



Proposal

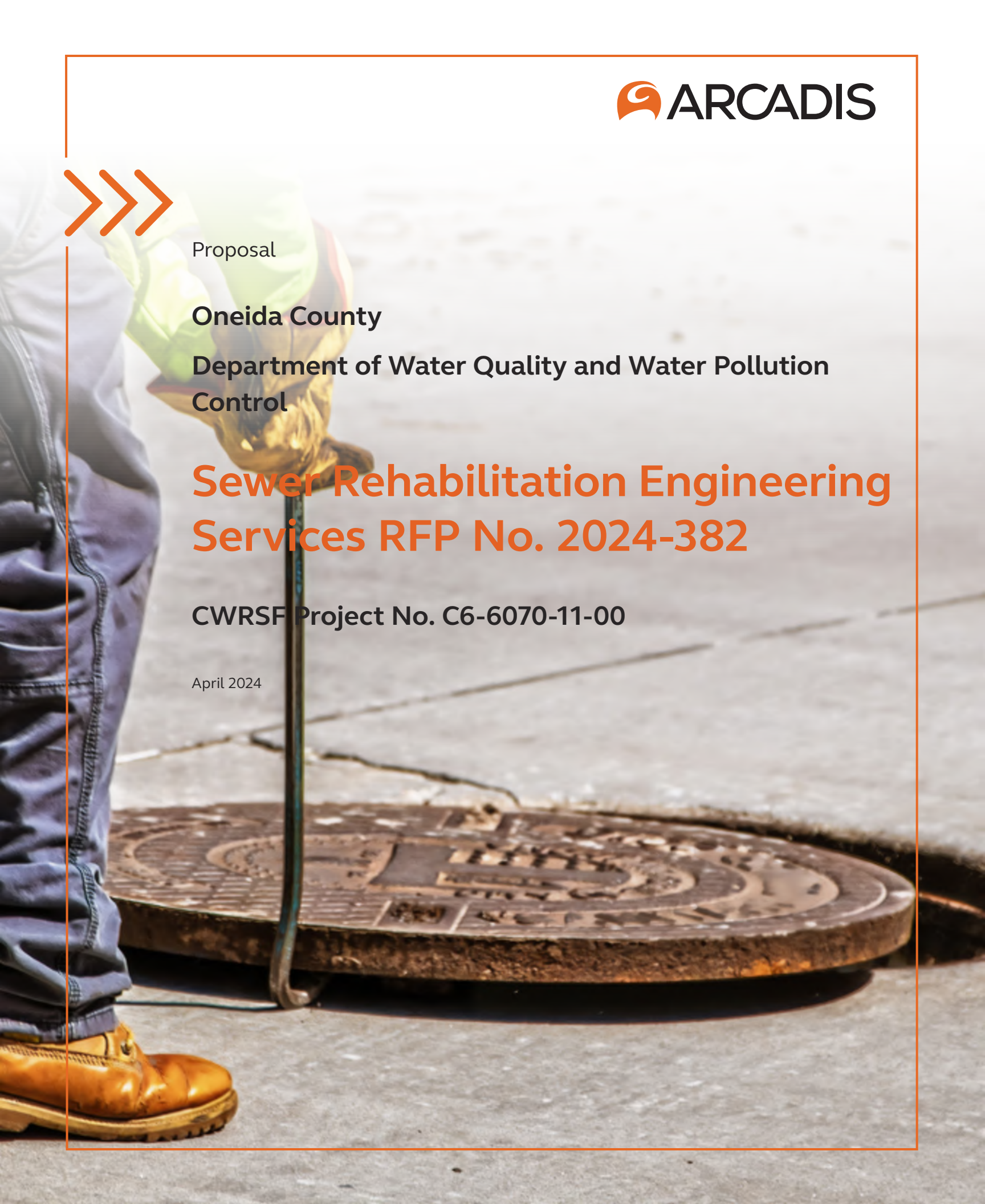
Oneida County

**Department of Water Quality and Water Pollution
Control**

Sewer Rehabilitation Engineering Services RFP No. 2024-382

CWRSF Project No. C6-6070-11-00

April 2024



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Oneida County Department of Water Quality & Water Pollution Control
Karl Schrantz, P.E., Commissioner
51 Leland Avenue, PO Box 442, Utica, NY 13503-0442
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Arcadis of New York, Inc.
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Albany, NY 12203
Tel: 518 250 7300

www.arcadis.com

April 24, 2024

Subject: Sewer Rehabilitation Engineering Services CWSRF Project No. C6-6070-11-00 (RFP No. 2024-382)

