Statement of Qualifications

Etowah Sewer Asset Inventory and Assessment

Henderson County, North Carolina

Since 1901 RVE, Inc. CONSULTING ENGINEERS

Excellence • Innovation • Service

1813 Chapel Hill Road
Durham, NC 27707

984-245-0121
rve.com

Since 1901 RVE, Inc. CONSULTING ENGINEERS

1813 Chapel Hill Road
Durham, NC 27707
O: (984) 245-0121
License Number: C-4901

Satellite Office
90 Southside Avenue, Suite 300
Asheville, NC 28801
O: (828) 785-5421

April 16, 2025

Marcus A. Jones, PE, County Engineer
Henderson County
1 Historic Courthouse Square
Hendersonville, NC 28792

Re: Request for Qualifications – Etowah Sewer Asset Inventory and Assessment
Henderson County, North Carolina

Dear Mr. Jones:

RVE, Inc. (RVE) is pleased to submit our proposal for the Etowah Sewer Asset Inventory and Assessment. This response has been prepared in accordance with the requirements set forth in the County's Request for Qualifications (RFQ) due April 25, 2025.

With over a century of experience delivering public infrastructure solutions—and a team of professionals who have worked extensively across North Carolina, including in Henderson County—we are well-prepared to support this important initiative. Our team offers a comprehensive understanding of sewer system planning, GIS asset mapping, inflow and infiltration (I&I) analysis and rate structure development. We have led similar efforts for counties and utilities throughout the region, providing actionable insights and cost-effective capital improvement strategies.

For this project, we will bring a highly collaborative approach that integrates local knowledge with technical excellence—working hand in hand with Henderson County staff, the Etowah Sewer Advisory Committee and the broader community to meet all milestones, deliverables and expectations outlined in the RFQ. We recognize the importance of meaningful community outreach in shaping public infrastructure projects and will support efforts to engage and inform residents throughout the process. Any future adjustments to rates will be thoughtfully considered and communicated well in advance, with opportunities for public input. These adjustments will be grounded in the actual operational needs of the system and the investments required to ensure its long-term reliability and performance. Our commitment is to provide you with continuity, responsiveness and a high level of professional service from kickoff through final reporting.

Enclosed, you will find our complete response, including details about our team's experience, organizational structure, project approach, references and current fee schedule. Thank you for your consideration. We appreciate the opportunity to serve Henderson County and look forward to the possibility of working together on this critical assessment project. If you have any questions or require additional information, please contact Patrick A. Haramija, PE, Regional Manager at 919-545-1894 or via email at Patrick.Haramija@rve.com.

Sincerely,

Leonard A. Faiola, PE, PP, CME
President & CEO

Table of Contents

Since 1901 RVE, Inc. CONSULTING ENGINEERS

Introduction

Section 1

Since 1901
RVE, Inc.
CONSULTING ENGINEERS

1. Introduction

A brief description and financial viability of the firm and its program of services.

RVE, Inc. (RVE) is a full-service engineering consulting firm with more than 490 professionals located across the South and Middle Atlantic regions of the United States, including **a full-service office in Asheville, NC**—less than an hour from Henderson County—and an office in **Durham, NC**. These North Carolina offices support our commitment to serving local governments across the region with responsive, technically sound engineering and planning services.

Founded in 1901, RVE offers over a century of experience in water and wastewater engineering, GIS development, utility asset management and rate analysis. Our in-house staff include licensed civil, sanitary and environmental engineers, GIS analysts, certified inspectors and surveying professionals who are deeply familiar with both the regulatory landscape and the practical infrastructure needs of rural and suburban communities.

RVE is a Subchapter-S Corporation with annual financial reviews conducted by Marcum LLP. We maintain a strong financial position and an active credit line with TD Bank, ensuring we can support multi-phase and multi-year capital improvement programs without interruption.

Our **proven program of services aligns directly with Henderson County's scope of work**:

Grant Administration and Regulatory Coordination

RVE has a proven history of assisting municipalities, counties and public agencies in successfully completing grant-funded projects in accordance with federal, state and local requirements. With extensive experience in regulatory compliance and milestone tracking, our team understands the importance of meeting deadlines, ensuring eligibility and advancing project goals.

Our engineers and project managers are highly skilled in navigating the complex administrative and reporting processes associated with a variety of infrastructure grant programs, including state revolving funds, federal grants and other federally supported programs. We have developed efficient systems to ensure that all necessary documentation and compliance protocols are met in a timely and accurate manner.

PROJECT HIGHLIGHTS

Northwest Water Supply Asset Inventory and GIS Mapping Updates, Silver City, NC – RVE supported the Northwest Water Supply (NWWS) in Silver City, NC, by conducting a comprehensive asset inventory and condition assessment of the aging water system—delivering GIS mapping, risk-based prioritization and cost estimates to guide infrastructure planning and potential system consolidation—and assisted NWWS with identifying and pursuing grants and funding opportunities to support critical system improvements.

Public Water and Sewer System Development Fee Analysis, Brunswick County, NC – RVE conducted a comprehensive and defensible water and wastewater system development fee analysis for Brunswick County, NC, in compliance with state regulations and AWWA guidelines, accounting for capacity expansion, revenue offsets and peak usage factors and presented findings to the County Board.

Evaluation and Design of 13 Playgrounds, Henderson County, NC – RVE administered the federally funded ARPA grant on behalf of Henderson County Public Schools for the evaluation and design of playground improvements at 13 elementary schools.

Jackson Park All-Inclusive Playground Design, Henderson County, NC – RVE supported Henderson County in administering multiple public and private grant sources—including ARPA, NCSIF and tourism funds—while coordinating with stakeholders, regulatory agencies and community partners to deliver an all-inclusive playground at Jackson Park through comprehensive design, permitting and construction administration services.

RVE is adept at assisting clients with:

- Coordinating with funding agencies to clarify expectations and deadlines
- Maintaining comprehensive records of project progress and deliverables
- Preparing required documentation and reports to meet specific agency requirements
- Supporting staff in fulfilling procurement, environmental and permitting needs

We employ a range of internal tools and quality control measures to ensure compliance and maintain project timelines. Additionally, our dedicated regulatory coordination personnel facilitate seamless communication between the County and granting agencies throughout the project lifecycle. By applying these capabilities, RVE ensures that all milestones are completed efficiently and in full compliance with funding agency guidelines.

GIS Mapping and Asset Inventory

RVE has extensive experience in developing and integrating GIS-based mapping systems for utility infrastructure, including municipal sewer, water and stormwater systems. Our GIS team consists of specialists, engineers and data analysts who have successfully partnered with government clients to create accurate, accessible and actionable geospatial databases for asset management.

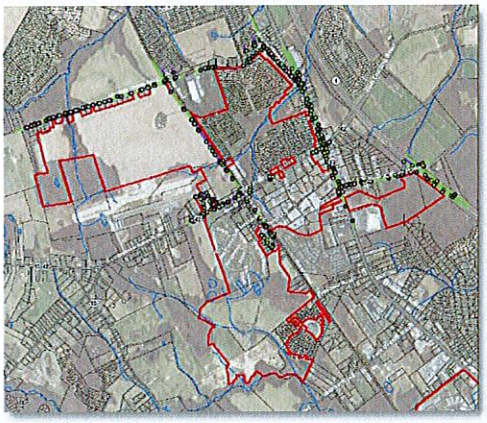
As an **Esri Bronze Business Partner** and a **GISCI Endorsing Employer**, RVE is committed to staying at the forefront of GIS technology, industry standards and best practices. These affiliations ensure our team is continuously updated on the latest developments in GIS software and data integration techniques.

esri Partner Network Bronze

GISCI ENDORSING

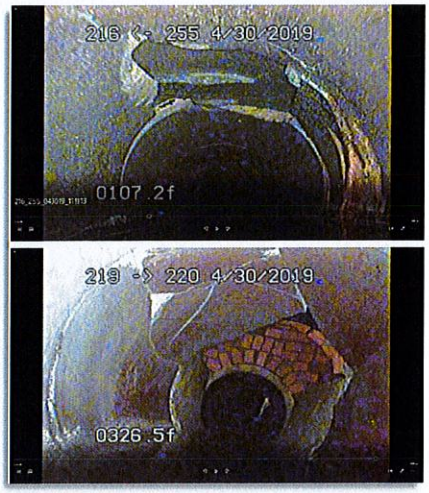
RVE's GIS services for utility mapping include:

- Reviewing and incorporating existing system data, including CAD drawings, historical maps and preliminary GIS work completed by the client
- Utilizing field verification and GPS data collection tools to ensure accuracy and supplement existing information
- Creating standardized GIS layers (e.g., pipes, manholes, lift stations) to support asset management and future system planning
- Ensuring seamless integration of data into the County's GIS platform and asset management system



Our use of Esri's ArcGIS suite and mobile data collection tools like **Field Maps** ensures smooth field-to-office workflows, real-time quality control and minimal disruptions to daily operations. This approach allows RVE to deliver clean, organized data that supports long-term planning, regulatory compliance and efficient system maintenance.

Inflow and Infiltration Analysis and Condition Assessment Report



RVE is highly qualified in the assessment and rehabilitation of sewer collection systems, particularly in identifying and eliminating **inflow and infiltration (I&I)**. Our multidisciplinary team has extensive experience in conducting condition assessments and I&I studies, helping municipalities and counties improve system efficiency, reduce operational costs and comply with regulatory requirements.

RVE's I&I analysis and condition assessments typically involve a combination of:

- **Smoke Testing** to identify direct sources of inflow such as cross-connections and improper connections
- **CCTV Inspections** to assess internal pipeline conditions, including cracks, root intrusions and joint failures, using industry-standard protocols
- **Manhole Inspections** to evaluate the structural integrity of manholes and identify signs of infiltration or corrosion
- **Flow Monitoring** to quantify I&I volumes and prioritize remediation efforts including documentation results of remediation efforts
- **Dye Testing and Visual Surveys** to confirm flow connectivity and system performance

The resulting Condition Assessment Report provides a comprehensive overview of I&I sources and infrastructure conditions, including:

- Identification and prioritization of I&I sources and structural deficiencies
- Rehabilitation or replacement recommendations (e.g., CIPP lining, manhole sealing, point repairs)
- A cost-benefit analysis of proposed corrective actions

RVE integrates these findings into a **Capital Improvement Plan (CIP)**, providing project scopes, phasing, cost estimates and potential funding sources. We also ensure that findings are geospatially referenced and incorporated into the County's asset management system for future maintenance and tracking.

Sewer Rate Analysis and Impact Fee Recommendations

RVE has a wealth of experience in developing sewer rate structures and impact fee recommendations that ensure the financial sustainability of municipal wastewater systems. Our work in sewer rate analysis is driven by sound financial planning, regulatory compliance and a deep understanding of utility operations, maintenance and capital improvement needs.

We conduct thorough sewer rate analyses to evaluate:

- Current and projected system expenses, including O&M costs and CIP implementation
- Customer base and usage characteristics to ensure equitable rate structures

- Various rate modeling scenarios to determine the most appropriate structure for cost recovery and reserve maintenance

In addition to rate analysis, RVE evaluates the impact fees for new customers based on system capacity, planned infrastructure improvements and applicable state and local regulations. Our findings are presented in a comprehensive Sewer Rate and Impact Fee Report, which includes:

- Recommended adjustments to sewer rates and impact fees
- Implementation schedules and phase-in options
- Comparative rate benchmarks from similar systems
- Financial projections for different growth scenarios
- Documentation supporting the legal implementation of impact fees

RVE has successfully completed similar analyses for a range of clients, balancing affordability with fiscal responsibility while maintaining regulatory compliance. We work closely with clients to ensure the final rate structure is legally defensible, publicly transparent and financially viable for the long-term operation and expansion of the system.

Sewer System Repairs and Replacements

RVE has extensive experience in the repair and replacement of sewer systems, ensuring that aging or damaged infrastructure is restored to full functionality. Our team utilizes advanced technologies and industry best practices to address issues efficiently and cost-effectively. From preliminary assessments to the final construction phase, RVE delivers high-quality solutions that enhance the performance and longevity of sewer systems.

RVE employs advanced techniques such as CCTV inspections, smoke testing, manhole inspections and field evaluations to identify sewer line defects, blockages and structural issues. Manhole inspections are a critical part of our process, allowing us to identify issues such as infiltration, corrosion, or structural defects that can significantly affect the overall health of the sewer system. For non-invasive repairs, RVE uses Cured-In-Place Pipe (CIPP) lining, an effective method that rehabilitates damaged sewer pipes without the need for extensive excavation. This solution restores the structural integrity of pipes and prevents future leaks and infiltration. Additionally, RVE uses other trenchless technologies, including pipe bursting, to replace sewer lines with minimal disruption to the surrounding environment and infrastructure. Where more localized damage exists, RVE performs point repairs that target specific issues, such as cracked or leaking sections of pipe, ensuring a cost-effective solution with minimal disruption to service.

All repairs and replacements are carried out in compliance with local, state and federal regulations. Our team ensures that all work adheres to environmental and safety standards, mitigating risks associated with sewer system operation. RVE's proficiency in sewer system repairs and replacements, including comprehensive manhole assessments, ensures that municipal infrastructure is restored to a reliable condition, supporting long-term serviceability and operational efficiency.

Manhole Assessments

RVE has extensive experience in conducting manhole assessments as part of comprehensive sewer system evaluations. Manholes are integral to the operation and maintenance of sewer systems and proper inspection is critical for identifying and addressing issues such as infiltration, corrosion, structural integrity and serviceability.

RVE uses visual inspections, digital photography and advanced tools such as CCTV cameras and smoke testing to assess the condition of manholes. We inspect the structural integrity, identifying cracks, corrosion, infiltration and any potential failures that may compromise the sewer system's performance. Manholes are a common source of I&I and RVE prioritizes detecting these sources during our assessments. Our team uses industry-standard methods to assess water infiltration levels and identify any areas requiring immediate attention or repairs.

RVE evaluates manhole structures for signs of damage, wear, or structural weaknesses. We recommend appropriate repairs or replacements, such as manhole sealing, rehabilitation, or structural upgrades to restore functionality and extend the lifespan of manholes. As part of the asset management and GIS mapping efforts, we incorporate detailed manhole data, including location, condition, materials and access points. This information is integrated into the County's GIS and asset management systems to ensure easy tracking, monitoring and future planning.

RVE's manhole assessments are essential to maintaining a well-functioning sewer system. By identifying potential problems and providing targeted solutions, we help municipalities improve their sewer infrastructure's reliability, prevent costly repairs and enhance overall system performance.

Pump Station Repairs and Upgrades

RVE is also highly skilled in repairing and upgrading pump stations, which are critical components of the wastewater collection and treatment process. We have extensive experience in the design, rehabilitation and upgrading of pump stations to ensure that they function efficiently and meet current and future operational needs. Our approach focuses on enhancing reliability, capacity and energy efficiency while minimizing maintenance needs.

RVE conducts thorough evaluations of pump stations to assess their mechanical, electrical and control systems. Using advanced diagnostic tools and techniques, we identify performance issues such as motor failure, inefficient pumps, or outdated control systems that hinder pump station operation. We specialize in upgrading the mechanical and electrical systems of pump stations, including the replacement or refurbishment of pumps, motors, drives and other critical components to extend the life of the station and enhance its reliability. Additionally, we focus on upgrading the automation and control systems of pump stations, including SCADA integration, to improve monitoring, troubleshooting and system control. These upgrades provide real-time data, enhancing operational efficiency and responsiveness.

If a pump station is experiencing capacity issues due to increased demand, RVE provides design solutions to increase capacity, including the installation of larger pumps or additional units. This ensures that the pump station can handle future growth without service disruptions. RVE also focuses on optimizing energy use in pump stations. By implementing energy-efficient equipment and control systems, we help clients reduce operational costs while ensuring that pump stations operate at peak performance. Manhole inspections are conducted as part of pump station assessments, particularly for stations with associated access points. This ensures that any structural issues, such as infiltration or corrosion, are addressed during pump station improvements.

RVE's experience in pump station repairs and upgrades, along with comprehensive manhole assessments, helps utilities improve the reliability and performance of these critical infrastructure components, ensuring uninterrupted service and compliance with regulatory requirements.

Value Added Services

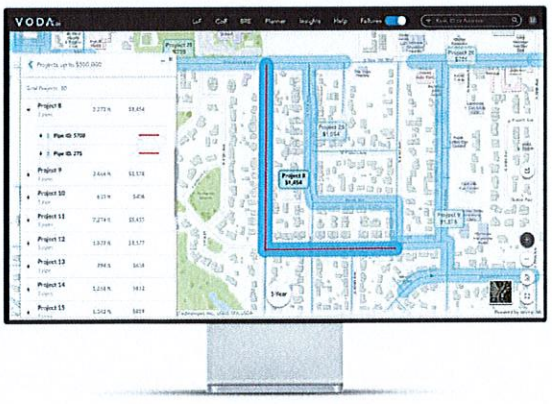
vialytics AI-Powered Infrastructure Assessment

As part of our partnership with vialytics Americas Inc., we offer access to cutting-edge artificial intelligence and digital image processing tools that can supplement Henderson County's infrastructure assessment efforts—especially in evaluating surface conditions related to manholes, sewer access points and roadway corridors impacted by underground utilities.

vialytics uses a smartphone-mounted system to continuously capture roadway and asset imagery, automatically detecting features such as manholes, storm drains, surface cracking and pavement degradation. This allows for rapid condition assessments and identification of sewer access points that may require further inspection. Manholes and surface features with visual signs of wear, misalignment, or damage can be flagged as potential I&I sources. This pre-screening improves the efficiency of field crews conducting smoke testing or CCTV inspections. The vialytics system geotags all data collected, enabling seamless integration into GIS platforms and asset management systems. This supports Henderson County's ongoing mapping efforts and helps close data gaps in hard-to-access or unmapped areas. AI-driven assessments eliminate subjectivity, reduce the need for manual documentation and speed up data processing—allowing the County to allocate resources more strategically and make quicker maintenance decisions. The vialytics platform is user-friendly and scalable, meaning County staff can continue using the system independently after project completion to track infrastructure changes and support long-term maintenance planning.

By integrating vialytics into our engineering process, we provide Henderson County with a modern, data-driven foundation for asset management—improving the accuracy, efficiency and reliability of the Etowah Sewer System assessment and future maintenance strategy.

AI-Driven Asset Management through VODA.ai



Through our partnership with VODA.ai, we bring Henderson County a data-driven, AI-powered approach to sewer infrastructure assessment and capital planning. Using VODA.ai's proprietary daVinci™ machine learning engine, we can analyze GIS data, historical failures and environmental factors to accurately predict pipeline risks and assess asset conditions. This enables proactive maintenance, optimized capital investments and targeted inspections—reducing unnecessary fieldwork while improving planning accuracy.

VODA.ai's platform also integrates seamlessly with existing GIS and asset management systems, supporting efficient decision-making and long-term system sustainability.

Team Experience

Section 2

Since 1901
RVE, Inc.
CONSULTING ENGINEERS

2. Team Experience

Identify key staff members and describe their experience in designing comparable projects. This section should include any previous experience in designing wastewater treatment plants as well as previous experience working with local, state and federal funding sources. Also include the firm's professional registration in North Carolina.

RVE is proud to offer a dedicated and highly experienced team for this project, each with a proven track record in wastewater engineering, regulatory compliance and successful collaboration with local, state and federal funding sources. Our team is composed of licensed professionals with a depth of experience throughout the region. RVE maintains a Certificate of Authorization to provide professional engineering services in the State of North Carolina (License No. C-4901). A copy of the firm's professional registration in North Carolina has been provided in *Attachment I. Vendor Information Form*.

Key Staff Members

Our experienced leadership team, with a strong track record across North Carolina—including Henderson County—will bring continuity, efficiency and responsive service to the Etowah Sewer System project, leveraging cross-disciplinary collaboration and local support from our Asheville office. Our team is actively engaged in the North Carolina Rural Water Association, AWWA Section and One Water Association—participating in conferences, training programs and technical committees to stay at the forefront of regulatory changes, emerging technologies and industry best practices. This involvement ensures we bring the latest knowledge and innovative solutions to every project we undertake.

Patrick A. Haramija, PE | CLIENT REPRESENTATIVE/PROJECT MANAGER

Patrick is a seasoned Project Manager and Regional Manager of RVE's Carolinas Division responsible for overseeing both the Asheville and Durham, NC offices and serving as the primary point of contact for local clients on a wide range of multidisciplinary engineering projects. With more than 14 years of experience, Patrick specializes in civil/site engineering, construction management and infrastructure design for municipal, county and agency clients. Patrick's experience includes serving as the Project Manager for the Jackson Park All-Inclusive Playground Design for Henderson County, where he led the planning, design and delivery of a 10,000 SF recreational space accessible to children of all abilities. His responsibilities included facilitating extensive community engagement through public meetings and workshops to ensure the project aligned with the needs and expectations of residents, while managing permitting and regulatory compliance. His ability to balance technical excellence with stakeholder collaboration and project delivery makes him a trusted partner to various public entities throughout North Carolina.

Stephanie Cuthbert, PE | TECHNICAL LEAD

Stephanie is a firm Principal and Executive Vice President of RVE's Water and Wastewater Division, overseeing a wide range of municipal projects, including those focused on asset management, system evaluation and utility improvements. With more than 30 years of experience in the water and wastewater industry, Stephanie has built a highly effective team at RVE that consistently delivers exceptional service to municipal clients. She has successfully led efforts to secure over $100 million in funding for clients, enabling the development of sustainable water and sewer systems. Her expertise encompasses water and sewer infrastructure evaluation, the design and permitting of system improvements and the management of capital projects. Stephanie has a proven track record of delivering projects on time and within budget and her leadership has supported numerous utilities with long-term planning, including capital improvement programs (CIPs) and regulatory compliance. She brings valuable insight into the infrastructure needs of counties like Henderson, ensuring reliable, safe and compliant systems for their communities.

