood offices alone ensuring responsive local service. We take pride in our responsiveness in meeting the needs of our clients.

The figure below illustrates our team's current and projected future workload capacity for projects over the next year. We foresee adequate staff availability to begin and continue the work under this contract and do not anticipate any commitments that will prevent us from completing your assignments within schedule.



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Projects Currently Under Contract

The following is a list of the current projects being performed from our Boca Raton office.

Current Workload for Team Members

Our proposed Project Manager, **Tyler Davis, PE,** will maintain regular communications with the Town. Through this communication, we will be able to anticipate required resources and proactively plan staff assignments. Should unforeseen circumstances occur, and project acceleration is required, our team has the necessary support and backup staff at all levels with experience in all disciplines required. If additional resources are necessary to support our team, Hazen maintains sufficient staff in our nine Florida offices and has the capacity to draw upon our 1,700+ firm-wide staff members.

The table below is a list of active projects for our Boca Raton office, which will be the responsible office for the proposed contract. If additional resources are required at any given time, we can assure you that we will meet those needs and make the commitment to keep each awarded project on schedule. Our Project Manager and all key project team members will dedicate the necessary time to see each task through from conception to completion.

Client	Project Name	Estimated Completion Date
Town of Jupiter	Floridan and Surficial Raw Water Line Extensions - Construction Phase Services	Dec-24
Haskell Globaltech JV	Fort Pierce Utilities Authority (FPUA) Mainland WRF Phase 3 - Construction Phase Services	Oct-25
Globaltech, Inc.	FPUA WTP Control Room Redesign	Oct-24
City of Deerfield Beach	West WTP Injection Well W-1, FDEP UIC Permit Renewal Application	Nov-24
City of Deerfield Beach	Professional Engineering Services for the Rehabilitation of Injection Well IW-1 Oversight and Rerating, West WTP	May-24
South Central Regional Wastewater Treatment and Disposal Board (SCRWWT&DB)	General On-Call Engineering Services	Sep-24
SCRWWT&DB	Gravity Belt Thickener Installation Design Services	Sep-24
SCRWWT&DB	Pipeline to Injection Well No. 2	Jul-24
SCRWWT&DB	Anaerobic Digestion Facility Preliminary Design	Jun-24
SCRWWT&DB	Injection Well No. 1 MIT Report	Mar-24
SCRWWT&DB	Construction Oversight for Injection Well No. 2	Apr-24

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Client	Project Name	Estimated Completion Date
Palm Beach County Water Utilities Department (PBCWUD)	Southern Region WRF Secondary Clarifier and Effluent Filtration Improvements - Construction Phase Services	Dec-24
PBCWUD	CSA 02: Southern Region WRF Process Improvements Design/Construction Services	Aug-25
City of Boca Raton	Building 11 Rehabilitation and Improvements at the Water Treatment Plant (Design)	Feb-24
City of Delray Beach	Initial Owner's Representative Services (Water Treatment)	Jan-24
East Central Regional Water Reclamation Facility (ECRWRF) Operations Board	East Central Regional Water Reclamation Facility (ECRWRF) Process Water System	Jun-24
ECRWRF Operations Board	ECRWRF Capital Improvement Program – Aeration Basin No. 5 Improvements and New Headworks Bypass to Junction Box - Construction Phase Services	Sep-24
City of West Melbourne	Renewal of Injection Well Permit	Mar-24
City of West Melbourne	Production Wells	Mar-24
City of West Melbourne	Water Treatment Plant Final Design, Permitting, and Bidding	Oct-24
City of West Melbourne	Well Site Design, Permitting & Bidding	Dec-24
City of West Melbourne	Development and Calibration of Water Distribution System Hydraulic Model	Jun-24
South Florida Water Management District	SCADA Site Replacement Collier, Miami-Dade and Broward Counties	Dec-24
Village of Wellington	General Water, Wastewater Engineering Services	Mar-24
Village of Wellington	Anaerobic Selector Construction Phase Services	Jan-25
Hillers Electrical Engineering / Village of Wellington	WTP Emergency Generator 3 Replacement - CMS	Sep-24
Village of Wellington	Peaceful Waters Wetland Rehabilitation	Feb-24
Holtz Consulting Engineers, Inc. / Loxahatchee River District	Anaerobic Digestion and Biogas Utilization Study	Jan-24
Town of Jupiter	FY2024 SW General Consulting (CRS Services)	Oct-24
Town of Jupiter	FY2024 General Consulting Water and Stormwater	Sep-24
Town of Jupiter	FY2024 General Utility Financial Consulting Services	Sep-24