Dear Mr. Schrantz:

Arcadis of New York, Inc. (Arcadis) is pleased to submit this statement of qualifications to provide engineering services pertaining to sewer rehabilitation to reduce inflow and infiltration in the County. With strong local expertise, proven success performing similar projects, and an unparalleled commitment to project success and client service, we are confident that you will find Arcadis to be the best partner to collaboratively deliver this important project. Our team will provide the following key benefits:



Strong Project Leadership. It is essential for the project management and technical teams to have a clear understanding of the objectives and project requirements established by the County and the schedule drivers. Your project team should have the reliability that you can count on to deliver the technical aspects of the project, communicate with you and the public, effectively navigate all regulatory approvals, and provide you the confidence that the project will be completed on time and within budget. As your Project Manager, I bring a proven track record for schedule and cost management. I have hand selected a team with a history of success on similar sewer rehabilitation projects.



Funding Experience. Arcadis has been successful in helping to secure and administer more than \$245M in grants for our New York State clients over the last four years. Opportunities for municipalities to receive State and federal grant funding for infrastructure improvements are at historic levels. The County has already been successful in securing eligibility for \$26.5M in funding from NYSEFEC, inclusive of \$10.5M in Bipartisan Infrastructure Law (BIL) grant funding, \$2.7M in BIL Hardship funding, \$6.6M in WIIA grant funding, and \$6.7M in low interest financing. Arcadis will leverage our past success and knowledge of these funding programs to assist the County with compliance with NYSEFC program requirements. As your Project Manager, I have assisted the City of Newburgh with acquiring and managing over \$55M in grants from multiple funding sources, I will use my experience to assist Oneida County with your sewer rehabilitation projects.



Meaningful D/M/WBE and SDVOB Participation. Arcadis' commitment to utilizing disadvantaged, minority and women-owned business enterprises (D/M/WBE) and service-disabled veteran-owned businesses (SDVOB) extends beyond just meeting a funding requirement. We have a proven track record of meeting or exceeding project goals and established relationships with D/M/WBE and SDVOB specialty firms that we like to work with on a regular basis. The Arcadis team for this project includes four D/M/WBE and SDVOB subcontractors, each of whom was carefully selected based on project-specific needs.



Commitment. Arcadis is committed to bring our best people and ideas to the County, with client service as a top priority. We will collaborate with your staff plan sewer replacement activities to reduce costs, impacts to residents and risk during construction, while optimizing conveyance performance.



Local Expertise. Arcadis, and our local subconsultants, employ more than 350 professionals that live within one hour drive of Oneida County, including nationally recognized experts in sewer system rehabilitation. We will provide the County with access to a depth and breadth of expertise that is unmatched.

The Arcadis team appreciates the opportunity to provide this proposal and present our qualifications. We look forward to working together with the County on this important project. Should you have any questions about our response or require additional information from, please do not hesitate to contact us. Thank you for your time in considering Arcadis.

Sincerely,

Arcadis of New York, Inc.

Robert Ostapczuk, PE
Principal-in-Charge
Email: Robert.Ostapczuk.com
Tel: 518 250 7305

AJ Brooks, PE
Project Mnager
Email: a.j.brooks@arcadis.com
Tel: 518 250 7374



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Section 01. Company Profile



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01. Company Profile

Arcadis is the leading global company providing consultancy, design, engineering, and management services in water, infrastructure, environment, and buildings. Applying our deep market sector insights and collective design, consultancy, engineering, and project management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. Our goal is to enhance the mobility, sustainability and quality of life for the communities and environments that rely on the functionality of our clients' water and wastewater systems. We support UN-Habitat with knowledge and expertise to improve the quality of life in rapidly growing cities around the world.