We have assembled a team of experienced professionals with the diverse expertise necessary to address the various needs that may arise under this contract. Our key staff are supported by specialists and additional team members, ensuring we apply the best practices and resources of our firm to develop effective and sustainable solutions for Henderson County. Below, we provide highlights of the experience and qualifications of select key staff members who will contribute to the successful completion of this project.

Experience Summary	Performance on Related Projects
 **Vanessa Nedrick, PE, MSEM** I&I ANALYSIS/CONDITION ASSESSMENT/CIP/RATE ANALYSIS Vanessa is the Regional Manager of RVE's Water/Wastewater Division with more than 25 years of experience specializing in I&I analysis, condition assessments and technical reporting. A licensed professional engineer and PACP-certified, she has led numerous I&I studies and capital improvement projects, providing clients with data-driven recommendations to improve system performance.	• Provides ongoing wastewater engineering services to the Borough of Catasauqua, PA, including WWTP upgrades, I&I projects, sludge and chlorine system improvements, condition assessments, rate studies, grant funding assistance and regulatory reporting. • Led various wastewater collection system initiative for the Township of Falls Authority, PA, including sewer system evaluations, pump station upgrades, I&I abatement program, rate studies and interceptor investigations. • Led Bristol Township, PA's comprehensive I&I reduction program, resulting in over 221,000 LF of pipe rehabilitation, a 1 MGD flow reduction and release of 200+ connections.
 **Jeffrey Baker** ASSET INVENTORY/CONDITION ASSESSMENT/CIP Jeffrey has more than 20 years of hands-on experience in wastewater treatment and collection systems, bringing a deep understanding of utility operations. As a former Superintendent, he offers practical insight into system operations and maintenance, enhancing data-driven analyses grounded in real-world performance. He holds North Carolina certifications in Drinking Water (B-Surface, B-Well, B-Distribution) and Wastewater Collections (CS-3) and is an active member of the North Carolina Rural Water Association, AWWA Section and One Water Association.	• Conducted an asset inventory and assessment for Northwest Water Supply in Silver City, NC, to evaluate system condition, prioritize repairs and support future planning and funding efforts. • Prepared a sanitary sewer system valuation and updated evaluation for Gloucester Township, NJ, using the Original Cost Less Depreciation (OCLD) method, incorporating prior assessments, itemizing all infrastructure and developing a 5–10-year Capital Improvement Plan. • Developed and updated customized Standard Operating Procedures (SOPs) for the City of Newark, NJ, DPW services, standardizing operations, preserving institutional knowledge and supporting staff training through a collaborative process with City managers.
 **James Bulicki, PE** I&I ANALYSIS/CONDITION ASSESSMENT/CIP/RATE ANALYSIS James has more than 10 years of experience specializing in wastewater engineering, including treatment plants, conveyance systems and sanitary sewer collection systems. He has led numerous projects such as I/I studies, utility system assessments, wastewater collection system rehabilitations and manhole inspections—frequently incorporating GIS and NASSCO-certified assessment tools to support infrastructure planning, rehabilitation and capital improvements.	• Conducted a Facilities Needs Assessment for Catasauqua, PA, including site visits, evaluation reports and cost estimates. • Completed a sewer utility rate study for the Township of Falls Authority, PA, recommending a rate increase to address projected deficits and ensure financial stability. • Assisted Lehigh County Authority, PA, in proving I&I reductions after Breinigsville Trunkline repairs by providing technical support and preparing necessary documents.

Experience Summary	Performance on Related Projects

Joseph Mingle
I&I ANALYSIS/CONDITION ASSESSMENT/CIP/RATE ANALYSIS

Joseph has more than 40 years of experience in engineering and water/wastewater utility operations, combining technical design expertise with hands-on knowledge as a licensed treatment operator. He specializes in system modeling, utility asset valuation, condition assessments and capital improvement planning, having led comprehensive evaluations and financial planning efforts for numerous utilities.

- Conducted a capacity evaluation and dynamic SewerGEMS modeling for Ocean County Utilities Authority's Northern Service Area to assess infrastructure performance and develop a capital improvement plan addressing current and future system demands.
- Conducted a comprehensive I&I study, manhole assessments, GIS updates and SewerGEMS modeling for New Jersey American Water in Long Hill Township, NJ, to identify infiltration sources, prioritize repairs and develop a system improvement plan.
- Provided the Borough of Bernardsville, NJ, with a comprehensive sanitary utility infrastructure assessment, 10-year capital improvement plan, system valuation and procurement assistance services in support of a potential system sale.

Kalina Hogan, PE
I&I ANALYSIS/CONDITION ASSESSMENT/CIP

Kalina is an experienced engineer specializing in wastewater conveyance systems, with expertise in hydraulic modeling using SewerGEMS. She has led modeling and infrastructure planning efforts for major utility clients throughout Maryland, Pennsylvania and New Jersey. Her work includes I&I studies, sewer system rehabilitation and capacity evaluations, with responsibilities spanning field investigations, model development, permitting and preparation of capital improvement plans.

- Conducted a comprehensive I&I study, manhole assessments, GIS updates and SewerGEMS modeling for New Jersey American Water in Long Hill Township, NJ, to identify infiltration sources, prioritize repairs and develop a system improvement plan.
- Provides sewer system assessment, including CCTV inspections and delivers rehabilitation and replacement design services for WSSC Water under a long-term agreement, focusing on environmentally sensitive areas in Prince George's and Montgomery Counties to support consent decree compliance and reduce sewage overflows.
- Conducted a capacity evaluation and dynamic SewerGEMS modeling for Ocean County Utilities Authority's Northern Service Area to assess infrastructure performance and develop a capital improvement plan addressing current and future system demands.

Timothy Marques
I&I ANALYSIS/CONDITION ASSESSMENT/CIP/RATE ANALYSIS

Tim has more than 25 years of experience with extensive expertise in I&I analysis, condition assessment and rehabilitation of wastewater collection systems. He has managed comprehensive I&I investigations involving CCTV review, manhole inspections and field reconnaissance to identify defects and prioritize repairs. His work has directly supported the development of Capital Improvement Plans by preparing detailed rehabilitation recommendations, project scopes, schedules and cost estimates for sewer mains, manholes and associated infrastructure.

- Conducted a comprehensive analysis of Brunswick County's water and sewer System Development Fees (SDFs) in compliance with North Carolina law, developing a fair and defensible fee structure based on capacity, expansion costs and revenue considerations and presented the findings to the County Board.
- Provides sewer system assessment, including CCTV inspections and delivers rehabilitation and replacement design services for WSSC Water under a long-term agreement, focusing on environmentally sensitive areas in Prince George's and Montgomery Counties to support consent decree compliance and reduce sewage overflows.
- Conducted a capacity evaluation for Ocean County Utilities Authority's Northern Service Area to assess infrastructure performance and develop a capital improvement plan addressing current and future system demands.

Experience Summary	Performance on Related Projects
 **Daniel Favilla, PE, STSC** I&I ANALYSIS/CONDITION ASSESSMENT/CIP/RATE ANALYSIS Dan has more than 30 years of experience in engineering and project management, including I&I analysis, condition assessment, rate studies and the development of Capital Improvement Plans. His background spans project management, construction management, process engineering, regulatory compliance and technical writing. Dan holds certifications as a Safety Trained Supervisor in Construction and in Construction Quality Management from the U.S. Army Corps of Engineers.	• Updated the previously completed sanitary sewer system evaluation for Gloucester Township, NJ and developed a 10-year Capital Improvement Plan, incorporating changes following the dissolution of the municipal utilities authority. • Supported Flemington Borough, NJ, in complying with an EPA Administrative Compliance Order by preparing bid documents, reviewing CCTV footage of approximately three miles of sanitary sewer and providing prioritized recommendations and cost estimates to address I&I. • Conducted a comprehensive 10-year water and sewer rate study and Capital Improvement Plan for East Orange Utility, NJ, combining financial valuation with engineering assessments to prioritize system upgrades, address deficiencies and support long-term operational and regulatory goals.
 **Gregory Sullivan, PE, CEA** CONDITION ASSESSMENT/CIP/RATE ANALYSIS Gregory has more than 40 years of experience in water, wastewater, stormwater and renewable energy systems, including sustainable energy, solar and co-generation facility design. He has led numerous utility evaluations, rate studies and long-term capital improvement plans for various clients, helping guide infrastructure investment and financial planning.	• Conducted a comprehensive analysis of Brunswick County's water and sewer System Development Fees (SDFs) in compliance with North Carolina law, developing a fair and defensible fee structure based on capacity, expansion costs and revenue considerations and presented the findings to the County Board. • Conducted a capacity evaluation and dynamic SewerGEMS modeling for Ocean County Utilities Authority's Northern Service Area to assess infrastructure performance and develop a capital improvement plan addressing current and future system demands. • Provided the Borough of Bernardsville, NJ, with a comprehensive sanitary utility infrastructure assessment, 10-year capital improvement plan, system valuation and procurement assistance services in support of a potential system sale.
 **Grace Meyer** I&I ANALYSIS/CONDITION ASSESSMENT/CIP/RATE ANALYSIS Grace has more than six years of experience in the design and analysis of water, wastewater and stormwater systems, as well as regulatory compliance, public reporting and construction support. She has contributed to a variety of infrastructure projects, including rate studies, I&I corrective action plans, sewer replacements and drainage improvements, providing technical expertise in GIS mapping, data analysis and cost estimating to support effective planning, design and regulatory compliance.	• Supported the development of a 20-year I&I Corrective Action Plan for Blairsville, PA, by creating GIS maps, conducting flow studies, preparing compliance reports and developing cost-effective schedules, budgets and recommendations for infrastructure upgrades. • Conducted a sanitary utility system valuation for Manchester Township, NJ's western service area, including compiling and updating inventory data, reviewing costs and specifications and preparing valuation documents for sanitary systems and associated infrastructure. • Conducted a comprehensive 10-year water and sewer rate study and Capital Improvement Plan for East Orange Utility, NJ, combining financial valuation with engineering assessments to prioritize system upgrades, address deficiencies and support long-term operational and regulatory goals.

Experience Summary	Performance on Related Projects

Julia Amick, EIT
I&I ANALYSIS/CONDITION ASSESSMENT/CIP/RATE ANALYSIS

Julia has more than three years of experience supporting I&I analysis, including condition assessments of collection systems using methods like smoke testing, CCTV inspection and manhole inspections. She has contributed to projects involving sewer line repairs, lift station evaluations and the development of Capital Improvement Plans (CIP) that incorporate recommended repairs and upgrades, as well as cost estimates and schedules. Her work also includes planning for treatment plant replacements as part of larger system upgrades.

- Assisted Lehigh County Authority, PA, in proving I&I reductions after Breinigsville Trunkline repairs by providing technical support and preparing necessary documents.
- Provided the Borough of Bernardsville, NJ, with a comprehensive sanitary utility infrastructure assessment, 10-year capital improvement plan, system valuation and procurement assistance services in support of a potential system sale.
- Conducted a comprehensive sanitary sewer connection fee analysis for Hazlet Township, NJ, to develop a cost-based, equitable fee structure, including information collection, analysis and presentation of findings.

Jacqueline Trovato, PE
STRUCTURAL/CONDITION ASSESSMENT/CIP

Jackie is a skilled structural engineer with more than 15 years of experience supporting a wide range of public infrastructure projects, including water and wastewater treatment facilities, sanitary sewer systems and associated infrastructure. Her expertise includes the design and analysis of structural systems, preparation of construction documents and performance of structural inspections, with a proven track record of delivering successful projects for various utilities and public sector clients across the region.

- Conducted a comprehensive structural evaluation of the Township of Lower, NJ's wastewater treatment plant, culminating in a Utility System Evaluation Report and a 10-Year Capital Improvement Plan that outlined necessary short- and long-term upgrades, cost estimates and scheduling to support sustainable operations and compliance.
- Structural design for comprehensive upgrades to the Town of Phillipsburg, NJ's wastewater treatment plant—including BioMag technology and UV disinfection—to meet stringent water quality standards, improve treatment efficiency within a constrained footprint and support future plant expansion.
- Structural design for phased upgrades to the Woodstown Sewerage Authority, NJ's wastewater treatment plant to meet stricter water quality standards, including new filtration and treatment facilities, funded by a $3.6 million USDA loan and grant.

Kevin Zelinsky, GISP, CMS
GIS/ASSET INVENTORY

Kevin is a seasoned GIS and asset inventory professional with more than 40 years of experience in civil engineering and cartography, overseeing mapping operations for RVE's regional offices in NC, NJ, PA, DE and MD. He is a Certified GIS Professional and Mapping Scientist and an accredited instructor of GIS fundamentals. Kevin has led significant projects such as converting decades-old utility records into a modern, EPA-compliant GIS platform; conducting high-accuracy GPS surveys; and updating sanitary GIS layers, all aimed at enhancing infrastructure management and regulatory compliance.

- Modernized the Borough of Catasauqua, PA's sanitary sewer and water system maps by converting decades-old paper records into a fully integrated, DEP- and EPA-compliant GIS platform using Esri ArcGIS, enhancing infrastructure management, regulatory compliance and future planning capabilities.
- Conducted precise GPS-based field survey services in Falls Township, PA, to support GIS mapping of sanitary, water and stormwater infrastructure, accurately locating and recording utility features and elevations using advanced GPS technology for integration into the Township's GIS system.
- Created and updated GIS layers for sanitary sewer and stormwater systems in Princeton, NJ, using digital drawings and limited field surveys, ensuring state compliance and integrating the data into Princeton's ArcGIS Online for public and municipal access.

Experience Summary	Performance on Related Projects
 **Christopher Gross, GISP, CMS** GIS/ASSET INVENTORY Chris is a Senior GIS Administrator with more than 20 years of experience in geographic data analysis, specializing in GIS-based asset inventory, data management and cartographic production for public infrastructure systems. He has led numerous utility and municipal mapping projects, including utility mapping, interactive stormwater mapping and zoning map integration—tailoring deliverables to support regulatory compliance, public engagement and long-term planning. His expertise includes incorporating field-collected data into ArcGIS and asset management systems.	• Conducted comprehensive GIS mapping, data integration and asset inventory for Winslow Township, NJ's utilities, including georeferencing as-builts, updating assets, correcting parcel data and supporting I&I improvements through ArcGIS Online tools and mobile app integration. • Performed comprehensive updates to the Town of Guttenberg, NJ's sanitary sewer GIS system by integrating contractor CCTV and field reports, linking videos and documents to assets, refining elevation and invert data and enhancing mapping accuracy through CAD, as-builts and client-coordinated field verification. • Developed a hydraulic model of the Long Hill, NJ wastewater collection system by integrating survey data into GIS, updating manhole and main attributes, coordinating with New Jersey American Water on data gaps and renumbering and producing status maps and deliverables for final analysis.
 **Nicholas Phelan** GIS/ASSET INVENTORY Nick is a Senior CAD/GIS/GPS Technician with more than five years of experience, specializing in ESRI GIS software, AutoCAD, GPS data collection and environmental planning. He has supported numerous utility projects, providing GIS mapping for sanitary, water and stormwater systems, ensuring regulatory compliance and integrating field-collected data into comprehensive, digital mapping deliverables.	• Compiled and verified GIS data for the Borough of Roseland, NJ's sanitary sewer, stormwater and water systems by collecting, processing and mapping existing records and field-verified asset information. • Conducted extensive field verification, data collection and GIS mapping updates for utility assets throughout the Borough of Catasauqua, PA, including post-processing of GPS data and preparation of deliverables. • Created and updated comprehensive utility maps for the Borough of Alpha, NJ, using AutoCAD, ArcMap and field-collected GPS data, incorporating as-builts, survey information and municipal feedback to verify and consolidate asset information.
 **Ethan C. Snyder** GIS/ASSET INVENTORY Ethan is a Senior CAD/GIS/GPS Technician with more than seven years of experience in AutoCAD, ArcGIS, Esri Field Maps, QGIS, Trimble and multiple programming languages. He has led GIS and GPS-based utility and infrastructure mapping projects, ensuring compliance with state standards. He has also developed custom applications, automation scripts and web tools to streamline GIS data management and municipal services.	• Created and updated GIS layers for sanitary sewer and stormwater systems in Princeton, NJ, using digital drawings and limited field surveys, ensuring state compliance and integrating the data into Princeton's ArcGIS Online for public and municipal access. • Conducted precise GPS-based field survey services in Falls Township, PA, to support GIS mapping of sanitary, water and stormwater infrastructure, accurately locating and recording utility features and elevations using advanced GPS technology for integration into the Township's GIS system. • Compiled and verified GIS data for the Borough of Roseland, NJ's sanitary sewer, stormwater and water systems by collecting, processing and mapping existing records and field-verified asset information.

Experience Summary	Performance on Related Projects

Nicholas Leusner
GIS/ASSET INVENTORY

Nick is a Senior CAD/GIS/GPS Technician with more than five years of experience in GPS-based data collection, database management and geospatial analysis. Proficient in ArcGIS Pro, ArcMap and Python, he brings technical expertise and precision to every project. He has led the delivery of comprehensive GIS mapping, hosting and application services for sanitary sewer, stormwater, water utility and parcel systems across a wide range of municipalities and agencies.

- Created and updated GIS layers for sanitary sewer and stormwater systems in Princeton, NJ, using digital drawings and limited field surveys, ensuring state compliance and integrating the data into Princeton's ArcGIS Online for public and municipal access.
- GIS data creation and updates for sanitary sewer and water utilities for the Township of Stafford, NJ, including CAD and as-built data extraction, field mapping, asset collection and AGOL integration.
- Field verification and data collection of the Borough of Middlesex, NJ's sanitary sewer and stormwater assets, digitization and correction of sewer system data, map creation and regular updates to GIS files based on as-built and survey documents.

Team Member Resumes

Full resumes are included with our submittal in *Attachment II. Team Resumes*. These individuals are available to serve Henderson County immediately and bring successful experience in their proposed roles.

1. Patrick A. Haramija, PE
2. Stephanie Cuthbert, PE
3. Vanessa Nedrick, PE, MSEM
4. Jeffrey Baker
5. James Bulicki, PE
6. Joseph Mingle
7. Kalina Hogan, PE
8. Timothy Marques
9. Daniel Favilla, PE, STSC
10. Gregory Sullivan, PE, CEA
11. Grace Meyer
12. Julia Amick, EIT
13. Jacqueline Trovato, PE
14. Kevin Zelinsky, GISP, CMS
15. Christopher Gross, GISP, CFM
16. Nicholas Phelan
17. Ethan C. Snyder
18. Nicholas Leusner

Team Organization

Section 3

Since 1901 RVE, Inc. CONSULTING ENGINEERS

3. Team Organization

Provide an organizational flow chart of the project team, annotated with a description of relevant qualifications possessed by key personnel. Identify the project lead and that person's availability. If applicable, please describe coordination and relationships with subconsultants.

Organizational Chart

Project Lead and Team Coordination

Project Manager and Primary Point of Contact

Patrick A. Haramija, PE, will serve as the Project Manager and primary point of contact for Henderson County. With more than 14 years of experience managing diverse municipal, county and agency projects, Patrick has a deep understanding of the complexities involved in asset inventory, condition assessments and infrastructure improvement projects. His expertise spans civil/site engineering, water/wastewater systems, stormwater management and transportation. Patrick's extensive background working with North Carolina entities, combined with his hands-on project management approach, ensures that Henderson County will receive consistent, high-quality communication and leadership throughout the project's lifecycle. As the primary contact, Patrick will facilitate all client interactions, maintain project schedules and ensure that the project stays within scope and budget.

Technical Lead and Project Oversight

Stephanie Cuthbert, PE, will serve as the Technical/Project Lead, providing critical oversight and technical direction for the project. As the Executive Vice President of RVE's Water and Wastewater Division, Stephanie brings more than 30 years of experience in water and wastewater infrastructure, including extensive experience in the design, evaluation and permitting of utility system improvements. Stephanie has managed and supported over $100 million in funding for water and sanitary systems and she has worked with various local, state and federal funding programs. Her technical expertise in asset management, system evaluation and infrastructure design will be invaluable in guiding the technical aspects of this project, ensuring that the inventory and assessment processes are thorough and accurate. Her leadership and oversight will ensure that all technical deliverables meet Henderson County's standards and regulatory requirements, while also incorporating industry best practices to enhance system performance and sustainability.

Availability

Patrick will dedicate 30% of his time to the project, providing consistent leadership and availability throughout the project's lifecycle. Stephanie will also remain actively involved in the project, contributing to both technical planning and oversight and ensuring all engineering tasks are completed to the highest standard. Her availability and expertise will ensure that the project progresses smoothly and that all technical challenges are addressed promptly.

Coordination and Subconsultant Relationships

RVE will lead all core disciplines in-house. In the event specialized subconsultants are required (e.g., for geotechnical investigations, environmental permitting, or surveying), RVE will draw upon a trusted network of prequalified firms with demonstrated experience on similar wastewater infrastructure projects. These subconsultants will be carefully selected based on their technical expertise and familiarity with regulatory requirements in North Carolina.

Patrick will oversee coordination across all team members and subconsultants, ensuring seamless communication, schedule alignment and quality assurance. All subconsultants will report directly to Patrick and be integrated into the project team through regular coordination meetings and shared document management systems.