Necessary Working Capital Available

Hazen and Sawyer is a professional corporation wholly owned by employees of the firm who are licensed professional engineers. During its more than 70 years of existence, it has consistently operated profitably. Management has always followed a conservative philosophy. In this way, the firm's growth has been sustained and supported by a strong financial base.

CHASE

Gordon L. Smith
Executive Director

January 5, 2024

Skender Coma, Management Analyst
Town Clerk's Office
Town of Highland Beach
3614 South Ocean Boulevard
Highland Beach, FL 33487

Ladies and Gentlemen:

We are pleased to provide the following information regarding our client, Hazen and Sawyer, D.P.C. Hazen and Sawyer, D.P.C. was formed as an engineering firm specializing in the design and construction supervision of water supply, sewerage and industrial waste systems.

Hazen and Sawyer has maintained a relationship with our bank since 1952. Balances during the past twelve months have averaged in the low eight figures. We extend to the company a line of credit in the low eight figures. Additionally, the company has standby letter of credit facilities outstanding with JPMorgan Chase Bank. The account has been handled in a fully satisfactory manner.

The information in this letter is provided as an accommodation to you. This letter and any information provided in connection therewith are furnished on the condition that they are strictly confidential, that no liability or responsibility whatsoever in connection therewith shall attach to **Chase** or any of its officers, employees, or agents, that this letter makes no representations regarding the general condition of the account holder named herein, their management, or their future ability to meet their obligations.

If you have any questions, please do not hesitate to contact me: **212-270-1810.**

Sincerely,

Gordon Smith

J.P. Morgan Securities, LLC | 383 Madison Avenue, 22nd Floor, New York, NY 10179
T: 212 270 1810 | gordon.l.smith@chase.com | chase.com/commercialbanking

The firm is in a strong financial position in its industry and there are no unique risks which would affect its continued existence. Due to page limitations of our response, we have elected not to include our most recent audited financial statement, however it is immediately available upon request.

Additionally, to assist in your evaluation of our financial stability, we have provided a letter discussing our financial status from Gordon Smith, Executive Director JP Morgan Chase Bank. For further information, our Dun & Bradstreet Identification No. is 06-496-6138.

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6 References

6 References

Our three references are included in **Section 8, Submittal Forms,** and are summarized here for ease of review. The Hazen team has a track record of meeting project goals and addressing client objectives. **Our client references will be happy to provide additional details regarding our performance.**

Reference 1

Project Name	Contact Person	Years of Service
 **City of Boca Raton Water, Wastewater and Reclaimed Water Continuing Engineering Services** Boca Raton, Florida	Justin Barrington, Deputy Director, Utility Department Office: (561) 338-7382 Mobile: (561) 235-1938 jbarrington@myboca.us	1995 - Present

Professional Services Performed

Planning, design, and construction projects since 1995 including Wastewater Pump Station Improvement Program, Transmission System Master Plan, Sodium Hypochlorite Storage Tank & Piping Project, and Pressure Pipe Repair and Installation Technical Specification Project. See Section 3 for more details.

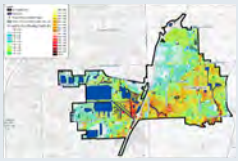
Reference 2

Project Name	Contact Person	Years of Service
 **Town of Jupiter Professional Engineering Services for Stormwater and Water Capital Improvements** Jupiter, Florida	Rebecca Wilder, Assistant Director Utilities Office: (561) 741-2635 Mobile: (561) 943-0923 rebeccaw@jupiter.fl.us	2000 - Present

Professional Services Performed

Since 2000, Hazen has served as general consultant for the Town of Jupiter, providing assistance in almost every aspect of its stormwater program. Hazen has provided master planning, stormwater planning and modeling, design, NPDES permitting, asset management, rate/financial analysis, plan review, and construction oversight. See Section 3 for more details.