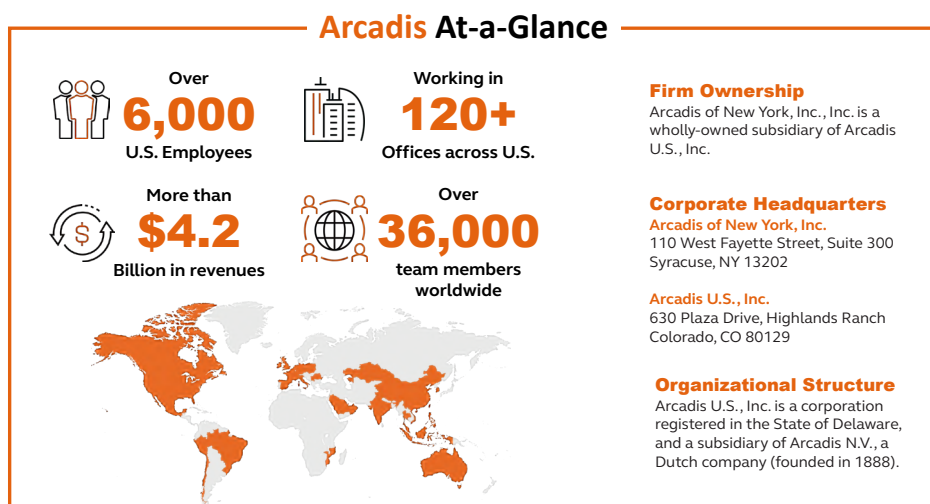
The firm develops, designs, implements, maintains and operates projects for private companies and government entities. We work in partnership with our clients to enhance mobility, sustainability and quality of life by creating balance in the built and natural environments. Our most defining characteristics are a staff of talented and passionate people, a unique combination of capabilities covering the whole asset life cycle, deep market sector insights that work to our clients' advantage, and a commitment to integrating health, safety and sustainability into the design and delivery of customized solutions.

Arcadis U.S., Inc.

Arcadis U.S., Inc. (Arcadis) is a leading engineering and consulting firm in the U.S. and has been ranked as a top management consultant in America by Forbes for many years running. We have a long and rich history, tracing its roots back to the Association for Wasteland Redevelopment in the Netherlands in 1888, whilst Hyder Consulting, which Arcadis acquired in 2014, can trace its history back to 1739. With a worldwide team of over 36,000 and a U.S. team of more than 6,000 engineers, planners, scientists, architects, management consultants and support personnel, we stand ready to support Oneida County in this important project.

The resilience business area of Arcadis is based on more than a century of U.S. professional consulting with a concentration on water and the environment. Our mission is to build on this foundation of experience to help clients and their communities create cost-effective and efficient sustainable solutions that make the world cleaner and safer.

We deliver the full range of management consulting and technology experience to help our clients meet their strategic planning and management goals. Our Business Advisory practice includes over 2,000 consultants that provide management and advisory services globally, across multiple industries. We bring a business mindset to the asset intensive industries we serve and craft effective and sustainable solutions to improve business performance. Our consultants are industry leaders, continuously contributing with their thought leadership and insights. This team is backed by the trusted engineering and operational experience of our employees with in-depth knowledge of built and natural assets.