Personnel Changes

RVE recognizes the importance of consistency in project leadership. Any changes to key personnel will be communicated promptly to Henderson County and no changes will occur without prior written notice and approval. This ensures that Henderson County maintains continuity in project leadership and that the same high level of service is provided throughout the duration of the contract. Patrick and Stephanie's involvement from project initiation through completion will ensure the project is consistently managed by experienced leaders with the necessary skills and commitment to deliver a successful outcome.

Project Examples & References

Section 4

Since 1901
RVE, Inc.
CONSULTING ENGINEERS

4. Project Examples & References

A brief description of projects completed that are similar in scope and size. For each project listed, please include the name of the entity and the name and contact information of the person who would be familiar with the work performed.

Project Name/Role	Reference	Project Description
Northwest Water Supply Asset Inventory **Role** Prime **Duration** 11/2024 - 1/2025 **Team Members** Stephanie Cuthbert Jeffrey Baker Timothy Marques Julia Amick	**Environmental Policy Innovation Center (EPIC)** 7761 Diamondback Drive College Park, MD 20742 **Lilly Slaughter** Funding Navigator Associate lslaughter@policyinnovation.org	RVE was selected to develop an asset inventory and registry for the drinking water infrastructure of Northwest Water Supply (NWWS) in Silver City, North Carolina. NWWS, serving a population of approximately 485 people in Hoke County, was established in 1967 and is managed by a volunteer board. The board sought an inventory of its assets to assess their age, condition and life expectancy, aiding in decision-making for future system management. The scope of services included reviewing existing system components, conducting physical inspections, creating schematic drawings for GIS integration, evaluating maintenance records and providing recommendations for prioritizing repairs or replacements. Additionally, RVE assessed the system's asset management needs, explored alternatives such as consolidation or regionalization and offered cost estimates for system rehabilitation. A desktop analysis of GIS-based maintenance management systems was provided to improve system efficiency. RVE also assisted NWWS with identifying and pursuing grants and funding opportunities to support critical system improvements.
Public Water and Sewer System Development Fee Analysis **Role** Prime **Duration** 2/2023 - 4/2023 **Team Members** Patrick Haramija Stephanie Cuthbert Greg Sullivan Timothy Marques	**Brunswick County Public Utilities** 250 Grey Water Road Supply, NC 28462 **John Nichols** Public Utilities Director 910-253-2655 opt. 2 john.nichols@brunswickcountync.gov	Brunswick County retained the services of RVE for the water and wastewater system development fee study to meet the requirements of the Public Water and Sewer System Development Fee Act of 2017, as amended and in accordance with the latest version of the American Water Works Association Principles of Water Rates, Fees and Charges (M1) Manual. Specific work requirements included project initiation and management, data collection and review, data analysis and calculation of system development fees (SDFs) and peak factor analysis and calculation. The County has both wholesale water and participant wastewater customers that do not get assessed SDF's. Accordingly, the analysis was adjusted to account for County expansion costs, increased capacity and revenue reductions to develop a defensible and fair SDF. RVE met with the County weekly and in person and the project was presented to the County Board.

Project Name/Role	Reference	Project Description
Sanitary Sewer Collections Mapping and Condition Assessment **Role** Prime **Duration** Ongoing **Team Members** James Bulicki Kalina Hogan Stephanie Cuthbert	**Environmental Policy Innovation Center (EPIC)** 7761 Diamondback Drive College Park, MD 20742 **Lilly Slaughter** Funding Navigator Associate lslaughter@policyinnovation.org	RVE was selected by the Environmental Policy Innovation Center (EPIC) to perform comprehensive sanitary sewer collections mapping and condition assessment services for the Borough of Washington, NJ, a community facing significant inflow and infiltration (I&I) issues with wet weather flows exceeding 7 MGD compared to an average daily flow of 1.157 MGD. The Borough's aging sewer infrastructure, which includes five lift stations and some components dating back to 1910, lacks complete digital mapping or inspection data. RVE's scope of work includes developing a GIS-based digital map of the entire collections system—identifying all key assets such as manholes, sewers and lift stations—while integrating stormwater asset mapping previously conducted for the Borough. In addition, RVE is also conducting smoke testing on gravity-fed sections and pressure testing on force mains to detect sources of I&I, with all findings incorporated as separate data layers to support future condition assessments and cost estimates for system rehabilitation and relining.
Sewer Replacement and Rehabilitation Basic Ordering Agreement **Role** Prime **Duration** Ongoing **Team Members** Stephanie Cuthbert Kalina Hogan Timothy Marques	**Washington Suburban Sanitary Commission (WSSC Water)** 14501 Sweitzer Ln Laurel, MD 20707 **Wayne Morris** Project Manager 301-206-8535 wayne.morris@wsswater.com	Under a five-year Basic Ordering Agreement with WSSC Water, RVE conducted extensive condition assessments of sanitary sewer systems in Prince George's and Montgomery Counties, MD. Using methods such as CCTV review, manhole inspections and field investigations, RVE assessed the condition of existing infrastructure, including over 50,000 linear feet of sanitary main and more than 300 manholes. In environmentally sensitive and residential areas, RVE developed targeted rehabilitation recommendations and prepared bid-ready documents incorporating traffic control design, access coordination and stakeholder outreach. The resulting deliverables included prioritized repair and replacement strategies for sewer lines and manholes, cost estimates, schedules and phasing plans.

Project Name/Role	Reference	Project Description
10-Year Water & Sewer Rate Study and 10-Year Capital Plan Assessment **Role** Subconsultant **Duration** 1/2024 - 3/2024 **Team Members** Grace Meyer Greg Sullivan Daniel Favilla Stephanie Cuthbert Joseph Mingle Christopher Gross	**East Orange Water Commission** 99 S Grove Street East Orange, NJ 07018 **Michael Hanley** Principal, NW Financial Group, LLC 201-656-0115 mhanley@nwfinancial.com	RVE, in collaboration with NW Financial, conducted a comprehensive 10-year Water and Sewer Rate Study and Capital Plan Assessment for the City of East Orange, NJ, to help the East Orange Utility make informed decisions about future infrastructure investments and financial sustainability. NW Financial led the financial analysis, evaluating the marketability and value of the utility system by examining rate structures, capital spending forecasts, market conditions and operational efficiencies. Their work included developing financial models, identifying potential risks and simulating rate adjustment scenarios to guide strategic planning. Concurrently, RVE's team of licensed engineers conducted a thorough condition assessment of the City's water and wastewater facilities, which included site inspections, reviews of maintenance and regulatory compliance records and interviews with utility staff. RVE used this information to identify deficiencies and infrastructure priorities, ultimately developing a 10-year Capital Improvement Plan (CIP). The CIP outlined phased upgrades with cost estimates, maintenance schedules and inflation-adjusted projections. The final report provided the City with a strategic roadmap to enhance system reliability, meet regulatory requirements and support future growth.
Sanitary Utility System Assessment **Role** Prime **Duration** 10/2024 - 12/2024 **Team Members** Grace Meyer Greg Sullivan Stephanie Cuthbert	**Middlesex Borough** 1200 Mountain Avenue Middlesex, NJ 08846 **Linda Chismar** Borough Clerk/Registrar 732-356-7400 ext. 238 lchismar@middlesexboro-nj.gov	RVE provided professional engineering consulting services to the Borough of Middlesex for a comprehensive Sewer Utility System Assessment, Rate Analysis, Valuation Study and Emergent Condition Analysis. The Borough sought to complete an asset inventory and develop a long-term Capital Improvement Plan (CIP), including associated costs, to support utility planning, budgeting and the potential sale of the system. RVE's scope included three major tasks. First, in Task 1, a multidisciplinary team of licensed engineers conducted a thorough evaluation of the utility's infrastructure through site visits and record reviews to generate a 10-year CIP outlining necessary capital and lifecycle improvements, with detailed cost estimates for construction, engineering and inspections. Task 2 involved developing a valuation of the utility using the Board of Public Utilities-approved Original Cost Less Depreciation methodology, categorizing all assets—such as manholes, pump stations and sanitary laterals—based on quantity and age to determine overall system value. In Task 3, RVE analyzed historical budgets, revenues, expenditures and user data to evaluate and propose a revised rate structure capable of supporting the proposed capital improvements, while also examining customer impacts, especially under emergent conditions or in the event of system privatization.

Project Name/Role	Reference	Project Description
Sewer Rate Study **Role** Prime **Duration** 5/2019 - 4/2020 **Team Members** James Bulicki Vanessa Nedrick	**Catasauqua Borough** 90 Bridge Street Catasauqua, PA 18032 **Glenn Eckhart** Borough Manager 610-264-0571 manager@catasauqua.org	RVE conducted a Sewer Rate Study aimed at ensuring the sewer system's financial sustainability by equitably recovering capital and operating costs from all users. The study involved analyzing recent financial data, including three years of sewer budgets, financial statements, debt service records, user demographics, billing data and growth projections. RVE reviewed these materials, evaluated current and anticipated capital improvement needs over the next five years and assessed existing rates against projected annual revenue requirements. Based on this analysis, RVE calculated and recommended updated sewer rates that reflected the true cost of service, incorporating operating expenses, current debt service and future capital project financing. The final deliverable was a comprehensive rate study report complete with supporting data and calculations, along with a draft review meeting with the Borough to finalize recommendations.
Sewer Rate Study **Role** Prime **Duration** 9/2022 - 12/2022 **Team Members** James Bulicki Vanessa Nedrick	**Township of Falls Authority** 557 Lincoln Highway Fairless Hills, PA 19030 **Peter Kim** Executive Director 215-946-6062 pkim@tofa-pa.com	RVE conducted a comprehensive sanitary sewer utility rate study for the Township of Falls Authority (TOFA) to evaluate its financial sustainability in light of existing debt, projected operating and capital expenditures and revenue trends. The study focused on TOFA's gravity-based sewer system, which includes 11 pump stations conveying approximately 3 million gallons of wastewater daily and accepts flow from neighboring municipalities. Using TOFA's budgets from 2020–2023 and user consumption data, RVE identified a projected budget deficit for 2023, primarily due to aging infrastructure requiring significant capital investments. Current rates, which vary by customer type and water meter size, were analyzed against median household income, establishing an affordability cap per quarter per household. Two rate adjustment plans were evaluated: a "No Action Plan," which projects escalating deficits over five years and an "Immediate Plan," which recommends a 14% rate hike in 2023 followed by 3% annual increases. The Immediate Plan balances the budget, avoids debt reliance and builds a $100,000 reserve fund by year four. RVE recommended adopting the Immediate Plan to ensure financial viability, maintain regulatory compliance and continue reliable sewer service delivery.

Project Name/Role	Reference	Project Description
Northern Service Area Capacity Evaluation, Hydraulic Model and Capital Improvement Plan **Role** Prime **Duration** Ongoing **Team Members** Kalina Hogan Greg Sullivan Joseph Mingle Stephanie Cuthbert Ethan Snyder Timothy Marques Kevin Zelinsky	**Ocean County Utilities Authority** 501 Hickory Lane PO Box P Bayville, NJ 08721-2157 **William T. Suchodolski** Director, Engineering & Construction 732-269-4500 ext. 8218 wsuchodolski@ocua.com	The comprehensive evaluation of the Ocean County Utilities Authority's (OCUA) Northern Service Area (NSA) was initiated in response to ongoing regional growth and focused on analyzing critical infrastructure excluding the Northern Water Pollution Control Facility. The study, conducted by RVE, aims to ensure the sewer system can meet increasing demand through a strategic assessment of interceptor systems, pump and lift stations and metering chambers. Central to this effort was the development of a dynamic hydraulic sewer model using Bentley SewerGEMS, leveraging historical data and a detailed Excel inventory to simulate the NSA's complex network and support GIS updates. The evaluation included a capacity analysis of key interceptors (excluding outfall interceptors), identification of inflow and infiltration (I&I) concerns and performance reviews of eight pump and lift stations with upgrade recommendations. Thirteen metering stations were also assessed for accuracy in handling projected future flows. RVE's findings will be compiled in a capacity evaluation report and a capital improvement master plan, complete with cost estimates and improvement strategies. Deliverables include draft and final technical memoranda, the comprehensive reports and a USB drive containing the hydraulic model and associated documentation, equipping OCUA with the tools needed for informed infrastructure planning and future development.
Sanitary Sewer System I&I Study, Manhole Assessments, GIS Updates & System Modeling **Role** Prime **Duration** 12/2020 - 10/2021 **Team Members** Kalina Hogan Stephanie Cuthbert Joseph Mingle Christopher Gross Ethan Snyder Kevin Zelinsky	**New Jersey American Water** 915 Valley Road Gillette, NJ, 07933 **John A Dunphy** Project Manager 908-791-3474 john.dunphy@amwater.com	Following New Jersey American Water's (NJAW) acquisition of the Long Hill Sanitary System, which had long suffered from capacity and surcharging issues, the utility enlisted RVE to perform a comprehensive evaluation of the system. The project involved inspecting the entire sanitary infrastructure—comprising approximately 4,000 manholes—and conducting a system-wide inflow and infiltration (I&I) study, flow monitoring and hydraulic modeling using SewerGEMS. RVE began by defining 35 sanitary subbasins and installing 35 flow meters for three months to collect both wet and dry weather data, which was then used to identify I&I-prone areas. Simultaneously, every manhole was inspected, with structural conditions assessed and GPS data collected to aid in updating NJAW's GIS system using their schema and refining the manhole numbering system. After removing the meters, RVE analyzed the flow data to generate flow hydrographs, evaluate diurnal patterns and calculate infiltration rates. These findings enabled the prioritization of basins for rehabilitation based on gallons per day per inch of infiltration and the development of a phased improvement schedule. The calibrated SewerGEMS model was then used to simulate proposed improvements, assess the effectiveness of I&I reduction efforts and estimate the return on investment across the system's subbasins and pump stations.

Project Name/Role	Reference	Project Description
Field Survey Location Services Associated with GIS Sanitary, Water and Stormwater Utility Infrastructure Mapping **Role** Prime **Duration** Ongoing **Team Members** Ethan Snyder Kevin Zelinsky Nicholas Phelan Vanessa Nedrick Christopher Gross	**Falls Township** 450 Lincoln Highway Fairless Hills, PA 19030 **Matthew Takita** Township Manager 215-949-9000 m.takita@fallstwp.com	RVE was engaged by Falls Township to perform Field Survey Location Services in support of GIS mapping for the Township's sanitary, water and stormwater utility infrastructure. The project began with extensive research of available USGS and TOFA data, including vertical and horizontal control sheets, digital orthophotos and quadrangle maps. All mapping was based on GPS data using the Pennsylvania South State Plane Coordinate System, with horizontal control referenced to NAD 83 and vertical control to NAVD 88. RVE employed a Trimble Geo7x GPS unit capable of recording highly accurate points, lines and polygons with custom attributes and photos. The system achieved sub-meter accuracy using SBAS and centimeter-level precision with RTK, leveraging a combination of global satellite systems for improved signal reliability, especially under canopy cover via Floodlight technology. Following the establishment of control points, RVE conducted detailed surveys of sanitary sewer manholes, stormwater inlets and manholes and water infrastructure (valves, hydrants and pumping locations) in sections three and five of the Township. Elevation data was collected only for structures with verifiable elevation rims, ensuring precise integration with existing GIS datasets provided by TOFA and enhancing the Township's overall utility infrastructure mapping capabilities.
Create and Update Sanitary Sewer & Stormwater System GIS Layers Using Existing Digital Drawing Files and Surveying **Role** Prime **Duration** 10/2021 - 8/2023 **Team Members** Ethan Snyder Nicholas Leusner Kevin Zelinsky Nicholas Phelan Christopher Gross	**Municipality of Princeton** 400 Witherspoon Street Princeton, NJ 08540 **Deanna Stockton** Municipal Engineer 609-924-4141 dstockton@princetonnj.gov	RVE delivered comprehensive GIS mapping services to the Municipality of Princeton to enhance and update GIS layers for its sanitary sewer and stormwater systems. By integrating existing digital drawings, scanned documents, sewer permits and conducting GPS field surveys, RVE significantly improved spatial accuracy and attribute completeness of the utility data, aligning it with New Jersey state standards. The project addressed deficiencies in Princeton's outdated GIS data—originally developed between 2008 and 2019—and included referencing the Stormwater Outfall Mapping project to guide a phased approach. RVE's scope included reviewing and georeferencing archival documents and CAD files to NJ State Plane NAD 83 and NAVD 88, updating GIS layers with new features and attributes, resolving conflicts across overlapping datasets and creating GIS-linked attachments using AWS for scalable document storage. Field surveys, performed under the supervision of a licensed NJ Professional Land Surveyor, focused on capturing accurate data for missing or incomplete at-grade utility features. Final deliverables included the updated GIS datasets uploaded to Princeton's ArcGIS Online (AGOL) platform for public and municipal access, along with a completion memo summarizing the work completed, key findings and any remaining tasks.

Project Name/Role	Reference	Project Description
Sanitary Utility Infrastructure Assessment **Role** Prime **Duration** Ongoing **Team Members** Julia Amick Greg Sullivan Stephanie Cuthbert Joseph Mingle	**Bernardsville Borough** 166 Mine Brood Road Bernardsville, NJ 07924 **Nancy Malool** Borough Administrator 908-766-3000 ext. 110 nmalool@bernardsvilleboro.org	RVE is providing comprehensive consulting engineering services for assessing the Borough's sanitary utility infrastructure. The Borough's system includes a wastewater treatment plant, 19 miles of sanitary main, 540 manholes, six pump stations and serves approximately 1,600 residents. RVE's scope includes a thorough assessment of the current operational, maintenance and regulatory condition of the utility infrastructure through facility tours, review of historical records and interviews with utility personnel. The team is developing a 10-year Capital Improvement Plan detailing required upgrades, maintenance, regulatory compliance improvements and cost estimates for construction, engineering and inspections. RVE also analyzes regulatory compliance, flow capacity, inflow and infiltration (I&I) and emergency repair history. In addition, RVE is performing a system valuation using the Original Cost Less Depreciation methodology, in accordance with the Board of Public Utilities standards, categorizing all infrastructure components by quantity and age to determine the system's overall value.
Sanitary Sewer Connection Fee Analysis **Role** Prime **Duration** 4/2024 - 7/2024 **Team Members** Julia Amick James Bulicki Stephanie Cuthbert	**Hazlet Township** 1766 Union Avenue Hazlet, NJ 07730 **Rob Bengivenga** Municipal Administrator 732-217-8687 administrator@hazletnj.org	RVE provided professional engineering services for a Sanitary Sewer Connection Fee Analysis, aiming to develop a fair, cost-based and legally compliant connection fee structure for the Township. The work included collecting and reviewing essential financial and infrastructure data from the Township, such as remaining debt service, bond or loan obligations, 2023 capital expenditures, the current number of service connections and the definition of an Equivalent Dwelling Unit (EDU). Using this information, RVE performed a detailed analysis and generated a report—formatted in an Excel table—for the Township's review and future use. This tool will help streamline updates in subsequent years without redoing the entire analysis. Additionally, RVE prepared and delivered a public presentation explaining the connection fee calculations and underlying rationale and responded to any public questions to support transparency and stakeholder understanding.

Project Name/Role	Reference	Project Description
I&I Study, Sanitary Mapping Updates, CCTV and Recommendations **Role** Prime **Duration** 6/2010 - 10/2024 **Team Members** Greg Sullivan Stephanie Cuthbert	**Bergen County Utilities Authority** P.O. Box 9 Little Ferry, NJ 07643 **Robert E. Laux** Executive Director 201-641-2552 rlaux@bcua.org	RVE was retained by the Bergen County Utilities Authority (BCUA) to conduct a multi-phase Inflow and Infiltration (I&I) study targeting three regions within the BCUA service area, with a focus on reducing wet weather flows and overflows, particularly at the Little Ferry Water Pollution Control Facility (WPCF), which was experiencing significant rain-derived I&I and facing potential restrictions from the NJDEP on new sewer connections. RVE began by analyzing the sanitary system and establishing sewer subbasins and flow monitoring locations, where meters were installed for three months to capture both wet and dry weather data. The flow data was analyzed to identify subbasins with the highest levels of RDI/I, while system maps were updated through field inspections that assessed pipe sizes, manhole spacing and manhole conditions. Manholes were also inspected during dry weather and post-rainfall events were monitored using instantaneous flow meters to isolate and measure RDI/I. Using the collected data, RVE developed flow hydrographs to evaluate diurnal patterns, calculate infiltration rates and rank subbasins for targeted rehabilitation based on gallons per day per inch of infiltration. These findings informed an improvement schedule, further supported by dye testing and property inspections (in lieu of smoke testing) to detect illegal connections. The study also guided prioritization of cleaning and CCTV inspections and culminated in recommendations for system rehabilitation, including associated cost estimates.
I&I Study, Flow Monitoring, Mapping and Recommendations Report **Role** Prime **Duration** 10/2019 - 1/2020 **Team Members** James Bulicki Vanessa Nedrick	**Township of Falls Authority** 557 Lincoln Highway Fairless Hills, PA 19030 **Peter Kim** Executive Director 215-946-6062 pkim@tofa-pa.com	As the Authority Engineer for the Township of Falls Authority (TOFA), RVE led a comprehensive initiative to reduce I&I in the sanitary sewer system, particularly in areas contributing flows to the Bucks County Water and Sewer Authority (BCWSA), with the goal of lowering treatment costs by minimizing excessive wet weather flows. Building on a prior study from 2006–2007, RVE and TOFA launched an I&I abatement program in 2009 that initially targeted high-I&I areas and later expanded across the collection system. However, despite earlier efforts, monthly average flows continued to rise, prompting RVE to recommend a focused short-term I/I study to reassess problem areas and chart a more effective course forward. This study involved installing four flow meters in strategically selected locations, evaluating the resulting data to quantify and rank I/I levels across drainage areas using EPA standards and developing a detailed map identifying monitored zones and previously addressed streets. The findings were compiled into a comprehensive report that not only analyzed the flow monitoring results but also offered recommendations for future remediation work in alignment with TOFA's PADEP-approved Comprehensive I/I Abatement Plan.