Reference 3

Project Name	Contact Person	Years of Service
 **City of Oakland Park General Civil Engineering, Building Architectural, and Landscape Architectural Services** Oakland Park, Florida	Albert Carbon III, PE, Public Works Director, Engineering and Construction Management Office: (954) 630-4458 albertc@oaklandparkfl.gov	2018 - Present

Professional Services Performed

Services range from planning and design to permitting, bidding, and construction administration services. See Section 3 for more details.

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7 Certified Minority Business Enterprise

7 Certified Minority Business Enterprise

Hazen has a strong commitment to including minority/women business enterprises (M/WBEs) on our project teams.

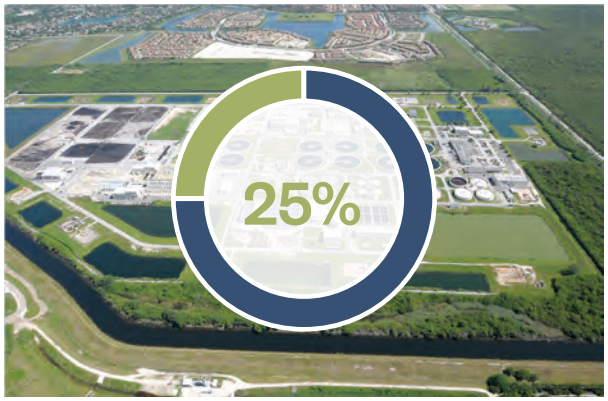
Hazen is not a certified minority business enterprise as defined by the Florida Small and Minority Business Assistance Act of 1985. However, we have a strong commitment to including M/WBEs on our project teams.

Some of Hazen's previous M/WBE, CBE, and SBE efforts are highlighted below.

Hazen commits to maximizing M/WBE participation on this project whenever possible.

Broward County Water and Wastewater Contracts

Hazen has continuously employed county business enterprises (CBE)/small businesses on County contracts per Broward County requirements since the 1990s and continues to do so today for our active contracts. Presently, Hazen has committed over 25% of the total contract value for four active Broward contracts to CBE firms. To date, we have earned approximately over half ($37.7 million) of the total contracted amount and have already **paid out $9.5 million to the local CBE firms, demonstrating the reality of our overall 25% commitment.**



MDWASD South District Wastewater Treatment Plant High Level Disinfection Contract

For the Miami-Dade Water and Sewer Department South District Wastewater Treatment Plant High Level Disinfection contract (2004-2014), **approximately $10.7 million of Hazen's $42.9 million fee was paid to Miami-Dade County certified small businesses.**

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8 Submittal Forms

8 Forms

FIRM ACKNOWLEDGEMENT

Submit RFQ's to: Town Clerk's Office
Town of Highland Beach
3614 South Ocean Blvd.
Highland Beach, FL 33487
Telephone: 561-278-4548

RFQ Title: **"CONTINUING PROFESSIONAL CONSULTING SERVICES (CCNA)"**
RFQ Number: **24-001**

RFQ Due: **January 10, 2024, NO LATER THAN 2:00 P.M. (LOCAL TIME)**

Proposals will be publicly opened and recorded for acknowledgement of receipt, unless specified otherwise, on the date and time indicated above and may not be withdrawn within ninety (90) days after such date and time.

All Contracts entered as a result of this RFQ shall conform to applicable sections of the Town Charter and Town Code of Ordinances.

Name of Firm: Hazen and Sawyer

Federal I.D. Number: FEIN: 13-2904652

A Corporation of the State of New York

Telephone No.: (561) 997-8070

Mailing Address: 2101 NW Corporate Boulevard, Suite 301

City / State / Zip: Boca Raton, FL 33431

Email Address: kpfeffer@hazenandsawyer.com

Authorized Signature

Kurt Pfeffer, PE, Associate Vice President/
Proposed Project Director

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SERVICES TO BE CONSIDERED - PLEASE CHECK OFF EACH TO BE PROVIDED

✓ Civil Engineering

✓ Water/Wastewater/Stormwater

_____ Architecture

_____ Landscape Architecture

_____ Geotechnical

_____Transportation

✓ Mechanical/Electrical/Plumbing

✓ Other Services (Please list below)

• Construction Inspection Engineering (by Subconsultant South Florida Eng. Services)

• Design and/or Construction Supervision and Administration (by Subconsultant South Florida Eng. Services)

1-646

CONFIRMATION OF DRUG-FREE WORKPLACE

Preference shall be given to businesses with drug-free workplace programs. In order to be considered having a drug-free workplace program, the Firm shall:

1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3) Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4) In the statement specified in subsection (1), notify the employee that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5) Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community by, any employee who is so convicted.