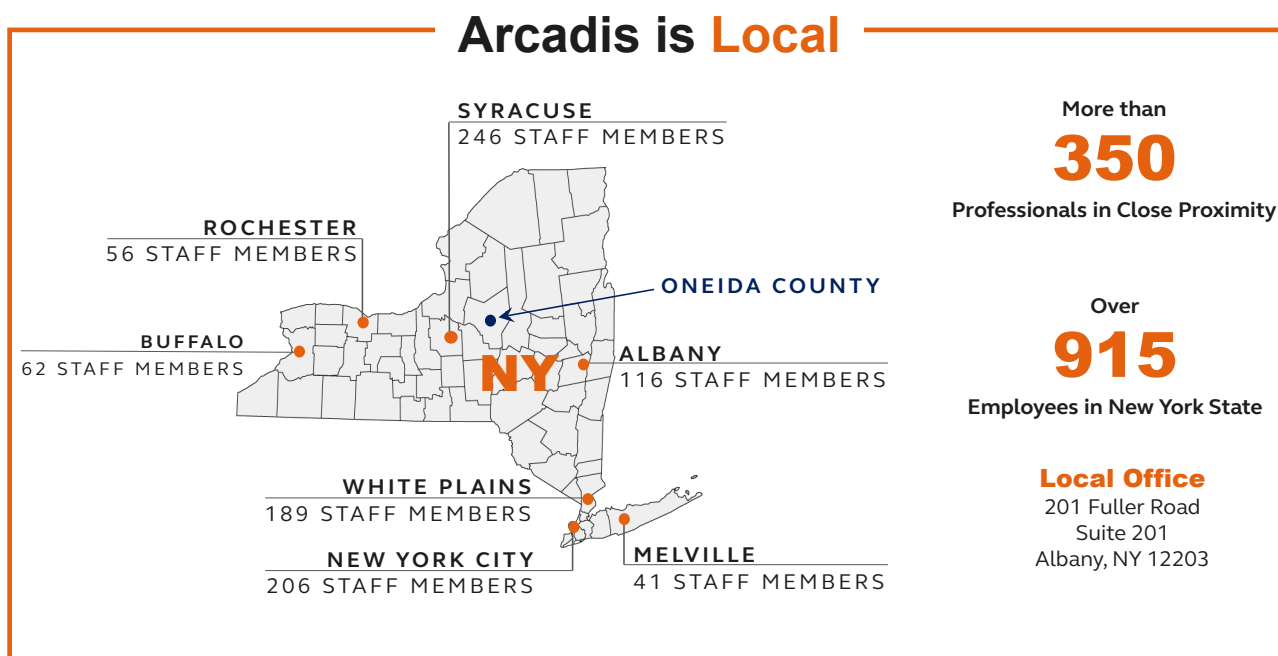
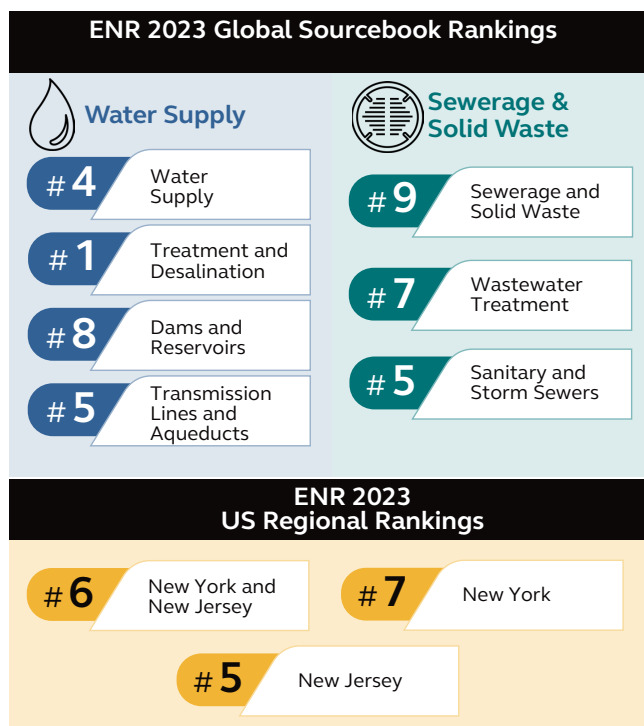
Arcadis of New York, Inc.