Project Name/Role	Reference	Project Description
Technical Services for the New Jersey Water Bank **Role** Prime **Duration** Ongoing **Team Members** Julia Amick James Bulicki Stephanie Cuthbert Jeffrey Baker	**New Jersey Infrastructure Bank** 3131 Princeton Pike Building 4, Suite 216 Lawrence Township, NJ 08648 **John Notte** Project Manager 609-219-8617	RVE was selected by the New Jersey Infrastructure Bank to assist NJDEP in providing technical and financial analysis services to communities with drinking water, wastewater and stormwater systems, including asset evaluations, capital planning, project prioritization and permitting support. Under a task order, RVE is supporting the Township of Manchester through comprehensive evaluation and optimization of its utility system, including asset assessment, capital planning, financial forecasting and analysis of organizational structures. The scope also includes prioritizing infrastructure projects based on cost-benefit, financing opportunities, environmental and community benefits and project readiness. The effort will culminate in a detailed 20-Year Water Capital Improvement Plan for both the Eastern and Western Service Areas, identifying projects such as new wells, treatment facilities and meter replacements to guide system maintenance and expansion based on current conditions and future demand.
Sanitary Sewer System Asset Inventory, Evaluation, Capital Improvement Plan and Rate Analysis **Role** Prime **Duration** Ongoing **Team Members** Stephanie Cuthbert James Bulicki	**Town of Phillipsburg** 120 Filmore Street Phillipsburg, NJ 08865 **Craig Brotons** Business Administrator 908-454-5500 ext. 389 busadmin@phillipsburgnj.org	RVE is providing engineering consulting services to the Town of Phillipsburg in support of a potential sale of its sewer utility assets, as part of the Water Infrastructure Protection Act (WIPA) process. The scope includes four key tasks: (1) preparing an Emergent Condition Analysis to qualify the utility for WIPA sale consideration and coordinating with legal counsel and NJDEP for approval; (2) developing a detailed asset inventory of the wastewater treatment plant, three pump stations and associated properties, which will serve as a foundation for utility valuation and future bidding; (3) evaluating the condition of the existing infrastructure and generating a comprehensive 10-year Capital Improvement Plan, including cost estimates for capital repairs and life cycle replacements; and (4) conducting a rate study to assess current revenues, expenditures and user data and to develop a sustainable rate structure aligned with the capital plan and WIPA requirements.
Stormwater Management Study **Role** Prime **Duration** 6/2022 - 12/2023 **Team Members** Kevin Zelinsky Ethan Snyder James Bulicki Christopher Gross Nicholas Leusner	**Town of Townsend** 141 Main Street Townsend, DE 19734 **Julie Goodyear** Town Manager 302-378-8082 jgoodyear@townsend.delaware.gov	RVE provided GIS mapping, GPS data collection and CCTV inspection services to evaluate and enhance the Town's stormwater infrastructure. A GIS-based inventory was developed using Esri ArcGIS software to map existing stormwater assets, including manholes, inlets and outfalls, which aided in MS4 compliance and informed future infrastructure improvements. Work also included CCTV inspection, cleaning and repair of approximately 6,100 linear feet of storm sewer pipes, addressing issues such as sinkholes caused by deteriorating infrastructure, especially in Townsend Station. These efforts were essential for assessing the current condition of the stormwater system, enabling the Town to plan targeted repairs and maintenance to ensure reliable infrastructure moving forward.

Project Approach

Section 5

Since 1901
RVE, Inc.
CONSULTING ENGINEERS

5. Project Approach

An explanation of the engineer's approach to addressing the proposed scope of services outlined in this document. Include potential challenges, expected issues of concern and a proposed schedule for completing the tasks identified within the RFQ.

The following presents our approach including potential challenges and issues of concern for completing the tasks identified in the RFQ.

Task 1 – Assist with completing project milestones as defined by the granting agency

Our team will work with the County to achieve the requirements of the Asset Inventory and Assessment (AIA) grant to identify deficiencies, prioritize capital improvements and develop a comprehensive plan to address the County's infrastructure needs. Our team is familiar with the NC DEQ guidelines and standards associated with asset assessment, rehabilitation and replacement identification and cost estimating, critical rating and document preparation. Our team will meet these requirements along with deadlines so as not to jeopardize the funding received by the County.

Task 2 – Compete GIS mapping and inventory of the collection system

INVENTORY OF THE COLLECTION SYSTEM

The scope of work for this phase will include the in-field assessment of the collection system not completed by the County staff. The information collected in the field will be utilized to update the current GIS database.

All manholes will be located using RTK GPS with sub-centimeter accuracy. Data provided to Henderson County will be in the North Carolina State Plane Coordinate System (SPCS North American Datum 1983 (NAD 83)). The survey data collected will be used to update the current electronic shapefiles in the GIS database.

While the missing GIS data is collected, our team will simultaneously collect data and complete an assessment of the collection system. The data collected from the collection system will be as follows.

- Rim elevation in NAVD 88 datum.
- Invert elevations.
- Pipe size, material and invert of each pipe entering the manhole. Clearly showing direction each pipe enters the manhole.
- The following information will be noted for each manhole if relevant:
    - Drop manhole of connection.
    - Any visible I/I or signs of infiltration.
    - If manhole is equipped with a manhole dish.
    - Anything out of the ordinary.
- Any manholes that are not shown on the current GIS map shall be located and added to the GIS map.
- RVE will make every reasonable effort to find and identify the manholes shown on the GIS map, included the use of metal detector to locate buried manholes.
- RVE will keep a list of manhole covers that could not be opened for potential assistance from the County
- Any visible homeowner sanitary cleanouts will be noted.

- A manhole record sheet will be filled out for each manhole.
- Pictures will be taken of the inside of each manhole (looking down, from top to bottom), the surrounding area and the manhole exterior. Pictures will be submitted electronically with manhole number identified.

Based upon our experience with similar assessment projects and GIS mapping projects, we propose the following approach:

- Complete road segments that do not require Uniformed Police Traffic Control first. It has been our experience that it is more efficient to save all road segments that require police traffic control and complete those segments back-to-back.
- All reports will be prepared electronically using an in-field tablet. Pertinent photos will be automatically uploaded to the reports. All reports are reviewed at the end of each day and may be immediately available to County personnel for review and comment.
- It has been our experience that manholes that cannot be opened provide the biggest challenge and time consumption regarding the field work. Our field teams are experienced and equipped at opening manholes and every attempt will be made to open every manhole. However, our teams know their limitations and will not attempt to open manholes to the extent that the frame or casting is broken in the process. Our field teams will keep a list of manhole covers that cannot be opened. A list will be provided to the County at the end of each week so that the unopened manholes can be rectified by the County. After the inaccessible manholes are opened by County personnel, our team will revisit those manholes and gather the necessary manhole data.
- Due to the I&I problems in the County and many low-lying areas, RVE proposes to modify our Manhole Inspection Report Format to include additional information regarding the surface surrounding the manhole. Specifically, we would like to note if the area surrounding the subject manhole is in a low-lying area, the manhole casting is depressed and should be reset, or if the manhole has a dish installed to collect rainwater infiltration into the manhole.
- Due to the need to create a Conditions Assessment of the system, we propose adding an area in the Manhole Inspection Form for the identification of manholes showing indications of surcharge (i.e., trash/grease lines on the walls of the manhole). This information can be utilized to identify areas with capacity issues or those that may be experiencing a surcharge.

GIS UPDATES

RVE will update the GIS database in the same format that is provided and followed by the County. We have completed this task before with other clients and the submission of the updated GIS information was best completed in regional areas of the study area. Specifically, updates and transfer of data may be completed in accordance with the flow regions of the sanitary system for consistency with the study areas. In addition, the following will be provided for use:

- One (1) flash drive and access to RVE One Drive containing an electronic copy of the GIS mapping geodatabase in the same format and schema as provided by the County, including FGDC-compliant metadata and Adobe PDF file format of each of the new and updated map layers. All hardcopy and/or digital mapping products will be compliant with state GIS mapping standards and guidelines.
- Our GIS Team will want to complete a small study area first, which is transferred to the County system for incorporation into the County GIS system. Incorporation of the updated data in small segments will ensure that data is transferred properly and the RVE GIS and County GIS Teams can coordinate to prevent any issues of data transfer. We have followed this format with other clients where we have updated their GIS system and the transfer of data works best with this approach.

Task 3 – Inflow and Infiltration (I & I) Analysis / Condition Assessment Report

I&I ANALYSIS

Based upon our experience with similar I&I studies and the resulting data, we propose the following approach to identify I&I in the County system:

- The sanitary system map should be overlaid with the flood areas, water bodies and area of mapped wetlands. This overlay will assist in the identification of high-probability areas for I&I, which may impact the system and the resulting 10-year capital improvement plan.
- It has been our experience that flow monitoring is the best means of I&I identification and CCTV is the best method for pipe assessment. Our team will work with the County team to identify the best approach as well as the most cost-effective means of completing both tasks.
- Should flow monitors be selected to identify base flow as well as wet weather flows in the system, meter locations will be proposed in the system that will allow isolation of flow in sections of the system for metering. The location of the flow meter will be proposed to achieve multiple objectives with the single flow monitor where applicable (i.e., isolate flow in a region while still providing flow readings into a pump station).
- Flow monitors will be based to the following locations based upon the information obtained in Task 2A:
    - At flow basin discharge points
    - Upstream of known sanitary sewer surcharge areas or overflow areas
    - At flood locations
    - Upstream of pump stations to be utilized in conjunction with pump station flow data
    - Points of major confluence—i.e., influent to pump stations or WWTP
- Typically, flow monitoring equipment may remain in place for a period of 1-3 months depending on rainfall events during that time. Proper installation and accurate site calibration of the equipment are essential for the success of the monitoring program. RVE will use a selected vendor to install and monitor the flow meters with the following objectives:
    - Within three (3) days of the original flow meter installation, each site will be checked to confirm the meters are functioning properly.
    - Meters will be wireless and will be reviewed daily to determine excursions in the collected data. Site visits will occur two (2) times per month to confirm meters are functioning properly, confirm the battery life and clear any debris that may have collected in the flow channel.
    - Preliminary data can occur on a weekly basis to review and confirm the quality of the data.
    - We have found that reviewing the flow data on a weekly basis allows us to detect any inconsistencies in the data. Typical depth vs. velocity changes should be investigated to confirm that there are no issues with the flow meter or obstructions in the main.
    - We typically select flow metering locations to not only achieve the requirements of the project but to also allow redundant isolation of the flow area. Therefore, if a meter fails during the monitoring period, the analysis of the entire area is not impacted. In addition, the weekly check of the equipment typically detects any issues within a short period of time from failure.

- We will propose to monitor flows at 5-minute intervals or less. We typically like to monitor at this frequency (as opposed to 15-minute intervals) to detect the change in flow in shorter frequency intervals that would be missed in the longer monitoring intervals.
- It has been our experience that areas with root issues or debris issues can sometimes impact the accuracy of the flow data. The condition of the manhole and surrounding area will be assessed at the time of the flow meter installations.

CLOSED CIRCUIT TELEVISION (CCTV)

CCTV inspection is a key tool for assessing inflow and infiltration (I&I) in sanitary sewer systems. While CCTV alone can't quantify I&I flows, it helps identify structural defects and entry points that contribute to I&I as well as provide a condition assessment for the conveyance system. Our team will use the following approach for using CCTV:

1. Identification of Defects

Our NAASCO-certified staff will review any CCTV to identify the following:

- Cracks, fractures and joint separations in pipes
- Root intrusion at joints or breaks
- Defective service connections (e.g., offset taps, leaking laterals)
- Manhole defects such as leaking seams or corroded chimneys
- Cross-connections (e.g., illegal sump pumps or storm drain tie-ins)

2. Wet Weather Monitoring

CCTV inspections performed during or shortly after rainfall events can:

- Visibly capture active inflow (e.g., gushing or dripping water).
- Help prioritize areas where surface water enters directly through defects.

This is often difficult to coordinate but can provide a good mechanism in low-lying areas or areas often inundated or flooded.

3. Condition Grading

As noted, our NAASCO-trained and certified staff will review and assess the condition of the conveyance system pipe. From this information, critical areas can be prioritized and incorporated into the 10-Year Capital Improvement Plan as follows:

- Identify structural defects and/or collapses that must be removed/replaced.
- Identify areas with defects that can be rehabilitated both structurally and from an I&I perspective with trenchless technologies (e.g., CIPP lining, grouting).
- Identify areas that may benefit from additional studies, such as smoke/dye testing.

As noted, we believe that CCTV has limitations on I&I identification for the following reasons:

- No Flow Quantification. CCTV doesn't measure how much I&I is entering—it only identifies potential sources. Flow metering or modeling is needed for quantification.
- Inspections during dry conditions can miss active inflow sources. Ideally, inspections should be timed with rainfall.

- To effectively use CCTV for I&I assessments, our team will want to approach the assessment and I&I from a multi-pronged approach, such as:
    - Flow monitoring (to determine peak flow contributions
    - Smoke or dye testing (to trace inflow sources
    - Manhole inspections (to identify above-ground or surface water entry)

CONDITION ASSESSMENT REPORT

Our team will use the field-collected data as well as interviews with the County staff to assess the condition of the sewer system. The information from the operators and those who work with the system daily will provide good information regarding potential problem areas, work completed recently and routine maintenance.

In addition to this information, our team will assess the system from a risk matrix to identify each component of the system and their criticality to the system, including service area size, redundancy for flow during emergencies, proximity to water bodies, etc. Our team will identify risk spots and prioritize improvements based on potential failure, service disruptions and environmental impacts.

From this analysis, our team will develop an annual Capital Improvement Plan (CIP) for the next 10 years with both construction and estimated soft costs. The CIP will be prioritized as noted above. The CIP should be reviewed annually and adjusted based upon shifted priorities and availability of funding. Our team will provide the CIP in electronic format for ease of updating and modification by the County.

Task 4 – Sewer Rate Analysis

Under this task, our team will review the last 5 years of financial audits to establish utility operating budgets as well as the current operating budgets. Our goal will be to establish both historic and current operating and maintenance costs.

Comments will be provided regarding the historic and current O&M policy and allocated funding. Should we feel that this element of the utility should be modified, our recommendations will be made for consideration and incorporation into the Rate Study Model.

ANALYZE CURRENT AND PROJECTED DEBT SERVICE

The existing debt service and payment schedule will be reviewed and incorporated into the rate model. However, it is necessary to project the future debt service based upon the 10-year CIP analysis.

This will be completed by examining the various funding methods previously utilized by the County in the past, including debt-funded projects, types of bonding, grant projects and frequency of borrowing. This information will be applied to future projects (CIP projects) utilizing an assumed interest rate.

This information will be utilized to develop the annual principal and interest payment and debt service projection and structure will be developed.

EVALUATE POTENTIAL FINANCING SOURCES

As noted above, an analysis of the various types of funding sources will be necessary to develop a predictive model for debt service. Accordingly, sources to pay for both the capital and operating costs of the utility will be examined. In addition, the impacts of the funding sources will be quantified to provide a plan for the best method of completing the necessary improvements for the County.

System development fees should also be examined to establish development projects and exclusion from the rate analysis.

COMPARE REVENUE REQUIREMENTS FROM RATES WITH PROJECTED REVENUES

The future revenue to be collected from the projected demand/flows will be compared to project the revenues if the current rate structure is held constant over the next 10 years. The annual deficit or surplus will be projected. Various rate structure scenarios will be presented and will indicate the deficit or surplus based upon project revenues over the next 10 years. An Excel file of the tables developed to depict the various rate structures and associated surplus or deficit will be provided at the end of the project for use after the rate study is complete.

DEVELOP COST OF SERVICE

Most critical to the rate study will be the equitable distribution of revenue requirements (rates) among the various customer classes. The cost-of-service analysis will determine what costs exist among the various customer classes.

DEVELOP RECOMMENDED RATES

The project rate structure will be for a 10-year analysis period. The rate structure will be presented as an Excel spreadsheet that not only shows the projected rates but also the impact on customer bills utilizing an average (typical) flow rate. This information will be reviewed with the County and will be incorporated into the overall rate study for publication, if desired.

DOCUMENT MODEL

Upon review by the County, our team will refine and document the analysis and provide all supporting documents to justify the rate structure. We understand that this is a legal document that must be clear with all items documented should it be challenged.

All written documents will be developed utilizing Microsoft Word, while all rate analysis, rate structures and connection fee analysis will be developed utilizing Microsoft Excel.

Insurance Requirements

Section 6

Since 1901
RVE, Inc.
CONSULTING ENGINEERS

6. Insurance Requirements

Provide a copy of a certificate of insurance which identifies current levels of professional liability insurance.

A copy of our current Certificate of Insurance, identifying the existing levels of professional liability insurance, is provided on the following page.

Client#: 149 REMINVERNI

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 3/04/2025

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 any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Conner Strong & Buckelew PO Box 99106 Camden, NJ 08101 877 861-3220	CONTACT NAME: Bradley Crowe PHONE (A/C, No, Ext): 856-552-4764 FAX (A/C, No): E-MAIL ADDRESS: bcrowe@connerstrong.com
INSURED Remington & Vernick Engineers II, Inc. 2059 Springdale Road Cherry Hill, NJ 08003	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : National Fire Insurance Co. of Hartford — 20478C INSURER B : Valley Forge Insurance Company — 20508 INSURER C : The Continental Insurance Company — 35289 INSURER D : Transportation Insurance Company — 20494 INSURER E : Aspen American Insurance Company — 43460 INSURER F : ACE American Insurance Company — 22667

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 INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [ ] [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [ ] [X] PRO-JECT [X] LOC OTHER:	X	X	7018226700	03/01/2025	03/01/2026	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$1,000,000 $100,000 $15,000 $1,000,000 $2,000,000 $2,000,000 $
B	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY	X	X	7018226714	03/01/2025	03/01/2026	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$1,000,000 $ $ $ $
C	X UMBRELLA LIAB [X] OCCUR EXCESS LIAB [ ] CLAIMS-MADE DED [X] RETENTION $10,000	X	X	7018226731	03/01/2025	03/01/2026	EACH OCCURRENCE AGGREGATE $	$5,000,000 $5,000,000 $
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [N] N/A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		X	WC 7018502051	03/01/2025	03/01/2026	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $1,000,000 $1,000,000 $1,000,000
E	Architects & Engineers Prof Liability			LRAGN5A24	07/01/2024	07/01/2025	$7,500,000 EACH CLAIM $7,500,000 AGGREGATE $350,000 RETENTION	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

D. Transportation Insurance Company
Policy Period: 3/1/2025 - 3/1/2026
NAIC #20494
Policy # 7018499569
Stop GAP Liability Coverage: ND, OH, WA, WY on if any basis
(See Attached Descriptions)

CERTIFICATE HOLDER

Evidence of Insurance

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

W. Michael Traynard

DESCRIPTIONS (Continued from Page 1)

A. Property Coverage
National Fire Insurance of Hartford
Policy #: 7018226700
Effective 3/1/2025 - 3/1/2026
Limits:
Real Property: $10,689,407
Business Personal Property: $1,687,293
Business Income: $3,000,000
Valuable Papers: $1,000,000
Deductible: $1,000

A. Contractor's Equipment Coverage
National Fire Insurance Of Hartford
Policy Period: 3/1/2025 - 3/1/2026
Policy # 7018226700
Contractors Equipment Coverage:
1. Scheduled Values: $880,950
2. Equipment Leased, Borrowed Or Rented From Others-Limit: $50,000 / $25,000 Maximum Limit Per Item
3. Deductible: $1,000

F. Contractors' Pollution Liability Insurance
Policy Number: G27417206 010
Policy Period: 7/1/2024 - 7/1/2025
Limits: $5,000,000 Per Pollution Condition Limit of Liability / $5,000,000 Aggregate Limit of Liability for all Pollution Conditions

1. The Captioned Commercial General Liability Policy includes the following coverage:
a. XCU
b. Contractual Liability
c. Contractual Liability - Railroads is included by amending the definition of an "Insured Contract" when working within 50ft of a Railroad

2. The Captioned Workers Compensation & Employers Liability coverage includes the following coverage on an if any basis:
a. USL&H

4. A Waiver of Subrogation is provided in favor of the Additional Insureds under the captioned Commercial General Liability, Business Automobile Liability, Commercial Umbrella Liability, Workers Compensation & Employers Liability, and Contractors Pollution Liability Coverages if required by written contract & permitted by state law.

5. The captioned Commercial Umbrella Liability policy is following form of the Commercial General Liability, Automobile Liability, and Employers Liability Policies.

6. 30 Days Notice of Cancellation and Non-Renewal, 10 Days Notice in the event of Non-Payment of Premium, will be provided subject to the terms and conditions of the policy.

Fee Schedule

Section 7

Since 1901
RVE, Inc.
CONSULTING ENGINEERS

7. Fee Schedule

Shall include a fee schedule (hourly rate) of services to be provided by the project team.