6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this Firm complies fully with the above requirements.

Authorized Signature

Kurt Pfeffer, PE, Associate Vice President/
Proposed Project Director

PALM BEACH COUNTY INSPECTOR GENERAL

ACKNOWLEDGMENT

The Firm is aware that the Inspector General of Palm Beach County has the authority to investigate and audit matters relating to the negotiation and performance of this contract, and in furtherance thereof may demand and obtain records and testimony from the Firm and its subcontractors and lower tier subcontractors.

The Firm understands and agrees that in addition to all other remedies and consequences provided by law, the failure of the Firm or its subcontractors or lower tier subcontractors to fully cooperate with the Inspector General when requested may be deemed by the Town to be a material breach of this contract justifying its termination.

Hazen and Sawyer
FIRM NAME

By: Kurt Pfeffer, PE, Proposed Project Director

Title: Associate Vice President

Date: January 9, 2024

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CERTIFICATION PURSUANT TO FLORIDA SECTION 287.135, FLORIDA STATUTES

I, Kurt Pfeffer, PE, Associate Vice President (Print Name and Title), on behalf of Hazen and Sawyer (Company Name) certify

That Hazen and Sawyer (Company Name) does not:

1. Participate in a boycott of Israel; and
2. Is not on the Scrutinized Companies that Boycott Israel List; and
3. Is not on the Scrutinized Companies with Activities in Sudan List; and
4. Is not on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List; and
5. Has not engaged in business operations in Syria.

Submitting a false certification shall be deemed a material breach of contract. The Town shall provide notice, in writing, to the Contractor of the Town's determination concerning the false certification. The Contractor shall have ninety (90) days following receipt of the notice to respond in writing and demonstrate that the determination of false certification was made in error. If the Contractor does not demonstrate that the Town's determination of false, certification was made in error then the Town shall have the right to terminate the contract and seek civil remedies pursuant to Florida Statute § 287.135.

Section 287.135, Florida Statutes, prohibits the Town from: 1) Contracting with companies for goods or services in any amount if at the time of bidding on, submitting a proposal for, or entering into or renewing a contract if the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, F.S. or is engaged in a boycott of Israel; and

2) Contracting with companies, for goods or services over $1,000,000.00 that are on either the Scrutinized Companies with activities in the Iran Petroleum Energy Sector list, created pursuant to s. 215.473, or are engaged in business operations in Syria.

As the person authorized to sign on behalf of the Contractor, I hereby certify that the company identified above in the section entitled "Contractor Name" does not participate in any boycott of Israel, is not listed on the Scrutinized Companies that Boycott Israel List, is not listed on either the Scrutinized Companies with activities in the Iran Petroleum Energy Sector List and is not engaged in business operations in Syria. I understand that pursuant to section 287.135, Florida Statutes, the submission of a false certification may subject the company to civil penalties, attorney's fees, and/or costs. I further understand that any contract with the Town for goods or services may be terminated at the option of the Town if the company is found to have submitted a false certification or has been placed on the Scrutinized Companies with Activities in Sudan list or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List.

Hazen and Sawyer	
COMPANY NAME	SIGNATURE
Kurt Pfeffer, PE	Associate Vice President
PRINT NAME	TITLE

1021-646

SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(A), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to the Town of Highland Beach (the "Town") by:

Kurt Pfeffer, PE, Associate Vice President/Proposed Project Director

(Print individual's name and title)

For: Hazen and Sawyer

(Print name of entity submitting sworn statement)

Whose business address is:

2101 NW Corporate Boulevard, Suite 301, Boca Raton, FL 33431

And (if applicable) its Federal Employer Identification Number (FEIN) is: FEIN: 13-2904652

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: _____)

2. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), FLORIDA STATUTES, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), FLORIDA STATUTES, means a finding of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), FLORIDA STATUTES, means:

a. A predecessor or successor of a person convicted of a public entity crime; or

b. an entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one (1) person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one (1) person controls another person.