Arcadis of New York, Inc. is organized under laws of the state of New York and is qualified to offer professional engineering services in the state of New York pursuant to New York State Education Law, Article 145. Arcadis of New York, Inc. is a wholly-owned subsidiary of Arcadis U.S., Inc., a Delaware Corporation. Under the direction and control of its professional management, Arcadis of New York, Inc. is able to seamlessly access the full global resources of Arcadis, providing exceptional expertise for delivery of solutions to the clients of Arcadis of New York, Inc.

Local Presence

Arcadis has strong roots in New York State, supporting industrial, municipal, and public agency clients in New York and United States for more than a century, due largely to the founding of two of the predecessor firms, Blasland, Bouck & Lee, Inc. (BBL) and Malcolm Pirnie, Inc. in New York State. Today, our presence remains strong, with more than 920 employees in New York State and more than 350 professionals in our Albany and Syracuse offices. Arcadis is in close proximity to readily address the County's needs. The Arcadis personnel proposed to serve the County have a long history of successfully completing many challenging projects throughout New York and have a strong knowledge of New York State Project requirements.

Your project will be managed from our Albany, NY office where all of our Team members work with over 90 engineers, scientists and support staff. This office has been in the Capital District since the 1960's and has grown into a regional design center for water and wastewater projects, serving municipal utilities throughout upstate New York and the rest of the State. Our local project team members have immediate access to on-staff experts in the many consulting disciplines that may be relevant to particular projects.



Comprehensive Water and Wastewater Consultancy

As a nationally recognized full-service water engineering and consulting firm, Arcadis has been a leader in water quality engineering for more than 100 years, building on the collective experience of hundreds of on-staff experts to improve the quality of water supplies and develop effective water purification systems. The firm serves utility clients across the U.S. and abroad ranging in size from small municipalities to some of the largest utilities in the nation and the world.

Arcadis offers a comprehensive range of water and wastewater engineering and management consulting services, employing specialists in every aspect of the water cycle - from raw water source development, treatment and distribution to wastewater collection, conveyance, treatment, and reuse. We also have immediate access to on-staff experts in all other environmental consulting disciplines located right here in New York, across the country, and inter- nationally. This depth and breadth of resources uniquely qualifies Arcadis to perform multidisciplinary consulting projects efficiently and effectively.

We tailor our services to meet the unique needs of each client and project. Our participation can range from small, specialized studies supplementing the work of in-house client staff to complete development of large-scale facilities; from site planning through pilot studies; engineering/economic feasibility studies; environmental analyses; permitting; design; bidding; construction assistance; startup and supervision of facility operations.

We have a long, successful history of providing program management for utility-wide programs and projects, leveraging our range of expertise and depth of resources to provide superior client service, appropriate for each project size and location. Our commitment to quality encompasses every internal function and every service we offer to our clients. Our record of repeat business and long-term engagements with established clients reflects our devotion to quality client service as our organization's defining characteristic.

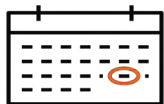
Design / Delivery / Construction Services

Arcadis' Design and Delivery and Construction Services overlap, covering all aspects of planning, engineering and construction. With over 100 years of experience in the public water and environmental industry, Arcadis' field proven water and wastewater treatment solutions are engineered to maximize results while optimizing cost efficiency, with an emphasis on operational ease.

Arcadis routinely provides resident engineering inspection services for projects we have designed and also on projects designed by others. We know that client satisfaction on construction projects is critically dependent on the project team's ability to monitor a contractor's construction activities so that the project can be completed on time and on budget with minimal disruption to normal operations. Arcadis have provided resident engineering services on numerous projects both large and small.

Why Select Arcadis?

Arcadis offers strong familiarity with the County's project needs along with relevant regional and national experience with planning, permitting, designing, managing construction, start-up, and commissioning of wastewater infrastructure. We believe our experience in these areas will provide the County with the following benefits:



Proven Ability to Maintain Schedule and Reduce Risk. We understand that maintaining project schedule is important. Our team has the experience and bandwidth required to support the County while focusing on reducing schedule risks through the planning and design phase.