2025 Schedule of Hourly Rates

NAME	LABOR CATEGORY	HOURLY RATE
Patrick A. Haramija, PE	Regional Engineer/Manager	$199.00
Stephanie Cuthbert, PE	Principal	$199.00
Vanessa Nedrick, PE, MSEM	Principal	$199.00
Jeffrey Baker	Project Manager	$159.00
James Bulicki, PE	Project Manager/Engineer	$169.00
Joseph Mingle	Project Manager/Engineer	$169.00
Timothy Marques	Project Manager/Engineer	$169.00
Daniel Favilla, PE, STSC	Project Manager/Engineer	$169.00
Gregory Sullivan, PE, CEA	Project Manager/Engineer	$169.00
Kalina Hogan, PE	Project Engineer	$159.00
Grace Meyer	Senior Engineering Technician	$139.00
Julia Amick, EIT	Senior Engineering Technician	$139.00
Jacqueline Trovato, PE	Engineering Department Head	$189.00
Kevin Zelinsky, GISP, CMS	CADD/GIS Manager	$179.00
Christopher Gross, GISP, CFM	Senior CADD/GIS Technician	$139.00
Nicholas Phelan	Senior CADD/GIS Technician	$139.00
Ethan C. Snyder	Senior CADD/GIS Technician	$139.00
Nicholas Leusner	Senior CADD/GIS Technician	$139.00

Vendor Information Form

Attachment I

Since 1901
RVE, Inc.
CONSULTING ENGINEERS

Attachment I: Vendor Information Form			
Company / Firm Name			
RVE, Inc.			
Mailing Address			
1813 Chapel Hill Road, Durham, NC 27707			
Contact Name		Contact Title	
Patrick A. Haramija, PE		Senior Associate, Regional Manager	
Phone Number	Fax	Email	Website
919-545-1894	N/A	Patrick.Haramija@rve.com	rve.com
Federal Tax ID Number		Unique Entity Identification Number (SAM.gov)	
81-3351834		C7LRXPLXSMM1	
Required Documentation		Internal Routing	
Completed IRS W-9 form dated within calendar year and signed by authorized personnel. Please see attached.		W9 Received	☐ YES
Minority and Women Owned Business (MWBE) certification, if applicable. Not applicable.		MWBE Certification Received	☐ YES ☐ N/A
		Unique Entity Identification Number confirmed in SAM.gov	☐ YES

NORTH CAROLINA BOARD OF EXAMINERS
FOR ENGINEERS AND SURVEYORS
4601 Six Forks Rd Suite 310
Raleigh, North Carolina 27609

RVE, Inc.
2059 Springdale Road
Cherry Hill, NJ 08003

This is to Certify that:

RVE, Inc. is licensed with the North Carolina Board of Examiners for Engineers and Surveyors, and is authorized to practice ***engineering*** under the provisions of Chapter 89C and 55B of the General Statutes of North Carolina.

This authorization must be renewed annually, and **expires on June 30, 2025**

License No. : C-4901

THE NORTH CAROLINA BOARD OF EXAMINERS FOR ENGINEERS AND SURVEYORS

Executive Director

POST IN PLACE OF BUSINESS

Issued 06/17/2024

Form **W-9**
(Rev. March 2024)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give form to the requester. Do not send to the IRS.

Before you begin. For guidance related to the purpose of Form W-9, see *Purpose of Form*, below.

Print or type. See *Specific Instructions* on page 3.

1 Name of entity/individual. An entry is required. (For a sole proprietor or disregarded entity, enter the owner's name on line 1, and enter the business/disregarded entity's name on line 2.)

Remington & Vernick Engineers II, Inc.

2 Business name/disregarded entity name, if different from above.

3a Check the appropriate box for federal tax classification of the entity/individual whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor ☐ C corporation ☑ S corporation ☐ Partnership ☐ Trust/estate

☐ LLC. Enter the tax classification (C = C corporation, S = S corporation, P = Partnership) . . . . .

Note: Check the "LLC" box above and, in the entry space, enter the appropriate code (C, S, or P) for the tax classification of the LLC, unless it is a disregarded entity. A disregarded entity should instead check the appropriate box for the tax classification of its owner.

☐ Other (see instructions)

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any)

Exemption from Foreign Account Tax Compliance Act (FATCA) reporting code (if any)

(Applies to accounts maintained outside the United States.)

3b If on line 3a you checked "Partnership" or "Trust/estate," or checked "LLC" and entered "P" as its tax classification, and you are providing this form to a partnership, trust, or estate in which you have an ownership interest, check this box if you have any foreign partners, owners, or beneficiaries. See instructions . . . . . ☐

5 Address (number, street, and apt. or suite no.). See instructions.

2059 Springdale Road

Requester's name and address (optional)

6 City, state, and ZIP code

Cherry Hill, NJ 08003

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. See also *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–			–				

or

Employer identification number

8	1	–	3	3	5	1	8	3	4

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and, generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here | **Signature of U.S. person** [signature] **Date** 1/1/2025

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

What's New

Line 3a has been modified to clarify how a disregarded entity completes this line. An LLC that is a disregarded entity should check the appropriate box for the tax classification of its owner. Otherwise, it should check the "LLC" box and enter its appropriate tax classification.

New line 3b has been added to this form. A flow-through entity is required to complete this line to indicate that it has direct or indirect foreign partners, owners, or beneficiaries when it provides the Form W-9 to another flow-through entity in which it has an ownership interest. This change is intended to provide a flow-through entity with information regarding the status of its indirect foreign partners, owners, or beneficiaries, so that it can satisfy any applicable reporting requirements. For example, a partnership that has any indirect foreign partners may be required to complete Schedules K-2 and K-3. See the Partnership Instructions for Schedules K-2 and K-3 (Form 1065).

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS is giving you this form because they

SAM.GOV®

REMINGTON & VERNICK ENGINEERS II, INC.

Unique Entity ID	CAGE / NCAGE	Purpose of Registration
C7LRXPLXSMM1	**9UAN9**	**All Awards**
Registration Status	Expiration Date	
Active Registration	**Dec 28, 2025**	
Physical Address	Mailing Address	
2059 Springdale RD **Cherry Hill, New Jersey 08003-4011** **United States**	**2059 Springdale RD** **Cherry Hill, New Jersey 08003-4011** **United States**	

Business Information

Doing Business as	Division Name	Division Number
REMINGTON VERNICK & BCH ENGINE	**(blank)**	**(blank)**
Congressional District	State / Country of Incorporation	URL
New Jersey 01	**New Jersey / United States**	**www.rve.com**

Registration Dates

Activation Date	Submission Date	Initial Registration Date
Dec 31, 2024	**Dec 28, 2024**	**Nov 8, 2023**

Entity Dates

Entity Start Date	Fiscal Year End Close Date
Jul 29, 2016	**Dec 31**

Immediate Owner

CAGE	Legal Business Name
(blank)	**(blank)**

Highest Level Owner

CAGE	Legal Business Name
(blank)	**(blank)**

Executive Compensation

Registrants in the System for Award Management (SAM) respond to the Executive Compensation questions in accordance with Section 6202 of P.L. 110-252, amending the Federal Funding Accountability and Transparency Act (P.L. 109-282). This information is not displayed in SAM. It is sent to USAspending.gov for display in association with an eligible award. Maintaining an active registration in SAM demonstrates the registrant responded to the questions.

Proceedings Questions

Registrants in the System for Award Management (SAM.gov) respond to proceedings questions in accordance with FAR 52.209-7, FAR 52.209-9, or 2. C.F.R. 200 Appendix XII. Their responses are displayed in the responsibility/qualification section of SAM.gov. Maintaining an active registration in SAM.gov demonstrates the registrant responded to the proceedings questions.

Exclusion Summary

Active Exclusions Records?

No

SAM Search Authorization

I authorize my entity's non-sensitive information to be displayed in SAM public search results:

Yes

Entity Types

Business Types

Entity Structure	Entity Type	Organization Factors
Corporate Entity (Not Tax Exempt)	**Business or Organization**	**Subchapter S Corporation**
Profit Structure		
For Profit Organization		

Socio-Economic Types

Check the registrant's Reps & Certs, if present, under FAR 52.212-3 or FAR 52.219-1 to determine if the entity is an SBA-certified HUBZone small business concern. Additional small business information may be found in the SBA's Dynamic Small Business Search if the entity completed the SBA supplemental pages during registration.

Financial Information

Accepts Credit Card Payments	Debt Subject To Offset
No	**No**

EFT Indicator	CAGE Code
0000	**9UAN9**

Points of Contact

Electronic Business

Michael Messina

2059 Springdale Road
Cherry Hill, New Jersey 08003
United States

Government Business

Annina Hogan

2059 Springdale Road
Cherry Hill, New Jersey 08003
United States

Service Classifications

NAICS Codes

Primary	NAICS Codes	NAICS Title
Yes	**541330**	**Engineering Services**
	541320	**Landscape Architectural Services**
	541340	**Drafting Services**
	541360	**Geophysical Surveying And Mapping Services**
	541370	**Surveying And Mapping (Except Geophysical) Services**
	541620	**Environmental Consulting Services**

Product and Service Codes

PSC	PSC Name
C1AA	**Architect And Engineering- Construction: Office Buildings**
C1AB	**Architect And Engineering- Construction: Conference Space And Facilities**
C1AZ	**Architect And Engineering- Construction: Other Administrative Facilities And Service Buildings**
C1CA	**Architect And Engineering- Construction: Schools**
C1CZ	**Architect And Engineering- Construction: Other Educational Buildings**
C1DA	**Architect And Engineering- Construction: Hospitals And Infirmaries**
C1DB	**Architect And Engineering- Construction: Laboratories And Clinics**
C1EB	**Architect And Engineering- Construction: Maintenance Buildings**
C1EZ	**Architect And Engineering- Construction: Other Industrial Buildings**
C1FB	**Architect And Engineering- Construction: Recreational Buildings**
C1FF	**Architect And Engineering- Construction: Penal Facilities**
C1JA	**Architect And Engineering- Construction: Museums And Exhibition Buildings**
C1KA	**Architect And Engineering- Construction: Dams**
C1LB	**Architect And Engineering- Construction: Highways, Roads, Streets, Bridges, And Railways**
C1LZ	**Architect And Engineering- Construction: Parking Facilities**
C1NB	**Architect And Engineering- Construction: Heating And Cooling Plants**
C1ND	**Architect And Engineering- Construction: Sewage And Waste Facilities**

C1NE	**Architect And Engineering- Construction: Water Supply Facilities**
C1PA	**Architect And Engineering- Construction: Recreational Facilities (Non-Building)**
C1PD	**Architect And Engineering- Construction: Waste Treatment And Storage Facilities**
C1PZ	**Architect And Engineering- Construction: Other Non-Building Facilities**
C211	**Architect And Engineering- General: Landscaping, Interior Layout, And Designing**
C212	**Architect And Engineering- General: Engineering Drafting, Not Cad/Cam**
C213	**Architect And Engineering- General: Inspection (Non-Construction)**
C214	**Architect And Engineering- General: Management Engineering**
C215	**Architect And Engineering- General: Production Engineering**
C216	**Architect And Engineering- General: Marine Engineering**
C219	**Architect And Engineering- General: Other**
C220	**Architect And Engineering- General: Structural Engineering**
C221	**Architect And Engineering- General: Plumbing Systems**
C222	**Architect And Engineering- General: Electrical Systems**
C223	**Architect And Engineering- General: Mechanical Systems**

Disaster Response

This entity does not appear in the disaster response registry.

Team Resumes

Attachment II

Since 1901
RVE, Inc.
CONSULTING ENGINEERS

Patrick A. Haramija, PE

Project Manager/Primary Contact

Senior Associate, Regional Manager

Overview

- Regional Manager responsible for managing both Durham, NC and Asheville, NC offices
- Primary point of contact for local clients, managing multidisciplinary projects and representing municipal, county and agency clients on projects of various
- More than a decade of experience successfully managing projects for municipal, county and agency clients
- Multidisciplinary project manager with expertise in civil/site engineering, construction management, education, infrastructure/transportation, mechanical/electrical/plumbing, municipal and water/wastewater engineering

Work History

RVE experience: 2020 to present

Total experience: 14 years

Education

B.S., Mechanical Engineering, Rutgers University, 2012

Certifications/Registrations

Professional Engineer – NC #053340

Grant Management for Federal Aid Projects Certificate

Compliance with the Americans with Disabilities Act (ADA) in the Public Right-of-Way Certificate

40-Hour OSHA Training

Affiliations/Memberships

North Carolina Rural Water Association

North Carolina AWWA Section

North Carolina One Water Association

NC Recreation & Park Association

Greater Raleigh Chamber

Representative Project Experience

Northwest Water Supply Asset Inventory, Silver City, NC – Regional Manager for the development of a comprehensive asset inventory and registry for the Northwest Water Supply (NWWS) in Silver City, NC, serving approximately 485 residents. Scope included physical inspections, evaluation of system components and maintenance records, GIS schematic drawing development and recommendations for repair prioritization, system rehabilitation and long-term asset management strategies, including alternatives such as consolidation or regionalization.

Public Water and Sewer System Development Fee Analysis, Brunswick County, NC – Regional Manager for the comprehensive water and wastewater System Development Fee (SDF) study for Brunswick County, NC, in compliance with the Public Water and Sewer System Development Fee Act and AWWA's M1 Manual. Scope included project management, data collection and analysis, peak factor and capacity cost evaluations and calculation of fair and defensible SDFs accounting for wholesale customers and revenue adjustments. Regular collaboration with County staff and in-person presentations to the County Board supported transparent decision-making.

Garrett Road Park Restroom Sewer, City of Durham, NC – Project Manager for the design and implementation of a sanitary sewer connection project for Garrett Road Park in Durham, addressing the failure of the existing septic system and sand filter. The project involves connecting the park's restroom facility, which includes four toilets and sinks, to the public sanitary sewer system located 750 feet south on Hope Valley Road, ensuring functionality and compliance with environmental standards.

UNC Chapel Hill Hamilton Hall Utility Improvements, Chapel Hill, NC – Project Manager for the design and development of site, utility and construction staging plans to disconnect existing floor drains from a 3" storm drain and create new connections to the sanitary and storm systems. The project includes routing a 3" sanitary connection to an existing manhole near Hamilton Hall and a 4" storm connection from a new sump pump to an existing storm system manhole. Efforts include preparing comprehensive construction documents, including demolition, erosion control and utility plans, delivering 90% and 100% construction drawings for UNC Chapel Hill and SCO review.

Jackson Park All Inclusive Playground, Henderson County Parks & Recreation, NC – Project Manager for the comprehensive civil/site engineering, landscape architecture and construction administration services for the development of a 10,000-square-foot inclusive playground at Jackson Park, including grading, drainage, sidewalks, playground and fitness equipment installation and various site amenities.

Playground Improvements at 13 Elementary Schools, Henderson County Public Schools (HCPS), NC – Project Manager for the assessment and design of playground improvements at 13 elementary schools. Scope included ensuring code compliance while designing engaging equipment. Specific improvements included site clearing, new equipment layout, underdrain and stormwater piping systems upgrades, rubber mulch and surfacing and miscellaneous site enhancements like benches and athletic courts, with deliverables divided into two bid packages.

On-Call Professional Services, Department of General Services, Durham, NC – Project Manager for the firm's on-call professional services contract with the City of Durham's Department of General Services for various Capital Improvement and Maintenance projects, including civil, geotechnical, environmental engineering, surveying and cost estimating. One key project under this agreement was the design and construction of a 40' x 60' x 24' building for solid waste and recycling cart storage at the Durham Solid Waste Management Annex. RVE provided comprehensive services, including site planning, geotechnical testing, environmental assessments and construction administration, ensuring compliance with city regulations and successful project delivery.

Stephanie Cuthbert, PE

Technical/Project Lead

Principal, Executive Vice President of the Water/Wastewater Division

Overview

- More than 30 years of engineering experience
- Named a Principal in 2021
- Responsibilities include the evaluation of water and sewer infrastructure, design and permitting of utility system improvements, development of utility system capital improvement plans and assistance in procurement services
- Manages and supports capital projects and Board matters as Client Representative
- Provides comprehensive project management services and expert testimony

Work History

RVE experience: 1993 to present

Total experience: 31 years

Education

B.S., Civil Engineering, Drexel University, 1993

Numerous Continuing Education Courses in Environmental Engineering and Compliance

Certifications/Registrations

Professional Engineer

40-hour OSHA HazMat Certification

OSHA Confined Space Certification

Affiliations/Memberships

North Carolina Rural Water Association

North Carolina AWWA Section

North Carolina One Water Association

Representative Project Experience

Northwest Water Supply Asset Inventory, Silver City, NC – Project Manager for the development of a comprehensive asset inventory and registry for the Northwest Water Supply (NWWS) in Silver City, NC, serving approximately 485 residents. Scope included physical inspections, evaluation of system components and maintenance records, GIS schematic drawing development and recommendations for repair prioritization, system rehabilitation and long-term asset management strategies, including alternatives such as consolidation or regionalization.

Public Water and Sewer System Development Fee Analysis, Brunswick County, NC – Project Manager for the comprehensive water and wastewater System Development Fee (SDF) study for Brunswick County, NC, in compliance with the Public Water and Sewer System Development Fee Act and AWWA's M1 Manual. Scope included project management, data collection and analysis, peak factor and capacity cost evaluations and calculation of fair and defensible SDFs accounting for wholesale customers and revenue adjustments. Regular collaboration with County staff and in-person presentations to the County Board supported transparent decision-making.

Garrett Road Park Restroom Sewer, City of Durham, NC – Technical Lead for the design and implementation of a sanitary sewer connection project for Garrett Road Park in Durham, addressing the failure of the existing septic system and sand filter. The project involves connecting the park's restroom facility, which includes four toilets and sinks, to the public sanitary sewer system located 750 feet south on Hope Valley Road, ensuring functionality and compliance with environmental standards.

Northern Service Area Capacity Evaluation, Hydraulic Model and Capital Improvement Plan, Ocean County Utilities Authority (OCUA), NJ – Project Manager for the comprehensive infrastructure evaluation for the Ocean County Utilities Authority's Northern Service Area to support growth-driven planning and capacity management. Scope included developing a dynamic Bentley SewerGEMS hydraulic model and conducting capacity analysis of interceptor systems, pump/lift stations and metering chambers. Identified I&I concerns, recommended upgrades and compiled findings into a Capital Improvement Master Plan with cost estimates, technical memoranda and GIS-integrated deliverables to guide future infrastructure investments.

Sanitary Sewer System I&I Study, Manhole Assessments, GIS Updates & System Modeling, Long Hill Township, NJ – Project Manager for the comprehensive inflow and infiltration (I&I) study and hydraulic modeling effort for New Jersey American Water following its acquisition of the Long Hill Sanitary System. Scope included the inspection of approximately 4,000 manholes, flow monitoring across 35 sanitary subbasins and three months of wet/dry weather data collection. Used SewerGEMS to calibrate a hydraulic model, identify high-I&I areas, prioritize basins for rehabilitation and simulate phased improvements. Findings informed a phased improvement schedule, GIS updates and ROI projections to support targeted infrastructure investments.

Sewer Replacement & Rehabilitation Basic Ordering Agreement (BOA), Washington Suburban Sanitary Commission (WSSC Water), Prince George's and Montgomery Counties, MD – Project Manager for the firm's five-year contract with WSSC Water, responsible for conducting extensive condition assessments of sanitary sewer systems in Prince George's and Montgomery Counties, MD. Using methods such as CCTV review, manhole inspections, and field investigations, RVE assessed the condition of existing infrastructure, including over 50,000 linear feet of sanitary main and more than 300 manholes. In environmentally sensitive and residential areas, RVE developed targeted rehabilitation recommendations and prepared bid-ready documents incorporating traffic control design, access coordination, and stakeholder outreach. The resulting deliverables included prioritized repair and replacement strategies for sewer lines and manholes, cost estimates, schedules, and phasing plans.

Vanessa Nedrick, PE, MSEM

I&I Analysis/Condition Assessment/Rate Analysis

Principal, Regional Manager of the Water/Wastewater Division

Overview

- Began career with the Philadelphia Water Department
- More than 25 years of professional engineering experience
- Expertise includes water and sanitary sewer design, inflow and infiltration (I&I) studies and I&I removal and reduction
- Responsible for a variety of water, sanitary sewer and stormwater system capital improvement projects
- Specialized in using trenchless technology methods, such as Gunite, shotcrete and CIPP for the replacement and reconstruction of miles of pipe throughout an urban environment
- Extensive experience in technical studies and reports

Work History

RVE experience: 2007 to present

Total experience: 28 years

Education

M.S, Engineering Management, Drexel University, 2009

B.S., Civil Engineering, Drexel University, 2000

Certifications/Registrations

Professional Engineer – PA, DE, MD

National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) Certified

Occupational Safety and Health Administration (OSHA) Certified

Affiliations/Memberships

North Carolina AWWA Section

North Carolina One Water Association

Water Environment Federation (WEF)

Representative Project Experience

Inflow & Infiltration (I&I) Improvement Program, Bristol Township, PA – Project Manager responsible for leading Bristol Township's efforts to combat inflow and infiltration (I/I) in its 65-mile collection system, undertaking tasks such as a sanitary sewer evaluation survey, development of a Capital Improvement Plan and a comprehensive abatement plan. The firm implemented I/I remediation projects, addressing sewer mains, investigating illegal lateral connections, inspecting and rehabilitating manholes and adopting a Lateral Inspection Ordinance. The systematic approach, including prioritized projects and inspections, resulted in the rehabilitation of over 221,000 linear feet of pipe, a 1 MGD reduction in influent flows to the WWTP and the release of over 200 connections by the DEP.

Water & Wastewater System Asset Inventory/Assessment, Township of Falls Authority (TOFA), Falls Township, PA – Project Manager for the thorough examination and evaluation of site-specific assets, including the sewer collection, conveyance, treatment and potable water treatment and distribution systems. The work encompassed comprehensive utility system inspection, asset inventory and condition assessment, leading to the formulation of a Capital Improvement Plan. Cash flow scenarios were analyzed considering factors like revenue generation, depreciation and net present values and comprehensive reports were presented to the Authority for consideration.