A person who knowingly enters a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding thirty-six (36) months shall be considered an affiliate.

5. I understand that a "person" as defined in Paragraph 287.133(1)(e), FLORIDA STATUTES, means any natural person or entity organized under the laws of any state of the United States with the legal power to enter into a binding contract and which bids or apples to bid on contracts for the provision of goods or services let by a public entity or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

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6. Based on information and belief, the statement, which I have marked below, is true in relation to the entity submitting this sworn statement (indicate which statement applies).

✓ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one (1) or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted Bidder list. (Attach a copy of the final order)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICE FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES, FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

Date: January 9, 2024

Signature
Kurt Pfeffer, PE, Associate Vice President

STATE OF FLORIDA

COUNTY OF Palm Beach

The foregoing instrument was acknowledged before me this 9th day of January, 2024, by, as Associate Vice President (title) of Hazen and Sawyer (name of company), on behalf of the Corporation. (type of entity).

✓ who is personally known to me,

_____ who produced _____ as identification, who did take an oath, and who acknowledged before me that he executed the same freely and voluntarily for the purposes therein expressed.

TERESA MCNALLY
MY COMMISSION # HH 026367
EXPIRES: August 6, 2024
Bonded Thru Notary Public Underwriters

Signature

Teresa McNally
Print Name

NOTARY PUBLIC – STATE OF FL
My Commission Expires: August 6, 2024
Commission No.: HH 026367

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ADDENDA ACKNOWLEDGEMENT

TOWN OF HIGHLAND BEACH, FLORIDA

RFQ TITLE: **"CONTINUING PROFESSIONAL CONSULTING SERVICES (CCNA)"**

RFQ NO.: 24-001

DATE SUBMITTED: January 10, 2024

We propose and agree, if this submittal is accepted, to contract with the Town of Highland Beach, in the Contract Form, to furnish all material, means of transportation, coordination, labor and services necessary to complete/provide the work specified by the Contract documents.

Having studied the documents prepared by: The Town of Highland Beach

We propose to perform the work of this Project according to the Contract Documents and the following addenda which we have received:

ADDENDUM	DATE	ADDENDUM	DATE
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

✓ **NO ADDENDUM WAS RECEIVED IN CONNECTION WITH THIS RFQ**

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RFQ No.: 24-001
CONTINUING PROFESSIONAL CONSULTING SERVICES (CCNA)

SCHEDULE OF SUB-CONSULTANTS

The Undersigned Respondent proposes the following major subcontractors for the major areas of work for the Project. The Respondent is further notified that all sub-consultants shall be properly licensed, bondable and shall be required to furnish the Town with a Certificate of Insurance in accordance with the contract general conditions. This page may be reproduced for listing additional sub-consultants, if required. **If not applicable or if no-sub-consultants will be used in the performance of this work, please sign and date the from and write "Not-Applicable" or "NONE" across the form.**

Name of Sub-Consultant	Address of Sub-Consultant	License No.:	Contract Amount	Percentage (%) of Contract
Aaron Cutler, South Florida	1224 Haywagon Trail	CGC1520812	Not applicable	Not applicable
Engineering Services, Inc.	Loxahatchee, FL 33470		at this time.	at this time

Signature _____ Date: January 9, 2024

Title/Company Kurt Pfeffer, PE, Associate Vice President/Proposed Project Director, Hazen and Sawyer

Owner reserves the right to reject any sub-consultant who has previously failed in the proper performance of an award, or failed to deliver on time contracts in a similar nature, or who is not responsible (financial capability, lack of resources, etc.) to perform under this award. Owner reserves the right to inspect all facilities of any sub-consultant in order to make a determination as to the foregoing.

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REFERENCES FOR Hazen and Sawyer

(NAME OF FIRM)

1. Reference/Contact Name:

City of Boca Raton, FL / Justin Barrington, Deputy Director, Utility Department

Professional Services Performed:

Continuing Professional Consulting Services

Phone:	Fax:	E-Mail:
Office: (561) 338-7382 Mobile: (561) 235-1938	(561) 338-7345	jbarrington@myboca.us

2. Reference/Contact Name:

Town of Jupiter, FL / Rebecca Wilder, Assistant Director Utilities

Professional Services Performed:

Engineering Services for Stormwater and Water Capital Improvements

Phone:	Fax:	E-Mail:
Office: (561) 741-2635 Mobile: (561) 943-0923	N/A	rebeccaw@jupiter.fl.us

3. Reference/Contact Name:

City of Oakland Park, FL / Albert Carbon III, PE, Public Works Director
Engineering and Construction Management

Professional Services Performed:

General Civil Engineering, Building Architectural, and Landscape Architectural Services

Phone:	Fax:	E-Mail:
(954) 630-4458	N/A	albertc@oaklandparkfl.gov

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9 Supplemental Information

9 Supplemental Information

Our current Florida Professional License, including evidence of possession of required licenses or business permits are included in this section as requested in the RFQ.

State of Florida
Department of State

I certify from the records of this office that HAZEN AND SAWYER, P.C. is a New York corporation authorized to transact business in the State of Florida, qualified on October 18, 1978.

The document number of this corporation is 841657.

I further certify that said corporation has paid all fees due this office through December 31, 2023, that its most recent annual report/uniform business report was filed on January 24, 2023, and that its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Twenty-fourth day of January, 2023

Secretary of State

Tracking Number: 7419634520CC

To authenticate this certificate,visit the following site,enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication

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Florida dbpr Department of Business & Professional Regulation

HOME CONTACT US MY ACCOUNT

ONLINE SERVICES

Apply for a License
Verify a Licensee
View Food & Lodging Inspections
File a Complaint
Continuing Education Course Search
View Application Status
Find Exam Information
Unlicensed Activity Search
AB&T Delinquent Invoice & Activity

Licensee

Name:	BULMAN, GERRIT RIJK	License Number:	PG2697
Rank:	Professional Geologist	License Expiration Date:	07/31/2024
Primary Status:	Current	Original License Date:	06/01/2011
Secondary Status:	Active		

Related License Information

License Number	Status	Related Party	Relationship Type	Relation Effective Date	Rank	Expiration Date
	Current	HAZEN AND SAWYER, PC DBA HAZEN AND SAWYER	Professional Geologist	05/20/2021	Geology Business Information	

Florida dbpr Department of Business & Professional Regulation

HOME CONTACT US MY ACCOUNT

ONLINE SERVICES

Apply for a License
Verify a Licensee
View Food & Lodging Inspections
File a Complaint
Continuing Education Course Search
View Application Status

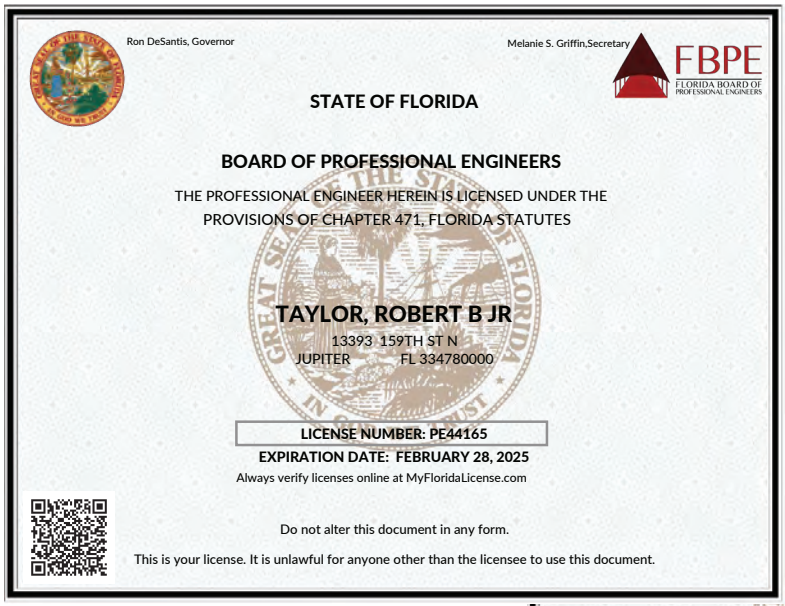
Licensee

Name:	HAZEN AND SAWYER, P.C.	License Number:	2771
Rank:	Registry	License Expiration Date:	
Primary Status:	Current	Original License Date:	11/08/1978