I&I Study, Flow Monitoring, Mapping and Recommendations Report, Township of Falls Authority (TOFA), PA – Project Manager for the initiative to reduce inflow and infiltration (I&I) in the sanitary sewer system to lower treatment costs, particularly in areas contributing flows to the Bucks County Water and Sewer Authority. Building on prior efforts, RVE recommended a short-term I&I study to reassess problem areas due to rising flows. The study involved installing flow meters in key locations, analyzing data to rank I&I levels and developing a detailed map of monitored zones. The findings were compiled into a report with recommendations for future remediation aligned with TOFA's PADEP-approved I/I Abatement Plan.

Sewer Rate Study, Township of Falls Authority (TOFA), PA – Project Manager for the comprehensive sanitary sewer utility rate study for the Township of Falls Authority (TOFA) to assess financial sustainability amid aging infrastructure and increasing capital needs. Scope included analyzing budgets from 2020–2023, user data and system affordability to identify a projected deficit and evaluate two rate adjustment scenarios. Recommended an "Immediate Plan" involving a 14% rate increase followed by 3% annual adjustments to eliminate deficits, avoid new debt and establish a reserve fund, ensuring long-term financial viability and regulatory compliance.

Sewer Rate Study, Catasauqua Borough, PA – Project Manager for the comprehensive Sewer Rate Study to promote financial sustainability by equitably recovering operating and capital costs. Analyzed three years of financial data, including budgets, billing records and growth projections and assessed capital needs over a five-year horizon. Scope included developing updated sewer rates reflecting the true cost of service, including operating expenses, debt service and future capital improvements, culminating in a detailed rate study report and presentation of recommendations to the Borough.

Sanitary Sewer Assessment and Rehabilitation & Manhole Inspections, New Castle County, DE – Project Manager for the comprehensive study of the Turkey Run Interceptor, utilizing a multifaceted approach, including field surveys and hydraulic modeling, to recommend cost-effective refurbishment and modification strategies, resulting in significant cost reduction compared to the initial proposal. Phase II involved engineering and design, including surveys, permits and construction plans. RVE also performed an extensive manhole inspection program for New Castle County, ensuring compliance with standards and addressing potential infiltration in the Mill Creek Interceptor, showcasing a collaborative and cost-effective project approach.

Inflow & Infiltration Study, City of Harrington, DE – Project Manager for addressing the ongoing issue of excessive flow overwhelming the sewer treatment plant, leading to a decline in its capacity. Through a two-phase Inflow and Infiltration (I&I) study in the southwest quadrant of the city, RVE utilized a $25,000 Wastewater Matching Plan Grant to quantify I&I, identify areas of concern and make recommendations to alleviate the impact of wet weather flows, aiming to reduce the strain on the treatment plant and mitigate potential long-term impacts on the City's sewer system.

Jeffrey Baker

Asset Inventory/I&I Analysis/Condition Assessment

Overview

- More than two decades of experience in wastewater treatment and collection system operations and maintenance
- Former Superintendent with expertise that supports condition assessments, I&I reduction and long-term capital planning
- Strong background in utility operations, enhancing sewer rate and impact fee analyses with practical, data-driven insights

Work History

RVE experience: 2021 to present

Total experience: 24 years

Education

Gloucester Township Institute of Technology

Certifications/Registrations

North Carolina Drinking Water Operator Certification, B-Surface, B-Well, B-Distribution (Cert #240185)

North Carolina Wastewater Operator Certification, Collections, CS – 3 (Cert #1014995)

Affiliations/Memberships

North Carolina Rural Water Association

North Carolina AWWA Section

North Carolina One Water Association

U.S. Coast Guard (Veteran)

Representative Project Experience

Northwest Water Supply Asset Inventory, Silver City, NC – Project Engineer for the development of a comprehensive asset inventory and registry for the Northwest Water Supply (NWWS) in Silver City, NC, serving approximately 485 residents. Scope included physical inspections, evaluation of system components and maintenance records, GIS schematic drawing development and recommendations for repair prioritization, system rehabilitation and long-term asset management strategies, including alternatives such as consolidation or regionalization.

Garrett Road Park Restroom Sewer, City of Durham, NC – Project Engineer for the design and implementation of a sanitary sewer connection project for Garrett Road Park in Durham, addressing the failure of the existing septic system and sand filter. The project involves connecting the park's restroom facility, which includes four toilets and sinks, to the public sanitary sewer system located 750 feet south on Hope Valley Road, ensuring functionality and compliance with environmental standards.

Development of DPW Standard Operating Procedures, City of Newark, NJ – Project Engineer for the development of a customized Standard Operating Procedures (SOPs) for various services provided by the Department of Public Works. The scope included reviewing and digitizing existing SOPs, creating standardized procedures for operations, defining resources and responsibilities and preserving institutional knowledge for both current staff and onboarding. The project involved close collaboration with City managers and was executed on an accelerated 60-day schedule.

Sanitary Sewer System Valuation, Gloucester Township, NJ – Project Engineer for the sanitary sewer system valuation for the Township using the Board of Public Utilities-approved Original Cost Less Depreciation (OCLD) method. The scope included a detailed inventory and categorization of all system components—such as manholes, pipelines, laterals and pump stations—based on type, quantity and age, to establish an accurate system value. This itemized valuation supports potential utility transactions by providing a comprehensive asset summary for prospective bidders.

CCTV and Manhole Inspection, Flemington Borough, NJ – Project Engineer responsible for supporting the Borough of Flemington's compliance with an EPA Administrative Compliance Order (ACO) by providing consulting engineering services for sanitary system CCTV and manhole inspections. The project involves preparing bid documents for approximately three miles of sewer lines identified as having significant inflow, reviewing the resulting video footage and developing prioritized recommendations and cost estimates for necessary repairs. Tasks include coordinating with Borough staff, overseeing quality assurance and assisting throughout the bidding and post-inspection phases to guide future I&I mitigation efforts.

New Jersey Water Bank – Technical Assistance, Manchester Township, NJ – Project Engineer responsible for providing technical assistance to Manchester Township to assess and optimize its utility system infrastructure. The scope includes evaluating existing system assets, operational data and financial needs to develop a comprehensive 20-year Capital Improvement Plan for both the Eastern and Western Service Areas. Key tasks involve lifecycle cost analysis, vulnerability assessments (including emerging contaminants), review of prior planning documents and alternatives and development of project prioritization strategies based on cost-benefit, financing availability, environmental/community impact and project readiness. The final deliverable is a detailed, forward-looking investment plan outlining project descriptions, cost estimates, funding sources and justifications tied to long-term system maintenance, expansion and regulatory compliance.

James Bulicki, PE

I&I Analysis/Condition Assessment/Rate Analysis

Associate

Overview

- Experience in providing engineering support for water/wastewater treatment plants, sanitary sewer collection systems and water/wastewater conveyance systems

Work History

RVE experience: 2019 to present

Total experience: 11 years

Education

M.S., Environmental Engineering, Drexel University College of Engineering, 2015

B.S., Biological Engineering College of Engineering, The Pennsylvania State University, 2013

Certifications/Registrations

Professional Engineer – NJ, PA, DE, MD, VA, DC, NC

National Association of Sewer Services Companies (NASSCO) Pipeline Assessment Certification Program (PACP), Lateral Assessment Certification Program (LACP) and Manhole Assessment Certification Program (MACP)

Affiliations/Memberships

Pennsylvania American Water Works Association (PA AWWA)

Pennsylvania Water Environment Association (PWEA)

Representative Project Experience

I&I Study, Flow Monitoring, Mapping and Recommendations Report, Township of Falls Authority (TOFA), PA – Project Engineer for the initiative to reduce inflow and infiltration (I&I) in the sanitary sewer system to lower treatment costs, particularly in areas contributing flows to the Bucks County Water and Sewer Authority. Building on prior efforts, RVE recommended a short-term I&I study to reassess problem areas due to rising flows. The study involved installing flow meters in key locations, analyzing data to rank I&I levels and developing a detailed map of monitored zones. The findings were compiled into a report with recommendations for future remediation aligned with TOFA's PADEP-approved I/I Abatement Plan.

MH Inspections and GPS Services, Township of Falls Authority (TOFA), Falls Township, PA – Project Engineer responsible for overseeing the inspection of 325 sanitary sewer manholes, utilizing Duke's Smart Wastewater Technology. The inspections, following NASSCO Manhole Assessment Certification Program (MACP) Level 1 and Level 2 standards, included 360-degree televising with digital cameras, GPS mapping of manhole inverts and real-time GIS updates. Efforts included managing and coordinating the work, including contract management services for the efficient completion of the project, which represents the second phase of three to provide comprehensive system information.

Sewer Rate Study, Township of Falls Authority (TOFA), PA – Project Engineer for the comprehensive sanitary sewer utility rate study for the Township of Falls Authority (TOFA) to assess financial sustainability amid aging infrastructure and increasing capital needs. Scope included analyzing budgets from 2020–2023, user data and system affordability to identify a projected deficit and evaluate two rate adjustment scenarios. Recommended an "Immediate Plan" involving a 14% rate increase followed by 3% annual adjustments to eliminate deficits, avoid new debt and establish a reserve fund, ensuring long-term financial viability and regulatory compliance.

Sewer Rate Study, Catasauqua Borough, PA – Project Engineer for the comprehensive Sewer Rate Study to promote financial sustainability by equitably recovering operating and capital costs. Analyzed three years of financial data, including budgets, billing records and growth projections and assessed capital needs over a five-year horizon. Scope included developing updated sewer rates reflecting the true cost of service, including operating expenses, debt service and future capital improvements, culminating in a detailed rate study report and presentation of recommendations to the Borough.

New Jersey Water Bank – Technical Assistance, Manchester Township, NJ – Project Engineer responsible for providing technical assistance to Manchester Township to assess and optimize its utility system infrastructure. The scope includes evaluating existing system assets, operational data and financial needs to develop a comprehensive 20-year Capital Improvement Plan for both the Eastern and Western Service Areas. Key tasks involve lifecycle cost analysis, vulnerability assessments (including emerging contaminants), review of prior planning documents and alternatives and development of project prioritization strategies based on cost-benefit, financing availability, environmental/community impact and project readiness. The final deliverable is a detailed, forward-looking investment plan outlining project descriptions, cost estimates, funding sources and justifications tied to long-term system maintenance, expansion and regulatory compliance.

Sanitary Sewer Collections Map & Conditions Assessment, Borough of Washington, NJ – Project Engineer responsible for supporting the Borough of Washington, NJ, in addressing significant inflow and infiltration (I&I) issues within its aging 2-square-mile sanitary sewer collection system, which experiences wet weather flows exceeding 7 MGD. Tasks include creating a comprehensive GIS-based digital map of the system—including sewers, manholes, lift stations and appurtenances—followed by smoke and pressure testing to identify I&I sources, culminating in a condition assessment and relining cost estimate to support future infrastructure planning and rehabilitation.

Joseph Mingle

I&I Analysis/Condition Assessment/Rate Analysis

Associate

Overview

- More than 40 years of experience in the engineering field and water/wastewater utility operations
- Experienced with feasibility studies, pilot tests, design and permitting of water and wastewater including piping systems, pumping systems and treatment facilities
- Licensed operator brining compliance regulations and hands on field experiences to engineering design
- System modeler including WaterGEMS and SewerGEMS

Work History

RVE experience: 2018 to present

Total experience: 41 years

Education

B.S., Civil Engineering, Drexel University, 2009

Certifications/Registrations

New Jersey T-2 Licensed Water Treatment Operator

Representative Project Experience

Northern Service Area Capacity Evaluation, Hydraulic Model and Capital Improvement Plan, Ocean County Utilities Authority (OCUA), NJ – Project Engineer for the comprehensive infrastructure evaluation for the Ocean County Utilities Authority's Northern Service Area to support growth-driven planning and capacity management. Scope included developing a dynamic Bentley SewerGEMS hydraulic model and conducting capacity analysis of interceptor systems, pump/lift stations and metering chambers. Identified I&I concerns, recommended upgrades and compiled findings into a Capital Improvement Master Plan with cost estimates, technical memoranda and GIS-integrated deliverables to guide future infrastructure investments.

Sanitary Sewer System I&I Study, Manhole Assessments, GIS Updates & System Modeling, Long Hill Township, NJ – Project Engineer for the comprehensive inflow and infiltration (I&I) study and hydraulic modeling effort for New Jersey American Water following its acquisition of the Long Hill Sanitary System. Scope included the inspection of approximately 4,000 manholes, flow monitoring across 35 sanitary subbasins and three months of wet/dry weather data collection. Used SewerGEMS to calibrate a hydraulic model, identify high-I&I areas, prioritize basins for rehabilitation and simulate phased improvements. Findings informed a phased improvement schedule, GIS updates and ROI projections to support targeted infrastructure investments.

10-Year Water & Sewer Rate Study and 10-Year Capital Plan Assessment, East Orange Water Commission, NJ – Project Engineer for the detailed 10-year Water and Sewer Rate Study and Capital Plan Assessment for the City of East Orange, NJ, aimed at supporting long-term infrastructure planning and financial sustainability for the East Orange Utility. NW Financial led the financial analysis by evaluating rate structures, forecasting capital spending, assessing market conditions and developing financial models to simulate rate scenarios and identify potential risks. Simultaneously, RVE conducted a comprehensive engineering condition assessment of the City's water and wastewater facilities through inspections, record reviews and staff interviews, resulting in a phased 10-year Capital Improvement Plan with cost estimates, maintenance schedules and inflation-adjusted projections. The final report delivered a clear, strategic framework for the City to prioritize investments, ensure regulatory compliance and accommodate future growth.

Sanitary Utility Infrastructure Assessment, Bernardsville Borough, NJ – Project Engineer responsible for providing engineering consulting services to evaluate the Borough's sanitary utility infrastructure, which includes a wastewater treatment plant, 19 miles of sanitary mains, 540 manholes and six pump stations serving approximately 1,600 residents. Their work involves in-depth assessments of operational performance, maintenance history, regulatory compliance and system capacity through site tours, record reviews and staff interviews. RVE is preparing a 10-year Capital Improvement Plan outlining necessary upgrades, compliance measures and cost estimates for construction, engineering and inspections. Additionally, they are conducting a system valuation using the Original Cost Less Depreciation method, classifying infrastructure by age and quantity to determine its current value in alignment with Board of Public Utilities standards.

Water and Sanitary Utility System Asset Inventory/Assessment and Capital Improvement Plan, Borough of Spotswood, NJ – Project Engineer for the Water and Sanitary Utility System Assessment, Asset Valuation and Emergent Condition Analysis in Spotswood. This involved visiting utility system sites, reviewing records and assessing the system's condition. From this, a 10-year Capital Improvement Plan was created, accounting for necessary upgrades and routine life cycle improvements. The infrastructure was thoroughly examined and an asset valuation was developed using three different methodologies. This comprehensive evaluation aimed to provide the Borough with a detailed system inventory, an asset valuation and a plan for necessary long-term improvements.

Kalina Hogan, PE

I&I Analysis/Condition Assessment

Overview

- Experienced design engineer in water and wastewater conveyance systems
- Experience with wetlands and land use permitting

Work History

RVE experience: 2016 to present

Total experience: 7 years

Education

B.S., Engineering, Penn State University, 2021

Certifications/Registrations

Professional Engineer – NJ

OSHA 10

Representative Project Experience

Northern Service Area Capacity Evaluation, Hydraulic Model and Capital Improvement Plan, Ocean County Utilities Authority (OCUA), NJ – Project Engineer for the comprehensive infrastructure evaluation for the Ocean County Utilities Authority's Northern Service Area to support growth-driven planning and capacity management. Scope included developing a dynamic Bentley SewerGEMS hydraulic model and conducting capacity analysis of interceptor systems, pump/lift stations and metering chambers. Identified I&I concerns, recommended upgrades and compiled findings into a Capital Improvement Master Plan with cost estimates, technical memoranda and GIS-integrated deliverables to guide future infrastructure investments.

Sanitary Sewer System I&I Study, Manhole Assessments, GIS Updates & System Modeling, Long Hill Township, NJ – Project Engineer for the comprehensive inflow and infiltration (I&I) study and hydraulic modeling effort for New Jersey American Water following its acquisition of the Long Hill Sanitary System. Scope included the inspection of approximately 4,000 manholes, flow monitoring across 35 sanitary subbasins and three months of wet/dry weather data collection. Used SewerGEMS to calibrate a hydraulic model, identify high-I&I areas, prioritize basins for rehabilitation and simulate phased improvements. Findings informed a phased improvement schedule, GIS updates and ROI projections to support targeted infrastructure investments.

Sanitary Sewer Collections Map & Conditions Assessment, Borough of Washington, NJ – Project Engineer responsible for supporting the Borough of Washington, NJ, in addressing significant inflow and infiltration (I&I) issues within its aging 2-square-mile sanitary sewer collection system, which experiences wet weather flows exceeding 7 MGD. Tasks include creating a comprehensive GIS-based digital map of the system—including sewers, manholes, lift stations and appurtenances—followed by smoke and pressure testing to identify I&I sources, culminating in a condition assessment and relining cost estimate to support future infrastructure planning and rehabilitation.

Sewer Replacement & Rehabilitation Basic Ordering Agreement (BOA), Washington Suburban Sanitary Commission (WSSC Water), Prince George's and Montgomery Counties, MD – Project Engineer for the firm's five-year contract with WSSC Water, responsible for conducting extensive condition assessments of sanitary sewer systems in Prince George's and Montgomery Counties, MD. Using methods such as CCTV review, manhole inspections and field investigations, RVE assessed the condition of existing infrastructure, including over 50,000 linear feet of sanitary main and more than 300 manholes. In environmentally sensitive and residential areas, RVE developed targeted rehabilitation recommendations and prepared bid-ready documents incorporating traffic control design, access coordination and stakeholder outreach. The resulting deliverables included prioritized repair and replacement strategies for sewer lines and manholes, cost estimates, schedules and phasing plans.

Sewer Modeling Software Updates, City of Bethlehem, PA – Project Engineer for the modernization and implementation of a new sanitary sewer system flow model to support the City's sewer planning efforts. The project involves transitioning the City's outdated Infoworks CS7.0 model—originally developed in the late 1990s—into a modern software platform that reflects over 1.3 million feet of sanitary sewer infrastructure and accounts for changes due to capital improvements and private development. RVE's scope includes converting and updating the existing model, calibrating it using current flow and rainfall data to address concerns about I&I assumptions and training City staff to operate and maintain the new system. The upgraded model will enable the City to more accurately evaluate the impacts of new developments and system modifications on sanitary flow conditions.

Timothy Marques

I&I Analysis/Condition Assessment/Rate Analysis

Associate

Overview

- Areas of expertise water, wastewater and site civil design and permitting
- Experience in the design of water/wastewater piping, pump stations and treatment. Highway alignment design; preparation of plans, profiles, sections and detail drawings; preparation of cross-sections, plans and detail drawings; engineering estimates and quantity takeoffs; construction sequencing; maintenance and protection of traffic; signage; drainage; roadway lighting; utility distribution and coordination

Work History

RVE experience: 2003 to present

Total experience: 26 years

Education

B.S., Architectural Engineering, Milwaukee School of Engineering, 1999

Project Management, Certificate, Villanova University, 2012

Certifications/Registrations

10 Hour OSHA Training Certificate

Confined Space Training Certificate

Representative Project Experience

Northwest Water Supply Asset Inventory, Silver City, NC – Project Engineer for the development of a comprehensive asset inventory and registry for the Northwest Water Supply (NWWS) in Silver City, NC, serving approximately 485 residents. Scope included physical inspections, evaluation of system components and maintenance records, GIS schematic drawing development and recommendations for repair prioritization, system rehabilitation and long-term asset management strategies, including alternatives such as consolidation or regionalization.

Public Water and Sewer System Development Fee Analysis, Brunswick County, NC – Project Engineer for the comprehensive water and wastewater System Development Fee (SDF) study for Brunswick County, NC, in compliance with the Public Water and Sewer System Development Fee Act and AWWA's M1 Manual. Scope included project management, data collection and analysis, peak factor and capacity cost evaluations and calculation of fair and defensible SDFs accounting for wholesale customers and revenue adjustments. Regular collaboration with County staff and in-person presentations to the County Board supported transparent decision-making.

Sewer Replacement & Rehabilitation Basic Ordering Agreement (BOA), Washington Suburban Sanitary Commission (WSSC Water), Prince George's and Montgomery Counties, MD – Project Engineer for the firm's five-year contract with WSSC Water, responsible for conducting extensive condition assessments of sanitary sewer systems in Prince George's and Montgomery Counties, MD. Using methods such as CCTV review, manhole inspections and field investigations, RVE assessed the condition of existing infrastructure, including over 50,000 linear feet of sanitary main and more than 300 manholes. In environmentally sensitive and residential areas, RVE developed targeted rehabilitation recommendations and prepared bid-ready documents incorporating traffic control design, access coordination and stakeholder outreach. The resulting deliverables included prioritized repair and replacement strategies for sewer lines and manholes, cost estimates, schedules and phasing plans.

Northern Service Area Capacity Evaluation, Hydraulic Model and Capital Improvement Plan, Ocean County Utilities Authority (OCUA), NJ – Project Engineer for the comprehensive infrastructure evaluation for the Ocean County Utilities Authority's Northern Service Area to support growth-driven planning and capacity management. Scope included developing a dynamic Bentley SewerGEMS hydraulic model and conducting capacity analysis of interceptor systems, pump/lift stations and metering chambers. Identified I&I concerns, recommended upgrades and compiled findings into a Capital Improvement Master Plan with cost estimates, technical memoranda and GIS-integrated deliverables to guide future infrastructure investments.