Related License Information

License Number	Status	Related Party	Relationship Type	Relation Effective Date	Rank	Expiration Date
44165	Current Active	TAYLOR, ROBERT B JR	Registry	04/27/2017	Professional Engineer	02/28/2025

Related license Information for firm registry:



Ron DeSantis, Governor

Melanie S. Griffin, Secretary

FBPE FLORIDA BOARD OF PROFESSIONAL ENGINEERS

STATE OF FLORIDA

BOARD OF PROFESSIONAL ENGINEERS

THE PROFESSIONAL ENGINEER HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 471, FLORIDA STATUTES

TAYLOR, ROBERT B JR

13393 159TH ST N
JUPITER FL 334780000

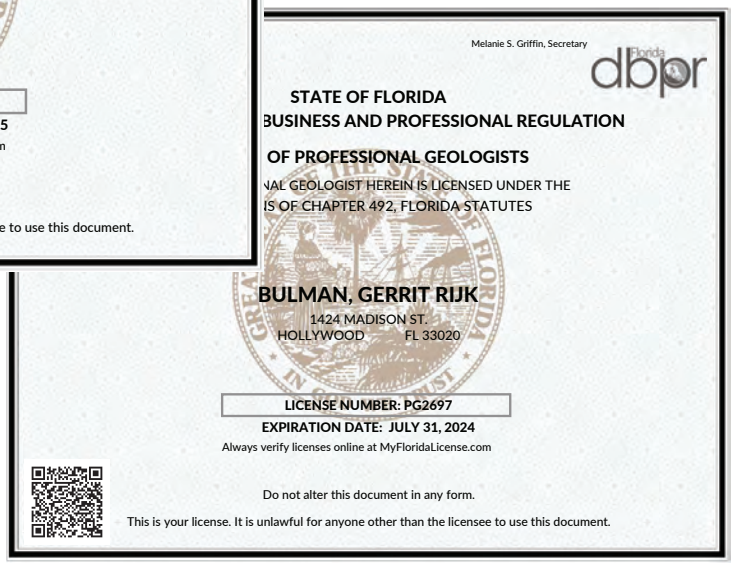
LICENSE NUMBER: PE44165

EXPIRATION DATE: FEBRUARY 28, 2025

Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.



Melanie S. Griffin, Secretary

Florida dbpr

STATE OF FLORIDA

BUSINESS AND PROFESSIONAL REGULATION

OF PROFESSIONAL GEOLOGISTS

AL GEOLOGIST HEREIN IS LICENSED UNDER THE
IS OF CHAPTER 492, FLORIDA STATUTES

BULMAN, GERRIT RIJK

1424 MADISON ST.
HOLLYWOOD FL 33020

LICENSE NUMBER: PG2697

EXPIRATION DATE: JULY 31, 2024

Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

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Local Business Tax Receipts

ANNE M. GANNON
CONSTITUTIONAL TAX COLLECTOR
Serving Palm Beach County
Serving *you.*

P.O. Box 3353, West Palm Beach, FL 33402-3353
www.pbctax.com Tel: (561) 355-2264

LOCATED AT
2101 NW CORPORATE BLVD #301
BOCA RATON, FL 33431-7343

TYPE OF BUSINESS	OWNER	CERTIFICATION #	RECEIPT #/DATE PAID	AMT PAID	BILL #
ENGINEER BUSINESS	HAZEN AND SAWYER P C	2771	B23.733126 09/19/2023	$66.00	B40109683

This document is valid only when receipted by the Tax Collector's Office.