Pennsauken Disconnect Project, Camden County Municipal Utilities Authority (CCMUA), NJ – Project Engineer for the extensive flow metering program conducted over a three-month period to monitor both wet and dry weather flows in the High Street and Baldwin Run Drainage Areas. The metering aimed to quantify sanitary flow during wet weather events but revealed that significant sanitary sewer flow was also entering the Camden City system and Outfall C-32 during dry weather. These findings highlighted deficiencies at the Baldwin Run and High Street Pump Stations and underscored the critical need for infrastructure improvements to reduce sewer overflows and improve water quality in the Delaware River.

Daniel Favilla, PE, STSC

I&I Analysis/Condition Assessment/Rate Analysis

Overview

- More than 30 years of experience, including project management, construction management, project controls, regulatory compliance, commissioning, process engineering, instrumentation/control engineering and technical writing
- Experienced project manager with a history of working in the power generation, power transmission and distribution, industrial and life science sectors

Work History

RVE experience: 2024 to present

Total experience: 33 years

Education

B.S., Chemical Engineering, Rutgers University, New Brunswick, New Jersey, 1991

Certifications/Registrations

Professional Engineer, NJ

Safety Trained Supervisor Construction (Board of Certified Safety Professionals)

Construction Quality Management (U.S. Army Corps of Engineers)

Representative Project Experience

Development of DPW Standard Operating Procedures, City of Newark, NJ – Project Engineer for the development of a customized Standard Operating Procedures (SOPs) for various services provided by the Department of Public Works. The scope included reviewing and digitizing existing SOPs, creating standardized procedures for operations, defining resources and responsibilities and preserving institutional knowledge for both current staff and onboarding. The project involved close collaboration with City managers and was executed on an accelerated 60-day schedule.

Sanitary Sewer System Valuation, Gloucester Township, NJ – Project Engineer for the sanitary sewer system valuation for the Township using the Board of Public Utilities-approved Original Cost Less Depreciation (OCLD) method. The scope included a detailed inventory and categorization of all system components—such as manholes, pipelines, laterals and pump stations—based on type, quantity and age, to establish an accurate system value. This itemized valuation supports potential utility transactions by providing a comprehensive asset summary for prospective bidders.

CCTV and Manhole Inspection, Flemington Borough, NJ – Project Engineer responsible for supporting the Borough of Flemington's compliance with an EPA Administrative Compliance Order (ACO) by providing consulting engineering services for sanitary system CCTV and manhole inspections. The project involves preparing bid documents for approximately three miles of sewer lines identified as having significant inflow, reviewing the resulting video footage and developing prioritized recommendations and cost estimates for necessary repairs. Tasks include coordinating with Borough staff, overseeing quality assurance and assisting throughout the bidding and post-inspection phases to guide future I&I mitigation efforts.

Flow and Level Monitoring, Flemington Borough, NJ – Project Engineer responsible for providing flow and level monitoring services in manholes identified in the EPA's Administrative Compliance Order (ACO) to address sanitary sewer overflows in Flemington Borough. The work included installing, calibrating and maintaining flow meters over a one-month period (extendable due to weather), with data recorded every 15 minutes using advanced sensor technology. The final deliverable was a comprehensive data report with hydrographs, flow tables and site documentation, serving as a foundation for future sewer system inspections and rehabilitation.

10-Year Water & Sewer Rate Study and 10-Year Capital Plan Assessment, East Orange Water Commission, NJ – Project Engineer for the detailed 10-year Water and Sewer Rate Study and Capital Plan Assessment for the City of East Orange, NJ, aimed at supporting long-term infrastructure planning and financial sustainability for the East Orange Utility. NW Financial led the financial analysis by evaluating rate structures, forecasting capital spending, assessing market conditions and developing financial models to simulate rate scenarios and identify potential risks. Simultaneously, RVE conducted a comprehensive engineering condition assessment of the City's water and wastewater facilities through inspections, record reviews and staff interviews, resulting in a phased 10-year Capital Improvement Plan with cost estimates, maintenance schedules and inflation-adjusted projections. The final report delivered a clear, strategic framework for the City to prioritize investments, ensure regulatory compliance and accommodate future growth.

Gregory Sullivan, PE, CEA

Condition Assessment/Rate Analysis

Senior Associate

Overview

- More than four decades water, wastewater, stormwater and renewable energy design and permitting including piping, pumping and treatment facilities
- Designs sustainable energy systems for municipal, county, educational, utility and agency clients
- Specific experience in solar energy and co-generation facilities

Work History

RVE experience: 1990 to present

Total experience: 43 years

Education

B.S., Mechanical Engineering, Rutgers University, 1978

Certifications/Registrations

Professional Engineer – NJ

Certified Energy Auditor – Association of Energy Engineers

American Society of Mechanical Engineers

OSHA Confined Space Certification/Instructor

OSHA HazMat Certification – 40 hours

Traffic Control Coordinator

Work Zone Safety

Representative Project Experience

Public Water and Sewer System Development Fee Analysis, Brunswick County, NC – Project Engineer for the comprehensive water and wastewater System Development Fee (SDF) study for Brunswick County, NC, in compliance with the Public Water and Sewer System Development Fee Act and AWWA's M1 Manual. Scope included project management, data collection and analysis, peak factor and capacity cost evaluations and calculation of fair and defensible SDFs accounting for wholesale customers and revenue adjustments. Regular collaboration with County staff and in-person presentations to the County Board supported transparent decision-making.

10-Year Water & Sewer Rate Study and 10-Year Capital Plan Assessment, East Orange Water Commission, NJ – Project Engineer for the detailed 10-year Water and Sewer Rate Study and Capital Plan Assessment for the City of East Orange, NJ, aimed at supporting long-term infrastructure planning and financial sustainability for the East Orange Utility. NW Financial led the financial analysis by evaluating rate structures, forecasting capital spending, assessing market conditions and developing financial models to simulate rate scenarios and identify potential risks. Simultaneously, RVE conducted a comprehensive engineering condition assessment of the City's water and wastewater facilities through inspections, record reviews and staff interviews, resulting in a phased 10-year Capital Improvement Plan with cost estimates, maintenance schedules and inflation-adjusted projections. The final report delivered a clear, strategic framework for the City to prioritize investments, ensure regulatory compliance and accommodate future growth.

Northern Service Area Capacity Evaluation, Hydraulic Model and Capital Improvement Plan, Ocean County Utilities Authority (OCUA), NJ – Project Engineer for the comprehensive infrastructure evaluation for the Ocean County Utilities Authority's Northern Service Area to support growth-driven planning and capacity management. Scope included developing a dynamic Bentley SewerGEMS hydraulic model and conducting capacity analysis of interceptor systems, pump/lift stations and metering chambers. Identified I&I concerns, recommended upgrades and compiled findings into a Capital Improvement Master Plan with cost estimates, technical memoranda and GIS-integrated deliverables to guide future infrastructure investments.

Sanitary Utility Infrastructure Assessment, Bernardsville Borough, NJ – Project Engineer responsible for providing engineering consulting services to evaluate the Borough's sanitary utility infrastructure, which includes a wastewater treatment plant, 19 miles of sanitary mains, 540 manholes and six pump stations serving approximately 1,600 residents. Their work involves in-depth assessments of operational performance, maintenance history, regulatory compliance and system capacity through site tours, record reviews and staff interviews. RVE is preparing a 10-year Capital Improvement Plan outlining necessary upgrades, compliance measures and cost estimates for construction, engineering and inspections. Additionally, they are conducting a system valuation using the Original Cost Less Depreciation method, classifying infrastructure by age and quantity to determine its current value in alignment with Board of Public Utilities standards.

I&I Study, Sanitary Mapping Updates, CCTV and Recommendations, Bergen County Utilities Authority (BCUA), NJ – Project Engineer for the multi-phase Inflow and Infiltration (I&I) study for the Bergen County Utilities Authority to reduce rain-derived I&I and wet weather overflows at the Little Ferry WPCF. The study involved installing flow meters for three months across defined subbasins to collect wet and dry weather data, analyzing flow hydrographs to identify and rank areas with high infiltration rates and using field inspections, dye testing and property reviews to detect sources of I&I. The results informed a prioritized rehabilitation plan with cost estimates and recommendations for system improvements.

Grace Meyer

I&I Analysis/Condition Assessment/Rate Analysis

Overview

- Experience with the design of various water, wastewater and stormwater systems, including design specifications, project feasibility analysis, data analysis and impact studies.
- Experience with compliance regulations, public reporting and supporting field activities related to project construction.

Work History

RVE experience: 2022 to present

Total experience: 2 years

Education

B.S., General Engineering, Virginia Polytechnic Institute, 2019

Certifications/Registrations

10 Hour OSHA Training Certificate

Representative Project Experience

10-Year Water & Sewer Rate Study and 10-Year Capital Plan Assessment, East Orange Water Commission, NJ – Senior Engineering Technician for the detailed 10-year Water and Sewer Rate Study and Capital Plan Assessment for the City of East Orange, NJ, aimed at supporting long-term infrastructure planning and financial sustainability for the East Orange Utility. NW Financial led the financial analysis by evaluating rate structures, forecasting capital spending, assessing market conditions and developing financial models to simulate rate scenarios and identify potential risks. Simultaneously, RVE conducted a comprehensive engineering condition assessment of the City's water and wastewater facilities through inspections, record reviews and staff interviews, resulting in a phased 10-year Capital Improvement Plan with cost estimates, maintenance schedules and inflation-adjusted projections. The final report delivered a clear, strategic framework for the City to prioritize investments, ensure regulatory compliance and accommodate future growth.

Blairsville Municipal Authority Twenty-year Plan for Infiltration and Inflow Corrective Action Plan, Blairsville, PA – Senior Engineering Technician responsible for supporting the preparation of GIS Mapping for accurate maps of Sanitary Sewers, Lift Stations, Treatment Plants, Combined Sewer and Storm Sewer System mapping. Provided Lift Station Pumping Analysis with Flow Meter Studies for effective project planning to reduce combined sewer overflow (CSO) and remain in compliance with regulatory directives. The studies included flow studies to identify hot spots and project priorities. Reports included Long-Term Control Plan (LTCP) documents to the PADEP, including Operational Plan documents, Public Communications and Reporting Plan documents and other management reporting for compliance. provided a report study for separation projects, I&I reduction projects and the grading of the priority projects through matrix decision-making. Produced schedules, cost estimations, budgets and rate studies to determine how to perform the project cost-effectively and at the lowest cost. Mapping connectivity and system modeling was done to establish maximum pumping criteria as well as prioritize plans for upgrades to the pumping and treatment capacities for future compliance.

Sanitary Utility System Assessment, Middlesex Borough, NJ – Senior Engineering Technician for the comprehensive Sewer Utility System Assessment for the Borough of Middlesex, which included flow-related evaluations to inform long-term planning and budgeting. As part of the study, RVE assessed infrastructure conditions, developed a 10-year Capital Improvement Plan with cost estimates and conducted a valuation of system assets like pump stations and laterals using approved depreciation methods. Additionally, RVE analyzed historical usage and revenue data to propose a rate structure that could support capital needs and address financial impacts under emergent conditions or potential privatization.

Sanitary Sewer Valuation, Manchester Township, NJ – Senior Engineering Technician responsible for conducting a sanitary utility system valuation for Manchester Township, NJ's western service area, including compiling and updating inventory data, reviewing costs and specifications and preparing valuation documents for sanitary systems and associated infrastructure.

Development of DPW Standard Operating Procedures, City of Newark, NJ – Senior Engineering Technician for the development of a customized Standard Operating Procedures (SOPs) for various services provided by the Department of Public Works. The scope included reviewing and digitizing existing SOPs, creating standardized procedures for operations, defining resources and responsibilities and preserving institutional knowledge for both current staff and onboarding. The project involved close collaboration with City managers and was executed on an accelerated 60-day schedule.

Julia Amick, EIT

I&I Analysis/Condition Assessment/Rate Analysis

Overview

- More than three years of experience supporting inflow and infiltration (I&I) studies and condition assessments using smoke testing, CCTV inspection and manhole evaluations to inform infrastructure planning
- Contributed to utility system assessments, the development of long-term capital improvement plans and valuation studies to support decision-making
- Work also includes analyzing utility rate structures and connection fees to help municipalities plan for future investments and potential system changes

Work History

RVE experience: 2024 to present

Total experience: 3 years

Education

M.S., Chemical Engineering, Villanova University, 2024

B.S., Chemical Engineering, Villanova University, 2023

Certifications/Registrations

Engineer in Training – EIT-05338

Representative Project Experience

Northwest Water Supply Asset Inventory, Silver City, NC – Senior Engineering Technician for the development of a comprehensive asset inventory and registry for the Northwest Water Supply (NWWS) in Silver City, NC, serving approximately 485 residents. Scope included physical inspections, evaluation of system components and maintenance records, GIS schematic drawing development and recommendations for repair prioritization, system rehabilitation and long-term asset management strategies, including alternatives such as consolidation or regionalization.

Development of DPW Standard Operating Procedures, City of Newark, NJ – Senior Engineering Technician for the development of a customized Standard Operating Procedures (SOPs) for various services provided by the Department of Public Works. The scope included reviewing and digitizing existing SOPs, creating standardized procedures for operations, defining resources and responsibilities and preserving institutional knowledge for both current staff and onboarding. The project involved close collaboration with City managers and was executed on an accelerated 60-day schedule.

Regional Act 537 Planning Assistance, Lehigh County Authority (LCA), PA – Senior Engineering Technician responsible for supporting the Regional Act 537 Planning process by assisting with the documentation and verification of inflow and infiltration (I&I) reductions, as required by the Pennsylvania Department of Environmental Protection. The project includes reviewing supporting documents, offering technical guidance on I&I abatement efforts—such as the Breinigsville Trunkline repair—and preparing the necessary correspondence and documentation to demonstrate measurable sewage flow reductions.

Sanitary Utility Infrastructure Assessment, Bernardsville Borough, NJ – Senior Engineering Technician responsible for providing engineering consulting services to evaluate the Borough's sanitary utility infrastructure, which includes a wastewater treatment plant, 19 miles of sanitary mains, 540 manholes and six pump stations serving approximately 1,600 residents. Their work involves in-depth assessments of operational performance, maintenance history, regulatory compliance and system capacity through site tours, record reviews and staff interviews. RVE is preparing a 10-year Capital Improvement Plan outlining necessary upgrades, compliance measures and cost estimates for construction, engineering and inspections. Additionally, they are conducting a system valuation using the Original Cost Less Depreciation method, classifying infrastructure by age and quantity to determine its current value in alignment with Board of Public Utilities standards.

Sanitary Sewer Connection Fee Analysis, Hazlet Township, NJ – Senior Engineering Technician for a Sanitary Sewer Connection Fee Analysis, aiming to develop a fair, cost-based and legally compliant connection fee structure for the Township. The work included collecting and reviewing essential financial and infrastructure data from the Township, such as remaining debt service, bond or loan obligations, 2023 capital expenditures, the current number of service connections and the definition of an Equivalent Dwelling Unit (EDU). Using this information, RVE performed a detailed analysis and generated a report—formatted in an Excel table—for the Township's review and future use. This tool will help streamline updates in subsequent years without redoing the entire analysis. Additionally, RVE prepared and delivered a public presentation explaining the connection fee calculations and underlying rationale and responded to any public questions to support transparency and stakeholder understanding.

New Jersey Water Bank – Technical Assistance, Manchester Township, NJ – Senior Engineering Technician responsible for providing technical assistance to Manchester Township to assess and optimize its utility system infrastructure. The scope includes evaluating existing system assets, operational data and financial needs to develop a comprehensive 20-year Capital Improvement Plan for both the Eastern and Western Service Areas. Key tasks involve lifecycle cost analysis, vulnerability assessments (including emerging contaminants), review of prior planning documents and alternatives and development of project prioritization strategies based on cost-benefit, financing availability, environmental/community impact and project readiness. The final deliverable is a detailed, forward-looking investment plan outlining project descriptions, cost estimates, funding sources and justifications tied to long-term system maintenance, expansion and regulatory compliance.

Jacqueline Trovato, PE

Structural/Condition Assessment

Senior Associate

Overview

- More than 13 years of engineering experience
- Experience includes the structural engineering design of buildings, bridges, foundations, retaining walls and bulkheads and analysis of existing and proposed structures
- Responsibilities include the performance of structural inspections and preparation of construction documents including drawings, specifications and cost estimates
- Projects supported include stormwater management, water/wastewater treatment facilities, educational facilities, and bridge/building inspections

Work History

RVE experience: 2013 to present

Total experience: 13 years

Education

B.S., Civil & Environmental Engineering, Lafayette College, 2010

B.A., Architectural Studies, Lafayette College, 2010

Certifications/Registrations

Professional Engineer – NJ, PA, DE, CT, NY, RI, VA, MA, MD, DC, NC, WV

Certified Municipal Engineer – NJ

Construction Specifications Institute (CSI) – Certified Document Technologist (CDT)

American Society of Civil Engineers (ASCE), Associate Member

ASCE Practitioner of the Year Award, 2012

Representative Project Experience

On-Call Professional Services, Department of General Services, Durham, NC – Structural Engineer for the firm's on-call professional services contract with the City of Durham's Department of General Services for various Capital Improvement and Maintenance projects, including civil, geotechnical, environmental engineering, surveying and cost estimating. One key project under this agreement was the design and construction of a 40' x 60' x 24' building for solid waste and recycling cart storage at the Durham Solid Waste Management Annex. RVE provided comprehensive services, including site planning, geotechnical testing, environmental assessments and construction administration, ensuring compliance with city regulations and successful project delivery.

Mountain Gateway Museum – Clean-up and Necessary Restoration, North Carolina Department of Natural and Cultural Resources (NC DNCR), Old Fort, NC – Structural Engineer responsible for providing engineering consulting services for the Mountain Gateway Museum clean-up and restoration project in Old Fort, NC. The project involves debris removal, site grading, riverbank stabilization, tree removal and structural assessments, along with the restoration of museum and gazebo buildings, including roofing, flooring and MEP system upgrades. RVE is overseeing structural evaluations, grading, site planning, permitting and project management, while coordinating with museum staff and engaging with stakeholders to ensure transparency and compliance with historical preservation standards.

Anerobic Digester Combined Heat and Power (CHP) Project, Gloucester County Utilities Authority (GCUA), West Deptford, NJ – Structural Engineer for the $50 million project focused on energy efficiency improvements, anaerobic digestion and combined heat and power upgrades, receiving recognition with the ACEC/NJ Engineering Excellence Awards in 2020. The project involved various engineering disciplines and the implementation of a state-of-the-art Egg-Shaped digestion process, achieving significant biosolid reduction, increased bio-gas production and the decommissioning of the facility sewage sludge incinerator ahead of regulatory requirements.

Enhanced Nutrient Removal Improvements to the Wastewater Treatment Plant, Woodstown Sewerage Authority, Woodstown, NJ – Structural Engineer for upgrades to its sewage treatment plant, constructed in 1995, due to new and more stringent NJPDES limits for nitrogen, phosphorus, ammonia and copper, with phase one involving the replacement of the mechanical bar screen and aeration blowers and phase two including the addition of an Equalization/Fermentation Tank, replacement of the sand filter, a membrane filter and other facilities, funded by a USDA loan and grant totaling $3.6 million.

Mina Drive, 18th Street & Pine Street Pump Stations, Jersey City Municipal Utilities Authority (JCMUA), Jersey City, NJ – Structural Engineer for the conversion of temporary pump stations at the Mina Drive, 18th Street and Pine Street combined sewer outfalls into permanent pump stations to remove excess flows during high tides. Pump stations were equipped with Flygt submersible pumps on rail systems, localized controls with emergency generator backup power. All necessary equipment was raised above the FEMA floodplain. Additional tasks included bidding phase services and New Jersey Environmental Infrastructure Trust (NJEIT) funding assistance.

Biopower Expansion Project, Bergen County Utilities Authority (BCUA), Little Ferry, NJ – Structural Engineer for the 1.4 MW Biopower Expansion Project, which aimed to enhance BCUA's combined heat and power (CHP) facility by adding a third 1.4MW cogeneration unit. This unit, powered by biogas from wastewater treatment equipment, generates heat and electricity, benefiting the water treatment process and providing space heating for buildings. RVE oversaw design, permitting and construction, ensuring successful collaboration between BCUA and various contractors, resulting in a CHP facility capable of supplying 80% of the WPCF's average electrical demand.

Kevin Zelinsky, GISP, CMS

GIS/Asset Inventory

Senior Associate

Overview

- Oversees the entire mapping project operation for the firm's regional offices in New Jersey, Pennsylvania, Delaware, Maryland and North Carolina
- More than three decades of experience in the civil engineering and cartographic industry
- Accredited teacher and presenter of GIS fundamentals to municipal employees in NJ, PA, DE and NY
- Chaired the Boundary Task Force under the NJGF Committee
- Member of the NJSPLS GIS/LIS and GIS Certification Institute (GISCI) Outreach Committees
- Adjunct Professor, Instructor of GIS, Rowan College

Work History

RVE experience: 1986 to present

Total experience: 40+ years

Education

A.S., Specialized Technology, American Institute of Design (AID)

Completed Windows Networking, AutoCAD & ArcGIS Computer Training

AutoCAD Level II, Camden County Community College

Professional Certification Program in Geomatics, Rutgers University

Certifications/Registrations

Certified GIS Professional License No. 00031299 (GISCI)

Certified Mapping Scientist License No. GS187 – GIS/LIS (ASPRS)

Affiliations/Memberships

North Carolina Rural Water Association

GIS Certification Institute (GISCI) Outreach Committee

International Association of Assessing Officials (IAAO) - Associate Member

Nationally Certified - AutoCAD Operator (AOCE)

American Congress on Surveying & Mapping (ACSM) - CAGIS Member

American Society of Civil Engineers (ASCE) - Affiliate Member

Representative Project Experience

Field Survey Location Services Associated with GIS Sanitary, Water and Stormwater Utility Infrastructure Mapping, Falls Township, PA – GIS Manager for the high-accuracy GPS field surveys for Falls Township to support GIS mapping of its sanitary, stormwater and water infrastructure. Utilized a Trimble Geo7x GPS unit with sub-meter and RTK centimeter-level accuracy to map manholes, inlets, valves, hydrants and pumping locations across designated Township sections. Integrated control points based on NAD 83 and NAVD 88 using Pennsylvania South State Plane coordinates. Merged verified elevation data and custom attributes with TOFA's existing GIS datasets, significantly enhancing the Township's utility infrastructure mapping and planning capabilities.

Create and Update Sanitary Sewer & Stormwater System GIS Layers Using Existing Digital Drawing Files and Surveying, Municipality of Princeton, NJ – GIS Manager for the enhancement and updates to the Municipality of Princeton's GIS mapping for its sanitary sewer and stormwater systems. This project involved integrating existing digital drawings, scanned documents and sewer permits, along with conducting GPS field surveys to improve the spatial accuracy and attribute completeness of the utility data. The work addressed deficiencies in outdated GIS layers (from 2008-2019) and aligned them with New Jersey state standards. Georeferenced archival documents and CAD files to NJ State Plane NAD 83 and NAVD 88, updated GIS layers, resolved conflicts in overlapping datasets and created scalable document storage using AWS. The final deliverables included updated GIS datasets uploaded to Princeton's ArcGIS Online (AGOL) platform for public and municipal access, with a completion memo summarizing the work and key findings.

GIS-Based Sanitary Sewer and Water Distribution System Mapping, Catasauqua Borough, PA – GIS Manager responsible for modernizing Catasauqua Borough's sanitary sewer and water distribution system by converting outdated paper maps—some dating back to the 1940s—into a modern GIS-based platform using Esri ArcGIS. This effort included digitizing historic records, conducting field surveys and verifying infrastructure data to ensure accuracy and regulatory compliance. The new system integrates with regional and federal GIS datasets, enhances the Borough's ability to manage assets efficiently and supports future infrastructure planning and DEP/EPA reporting requirements.

Northern Service Area Capacity Evaluation, Hydraulic Model and Capital Improvement Plan, Ocean County Utilities Authority (OCUA), NJ – GIS Manager for the comprehensive infrastructure evaluation for the Ocean County Utilities Authority's Northern Service Area to support growth-driven planning and capacity management. Scope included developing a dynamic Bentley SewerGEMS hydraulic model and conducting capacity analysis of interceptor systems, pump/lift stations and metering chambers. Identified I&I concerns, recommended upgrades and compiled findings into a Capital Improvement Master Plan with cost estimates, technical memoranda and GIS-integrated deliverables to guide future infrastructure investments.

Sanitary Sewer System I&I Study, Manhole Assessments, GIS Updates & System Modeling, Long Hill Township, NJ – GIS Manager for the comprehensive inflow and infiltration (I&I) study and hydraulic modeling effort for New Jersey American Water following its acquisition of the Long Hill Sanitary System. Scope included the inspection of approximately 4,000 manholes, flow monitoring across 35 sanitary subbasins and three months of wet/dry weather data collection. Used SewerGEMS to calibrate a hydraulic model, identify high-I&I areas, prioritize basins for rehabilitation and simulate phased improvements. Findings informed a phased improvement schedule, GIS updates and ROI projections to support targeted infrastructure investments.

Utility Asset Management GIS Program Implementation Plan, Lansdale Borough, Montgomery County, PA – GIS Manager responsible for completing a GIS base map foundation showing streets, roads, railroads, waterways and general parcel data. The new digital parcel map will serve as the foundation for the Borough of Lansdale to be utilized as the layered base for the Utility Department GIS Infrastructure Asset Management Program. The Utility Department is also requesting that all available digital data from State, County and local offices be integrated with the Department's available hardcopy data as the initial foundation.

Christopher Gross, GISP, CFM

GIS/Asset Inventory

Overview

- More than 20 years of geographic data analysis experience
- Areas of expertise: advanced data management; analysis, server management, web site design, field mapping, webapp design and cartographic production for technical reports and presentations; and compilation and analysis of field data

Work History

RVE experience: 2017 to present

Total experience: 20 years

Education

B.A., Geography, Rutgers University, 2005

Certificate, Cartography, Rutgers University, 2005

Certificate, Environmental Geomatics, Cook College & Rutgers University, 2005

A.A.S., Civil Engineering Technology, Mercer County Community College, 2013

Certifications/Registrations

Certified Floodplain Manager (CFM), 2015

GIS Professional (GISP), 2015

Member, New Jersey Association of Floodplain Managers (NJAFM), New Jersey Geospatial Forum & Urban and Regional Information Systems Association (URISA)

Representative Project Experience

Sanitary Sewer System I&I Study, Manhole Assessments, GIS Updates & System Modeling, Long Hill Township, NJ – Senior GIS Administrator for the comprehensive inflow and infiltration (I&I) study and hydraulic modeling effort for New Jersey American Water following its acquisition of the Long Hill Sanitary System. Scope included the inspection of approximately 4,000 manholes, flow monitoring across 35 sanitary subbasins and three months of wet/dry weather data collection. Used SewerGEMS to calibrate a hydraulic model, identify high-I&I areas, prioritize basins for rehabilitation and simulate phased improvements. Findings informed a phased improvement schedule, GIS updates and ROI projections to support targeted infrastructure investments.

Field Survey Location Services Associated with GIS Sanitary, Water and Stormwater Utility Infrastructure Mapping, Falls Township, PA – Senior GIS Administrator for the high-accuracy GPS field surveys for Falls Township to support GIS mapping of its sanitary, stormwater and water infrastructure. Utilized a Trimble Geo7x GPS unit with sub-meter and RTK centimeter-level accuracy to map manholes, inlets, valves, hydrants and pumping locations across designated Township sections. Integrated control points based on NAD 83 and NAVD 88 using Pennsylvania South State Plane coordinates. Merged verified elevation data and custom attributes with TOFA's existing GIS datasets, significantly enhancing the Township's utility infrastructure mapping and planning capabilities.

Create and Update Sanitary Sewer & Stormwater System GIS Layers Using Existing Digital Drawing Files and Surveying, Municipality of Princeton, NJ – Senior GIS Administrator for the enhancement and updates to the Municipality of Princeton's GIS mapping for its sanitary sewer and stormwater systems. This project involved integrating existing digital drawings, scanned documents and sewer permits, along with conducting GPS field surveys to improve the spatial accuracy and attribute completeness of the utility data. The work addressed deficiencies in outdated GIS layers (from 2008-2019) and aligned them with New Jersey state standards. Georeferenced archival documents and CAD files to NJ State Plane NAD 83 and NAVD 88, updated GIS layers, resolved conflicts in overlapping datasets and created scalable document storage using AWS. The final deliverables included updated GIS datasets uploaded to Princeton's ArcGIS Online (AGOL) platform for public and municipal access, with a completion memo summarizing the work and key findings.

I&I Improvements, Winslow Township, NJ – Senior GIS Administrator responsible for conducting comprehensive GIS mapping, data integration and asset inventory for Winslow Township, NJ's utilities, including georeferencing as-builts, updating assets, correcting parcel data and supporting I&I improvements through ArcGIS Online tools and mobile app integration.

Town-wide CCTV Sanitary Sewer Inspection, Town of Guttenberg, NJ – Senior GIS Administrator responsible for comprehensive updates to the Town of Guttenberg, NJ's sanitary sewer GIS system by integrating contractor CCTV and field reports, linking videos and documents to assets, refining elevation and invert data and enhancing mapping accuracy through CAD, as-builts and client-coordinated field verification.

10-Year Water & Sewer Rate Study and 10-Year Capital Plan Assessment, East Orange Water Commission, NJ – Senior GIS Administrator for the detailed 10-year Water and Sewer Rate Study and Capital Plan Assessment for the City of East Orange, NJ, aimed at supporting long-term infrastructure planning and financial sustainability for the East Orange Utility. NW Financial led the financial analysis by evaluating rate structures, forecasting capital spending, assessing market conditions and developing financial models to simulate rate scenarios and identify potential risks. Simultaneously, RVE conducted a comprehensive engineering condition assessment of the City's water and wastewater facilities through inspections, record reviews and staff interviews, resulting in a phased 10-year Capital Improvement Plan with cost estimates, maintenance schedules and inflation-adjusted projections. The final report delivered a clear, strategic framework for the City to prioritize investments, ensure regulatory compliance and accommodate future growth.

Nicholas Phelan

GIS/Asset Inventory

Overview

- Experienced in computer-based GIS, specifically ESRI products including ArcGIS, ArcMap Pro, ArcMap Online, ArcCatalog, ModelBuilder, Python, Spatial Analyst tools, AutoCAD and VISUM
- Experienced using GPS equipment TopCon FC-5000 and Trimble Geo 7x
- Knowledgeable of federal and local laws, regulations and permits related to city planning
- Experienced with environmental data to establish risk assessment, calculate water/wastewater runoff and develop planning practices involving water quality evaluation
- Experienced with wetland delineation, GPS of wetland flag locations & adding them to the AutoCAD plan.

Work History

RVE experience: 2018 to present

Total experience: 6 years

Education

B.A., Geography and Planning, West Chester University of Pennsylvania, 2017

Wetland Delineation Certificate from Rutgers University

Representative Project Experience

Field Survey Location Services Associated with GIS Sanitary, Water and Stormwater Utility Infrastructure Mapping, Falls Township, PA – Senior GIS/GPS Technician for the high-accuracy GPS field surveys for Falls Township to support GIS mapping of its sanitary, stormwater and water infrastructure. Utilized a Trimble Geo7x GPS unit with sub-meter and RTK centimeter-level accuracy to map manholes, inlets, valves, hydrants and pumping locations across designated Township sections. Integrated control points based on NAD 83 and NAVD 88 using Pennsylvania South State Plane coordinates. Merged verified elevation data and custom attributes with TOFA's existing GIS datasets, significantly enhancing the Township's utility infrastructure mapping and planning capabilities.

Create and Update Sanitary Sewer & Stormwater System GIS Layers Using Existing Digital Drawing Files and Surveying, Municipality of Princeton, NJ – Senior GIS/GPS Technician for the enhancement and updates to the Municipality of Princeton's GIS mapping for its sanitary sewer and stormwater systems. This project involved integrating existing digital drawings, scanned documents and sewer permits, along with conducting GPS field surveys to improve the spatial accuracy and attribute completeness of the utility data. The work addressed deficiencies in outdated GIS layers (from 2008-2019) and aligned them with New Jersey state standards. Georeferenced archival documents and CAD files to NJ State Plane NAD 83 and NAVD 88, updated GIS layers, resolved conflicts in overlapping datasets and created scalable document storage using AWS. The final deliverables included updated GIS datasets uploaded to Princeton's ArcGIS Online (AGOL) platform for public and municipal access, with a completion memo summarizing the work and key findings.

Create and Update GIS As-Built Sanitary Sewer, Stormwater System Mapping and GIS Hosting Services, Roseland Borough, NJ – Senior GIS/GPS Technician responsible for providing GIS services for the Borough of Roseland Department of Public Works, aiming to computer-generate and update Utility System Mapping for sanitary sewer and storm drainage assets. The project involved creating a GIS Infrastructure Mapping Database to comply with state regulations, utilizing Esri ArcGIS software. The services included mapping stormwater and sanitary sewer systems based on existing manual maps from 1966 and 1987, respectively. The goal was to enhance accuracy and compliance, providing web maps for field access and supporting the Borough's efforts in environmental protection, specifically addressing MS4 regulations.

Create and Update GIS As-Built Utility System Mapping, City of Margate, NJ – Senior GIS/GPS Technician responsible for providing GIS services for the Margate Department of Public Works. The scope included computer-generated updates of Utility System Mapping, complying with state regulations, especially the New Jersey Water Quality Accountability Act. The project involved mapping water, storm and sanitary sewer systems, implementing asset management plans and adhering to stormwater regulations. The project included a phased approach, including base map updates, utility as-built updates, GIS features and mapping layers, numbering conventions and land surveying GPS data collection services. The deliverables included updated GIS maps.

GIS-Based Sanitary Sewer and Water Distribution System Mapping, Catasauqua Borough, PA – Senior GIS/GPS Technician responsible for modernizing Catasauqua Borough's sanitary sewer and water distribution system by converting outdated paper maps—some dating back to the 1940s—into a modern GIS-based platform using Esri ArcGIS. This effort included digitizing historic records, conducting field surveys and verifying infrastructure data to ensure accuracy and regulatory compliance. The new system integrates with regional and federal GIS datasets, enhances the Borough's ability to manage assets efficiently and supports future infrastructure planning and DEP/EPA reporting requirements.

Ethan C. Snyder

GIS/Asset Inventory

Overview

- Areas of expertise include AutoCAD, ArcGIS Map, ArcGIS Pro, Esri Field Maps, QGIS, Trimble TerraSync, database design & management
- Programming Skills include C/C++, C# with .NET and ASP.NET, BASH, HTML5, CSS3, SQL, and Python

Work History

RVE experience: 2019 to Present

Total experience: 8 years

Education

B.S. Computer Science and Software Engineering, Minor in Mathematics- Pensacola Christian College, 2019

OSHA 10 Certified

MAC URISA Mid Atlantic Chapter Member

Representative Project Experience

Field Survey Location Services Associated with GIS Sanitary, Water and Stormwater Utility Infrastructure Mapping, Falls Township, PA – Senior GIS/GPS Technician for the high-accuracy GPS field surveys for Falls Township to support GIS mapping of its sanitary, stormwater and water infrastructure. Utilized a Trimble Geo7x GPS unit with sub-meter and RTK centimeter-level accuracy to map manholes, inlets, valves, hydrants and pumping locations across designated Township sections. Integrated control points based on NAD 83 and NAVD 88 using Pennsylvania South State Plane coordinates. Merged verified elevation data and custom attributes with TOFA's existing GIS datasets, significantly enhancing the Township's utility infrastructure mapping and planning capabilities.

Create and Update Sanitary Sewer & Stormwater System GIS Layers Using Existing Digital Drawing Files and Surveying, Municipality of Princeton, NJ – Senior GIS/GPS Technician for the enhancement and updates to the Municipality of Princeton's GIS mapping for its sanitary sewer and stormwater systems. This project involved integrating existing digital drawings, scanned documents and sewer permits, along with conducting GPS field surveys to improve the spatial accuracy and attribute completeness of the utility data. The work addressed deficiencies in outdated GIS layers (from 2008-2019) and aligned them with New Jersey state standards. Georeferenced archival documents and CAD files to NJ State Plane NAD 83 and NAVD 88, updated GIS layers, resolved conflicts in overlapping datasets and created scalable document storage using AWS. The final deliverables included updated GIS datasets uploaded to Princeton's ArcGIS Online (AGOL) platform for public and municipal access, with a completion memo summarizing the work and key findings.

Northern Service Area Capacity Evaluation, Hydraulic Model and Capital Improvement Plan, Ocean County Utilities Authority (OCUA), NJ – Senior GIS/GPS Technician for the comprehensive infrastructure evaluation for the Ocean County Utilities Authority's Northern Service Area to support growth-driven planning and capacity management. Scope included developing a dynamic Bentley SewerGEMS hydraulic model and conducting capacity analysis of interceptor systems, pump/lift stations and metering chambers. Identified I&I concerns, recommended upgrades and compiled findings into a Capital Improvement Master Plan with cost estimates, technical memoranda and GIS-integrated deliverables to guide future infrastructure investments.

Sanitary Sewer System I&I Study, Manhole Assessments, GIS Updates & System Modeling, Long Hill Township, NJ – Senior GIS/GPS Technician for the comprehensive inflow and infiltration (I&I) study and hydraulic modeling effort for New Jersey American Water following its acquisition of the Long Hill Sanitary System. Scope included the inspection of approximately 4,000 manholes, flow monitoring across 35 sanitary subbasins and three months of wet/dry weather data collection. Used SewerGEMS to calibrate a hydraulic model, identify high-I&I areas, prioritize basins for rehabilitation and simulate phased improvements. Findings informed a phased improvement schedule, GIS updates and ROI projections to support targeted infrastructure investments.

Create and Update GIS As-Built Utility System Mapping, City of Margate, NJ – Senior GIS/GPS Technician responsible for providing GIS services for the Margate Department of Public Works. The scope included computer-generated updates of Utility System Mapping, complying with state regulations, especially the New Jersey Water Quality Accountability Act. The project involved mapping water, storm and sanitary sewer systems, implementing asset management plans and adhering to stormwater regulations. The project included a phased approach, including base map updates, utility as-built updates, GIS features and mapping layers, numbering conventions and land surveying GPS data collection services. The deliverables included updated GIS maps.

Nicholas Leusner

GIS/Asset Inventory

Overview

- Experience includes digitizing and organizing features collected using GPS equipment during fieldwork; database management and migration using ArcSDE software; production of installation status report maps and real property inventory binders following site visits and production of site and utility plans in accordance with NGB guidelines
- Proficient in ArcMap 10.8, ArcCatalog, ArcScene, ArcGIS Pro 2.0-3.1, ArcSDE, Python/ArcPy, Spatial Analysis, Digitalization, Mapbox, Terrset, ArcGIS Online and Trimble GPS collector

Work History

RVE experience: 2022 to Present

Total experience: 6 years

Education

B.S. Geographic Information Science; BS Community and Environmental Planning, Rowan University, 2022

Certifications/Registrations

OSHA-10 Certified

Mac Urisa Member

APA Member

Representative Project Experience

Create and Update Sanitary Sewer & Stormwater System GIS Layers Using Existing Digital Drawing Files and Surveying, Municipality of Princeton, NJ – Senior GIS/GPS Technician for the enhancement and updates to the Municipality of Princeton's GIS mapping for its sanitary sewer and stormwater systems. This project involved integrating existing digital drawings, scanned documents and sewer permits, along with conducting GPS field surveys to improve the spatial accuracy and attribute completeness of the utility data. The work addressed deficiencies in outdated GIS layers (from 2008-2019) and aligned them with New Jersey state standards. Georeferenced archival documents and CAD files to NJ State Plane NAD 83 and NAVD 88, updated GIS layers, resolved conflicts in overlapping datasets and created scalable document storage using AWS. The final deliverables included updated GIS datasets uploaded to Princeton's ArcGIS Online (AGOL) platform for public and municipal access, with a completion memo summarizing the work and key findings.

Sanitary Utility GIS Mapping, Stafford Township, NJ – Senior GIS/GPS Technician for the GIS mapping updates to the Township's water and sanitary systems, including digitization of aerials, linking as-built plans and incorporating survey data from recent sanitary replacement projects. The project included enhancing data accuracy, procedures for updating GPS coordinates in the field and setting standards for transferring field-collected data back to RVE's GIS team. The team also reviewed sanitary mapping for the Beach Haven West section of the Township, confirmed workflows for future updates and discussed adding inspection forms for hydrants and valves with historical record access. Mapping priorities were outlined by zone, with a focus on digitizing sanitary mains and manholes. Integration of asset records, system labeling improvements and data storage procedures were also key objectives.

GIS Water and Sewer Maps and Hyperlinked Drawing Database Updates, Washington Township Municipal Utilities Authority, NJ – Senior GIS/GPS Technician for the updates to the Washington Township Municipal Utilities Authority's GIS-based water and sewer infrastructure maps. Building upon previous work that integrated as-built drawings into a GIS database with a hyperlinked Access interface, RVE incorporated new development and infrastructure data—such as valves, hydrants, laterals and sewer features—based on drawings provided by the Authority. The updates aligned with ongoing tax map revisions and used an established alphanumeric grid for consistency. RVE also supported compliance with the New Jersey Water Quality Accountability Act by maintaining the Asset Management Plan and providing technical support and draft review services throughout the process.

GIS Sanitary Sewer Mapping, Middlesex Borough, NJ – Senior GIS/GPS Technician responsible for providing GIS and GPS data collection services for the Borough of Middlesex Department of Public Works. The project involved creating and updating the Borough's sanitary sewer system mapping using Esri ArcGIS software, incorporating existing as-built information and new GPS field data to develop NJDEP-compliant GIS layers. The scope included a two-phase process: (1) GPS field collection and post-processing of sanitary sewer assets like manholes, mains and pump stations and (2) development of detailed GIS mapping layers for integration into the Borough's existing Esri online platform, allowing for ongoing asset management and future data expansion.

GIS Stormwater Infrastructure Management Mapping, Town of Dewey Beach, DE – Senior GIS/GPS Technician responsible for providing stormwater mapping services to establish a GIS base map foundation, incorporating streets, roads, railroads, waterways and general parcel data. This digital parcel map serves as the core for the GIS Stormwater Infrastructure Mapping Database. RVE utilized Autodesk AutoCAD Map and Esri ArcGIS software to integrate data from State, County and local offices with the Town's hardcopy data. The GIS database, featuring unique identification numbers linked to geographical locations, was employed to map and inventory approximately 86 stormwater system structures and over 4,000 LF of storm sewer pipes in Dewey Beach. RVE also incorporated existing MS4 Storm Water Study mapping as a foundation, cross-referencing it with hardcopy plans to ensure accuracy and efficiency in creating the new GIS Stormwater Infrastructure Mapping Database for the Town.