HAZEN AND SAWYER PC
HAZEN AND SAWYER PC
2101 NW CORPORATE BLVD STE 301
BOCA RATON FL 33431-7343

STATE OF FLORIDA
PALM BEACH COUNTY
2023 / 2024 LOCAL BUSINESS TAX RECEIPT
LBTR Number: 199514009
EXPIRES: 09/30/2024

This receipt grants the privilege of engaging in or managing any business profession or occupation within its jurisdiction and MUST be conspicuously displayed at the place of business and in such a manner as to be open to the view of the public.

CITY OF HOLLYWOOD FLORIDA

2023/2024 LOCAL BUSINESS TAX RECEIPT

Business Name: **HAZEN AND SAWYER, PC**
DBA:
Business Location: **4000 HOLLYWOOD BLVD**
Business Category: **SERVICE/LICENSED BUSINESS**
Classification: **Engineer/Consulting**
Tax Basis: **OVER 50 WORKERS**

Account Registration #: **B9020195-2024**
Expiration Date: **9/30/2024**
Tax Rate: **$700.00**

Certificate of Insurance

As requested, please see the following two pages.

1021-646

HAZE&SA-01 KGODWIN

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 1/9/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
Ames & Gough 8300 Greensboro Drive Suite 980 McLean, VA 22102	PHONE (A/C, No, Ext): (703) 827-2277	FAX (A/C, No): (703) 827-2279
	E-MAIL ADDRESS: admin@amesgough.com	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Hazen and Sawyer 498 Seventh Avenue New York, NY 10018	INSURER A : American Casualty Co of Reading, PA A(XV)	20427
	INSURER B : Continental Insurance Company A(XV)	35289
	INSURER C : Continental Casualty Company (CNA) A, XV	20443
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			7036845683	3/29/2023	3/29/2024	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
	X Contractual Liab.						MED EXP (Any one person)	$ 15,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
B	AUTOMOBILE LIABILITY			7036845635	3/29/2023	3/29/2024	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
							Comp./Coll. Ded	$ 1,000
B	X UMBRELLA LIAB X OCCUR			7036845649	3/29/2023	3/29/2024	EACH OCCURRENCE	$ 1,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ 1,000,000
	DED X RETENTION $ 10,000							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N	N / A		7036845652	3/29/2023	3/29/2024	X PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N (Mandatory in NH)						E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
C	Professional Liab.			AEH008231489	3/29/2023	3/29/2024	Per Claim/Aggregate	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: RFQ #24-001

The Town of Highland Beach, FL, including all Officers, Employees, Elected and Appointed Officials, is included as additional insured with respect to General Liability, Automobile Liability and Umbrella Liability when required by written contract. General Liability, Automobile Liability and Umbrella Liability are primary and non-contributory over any existing insurance and limited to liability arising out of the operations of the named insured and when required by written contract. General Liability, Automobile Liability, Umbrella Liability and Workers Compensation policies include a waiver of subrogation in favor of the additional insureds where permissible by state law and when required by written contract. Umbrella Liability coverage sits excess over General Liability, SEE ATTACHED ACORD 101

CERTIFICATE HOLDER

Town of Highland Beach, FL
3614 South Ocean Boulevard
Highland Beach, FL 33487

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

ACORD 25 (2016/03)

1021-646

AGENCY CUSTOMER ID: HAZE&SA-01 KGODWIN
LOC #: 0

ADDITIONAL REMARKS SCHEDULE

Page 1 of 1

AGENCY Ames & Gough	NAMED INSURED Hazen and Sawyer 498 Seventh Avenue New York, NY 10018
POLICY NUMBER SEE PAGE 1	
CARRIER: SEE PAGE 1 — NAIC CODE: SEE P 1	EFFECTIVE DATE: SEE PAGE 1

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: ACORD 25 FORM TITLE: Certificate of Liability Insurance

Description of Operations/Locations/Vehicles:
Automobile Liability and Employers Liability coverage. 30-day Notice of Cancellation will be issued for the General Liability, Automobile Liability, Umbrella Liability, Workers Compensation and Professional Liability policies in accordance with policy terms and conditions.
Pollution Liability coverage is provided and included within the Professional Liability policy noted above. It shares the limits of the Professional Liability policy.

ACORD 101 (2008/01)

1021-646

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Hazen

Hazen and Sawyer
2101 NW Corporate Boulevard, Suite 301 • Boca Raton, FL 33431