The Most Experienced Technical Experts. Arcadis is a global design consultancy with more than 36,000 professionals around the world, 6,000 in the US, and more than 900 in New York State. We have extensive experience in providing water and wastewater services throughout New York State, and our proposed project team has extensive experience successfully delivering similar projects throughout New York State. Our strong New York presence, extensive technical resources, and far-reaching technical capabilities make us well-suited to assist the County with the Sewer Rehabilitation Project.



An Emphasis on a Collaborative Approach. We are excited at the opportunity to work very closely with the County's staff to deliver this important project successfully. Stakeholder engagement and coordination is important with any project and Arcadis is experienced with coordinating with multiple agencies and stakeholders such as NYSDEC, NYSEFC, Oneida County Department of Public Works, NYSDOT, CSX Transportation, and the local municipalities.

Additionally, proactive project management and communication are essential to keep stakeholders informed throughout the project, as well as to coordinate project activities and obtain project guidance when needed. The Arcadis team will be available for informal email and telephone/virtual meeting correspondence on an as-needed basis and can easily accommodate in-person meetings or site visits as needed.

"I have learned in my career that communication is key to any successful project, and communicating with my clients is a top priority for me. I will not leave you in the dark about decisions or issues, there will not be any surprises because you will be involved in every step of the project from the start."



A.J. Brooks, PE - Project Manager



Strong Project Leadership. It is essential for the project management and technical teams to have a clear understanding of the objectives and project requirements established by the County and the schedule drivers. Your project team should have a proven track record that you can count on to deliver the technical aspects of the project, to communicate with you and the public, effectively navigate all regulatory approvals, and to provide you with confidence that the project will be completed on time and within budget.

CSX Transportation Coordination Experience

Arcadis has extensive experience working with and coordinating project approvals with CSX Transportation (CSX). We are familiar with CSX Design and Construction Standard Specifications and permitting requirements. Arcadis has access to national experts in the rail industry that can be brought in to review and provide guidance and recommendations on complex project designs involving CSX.

NYSEFC State Revolving Fund Experience

Arcadis has a long history of securing and managing grants and funding for clients, including Clean Water State Revolving Fund (CWSRF) and BIL grant and hardship funding. One of the important lessons learned through our experience is the need for municipalities to have a consultant overseeing the life of the loan. With Arcadis serving as an advisor, the County will have the checks and balances it needs throughout the life of the project and loan. The Arcadis approach is to act as the County's representative and advocate to get the best rates and make certain that all funding requirements are met through the final closeout. We act as your partner throughout the life of the loan, tracking paperwork, meeting deliverables, managing contractors, meeting or exceeding Disadvantaged Business Enterprise (DBE) goals, and maintaining communication with the appropriate funding agency.

Claire Superak has helped the City of Newburgh obtain over \$55M in WIIA, BIL, WQIP grants over the past four years. She has assisted Clients in administering over \$70M grants and SRF financing.



The following pages shows Table 1 where the recent projects in which we have assisted our clients in obtaining grant awards for water and wastewater projects in New York.



Our team understands how to maximize the available grant opportunities specific to your actual plant design. We know what grant reviewers are looking for and how to break off specific project elements in a way that will score maximum points and assure the highest chance for grants. In addition, our national and New York funding experience assures the best possible funding outcome through the best mix grants and zero interest loans.

Table 1 - Recent Grant Award Projects in New York State

Program	Project Description	Client	Amount
WQIP	Sewer District Wastewater Treatment Plant Consolidation	Chemung County Sewer District	\$10,000,000.00
WIIA	Sewer District Wastewater Treatment Plant Consolidation	Chemung County Sewer District	\$25,000,000.00
BIL-Grant	Sewer District Wastewater Treatment Plant Consolidation	Chemung County Sewer District	\$25,000,000.00
EPG	WWTPs Capital Improvement Plan	Albany County	\$50,000.00
EPG	Municipal Separate Storm Sewer Condition Assessment	City of Mt Vernon	\$100,000.00
WQIP	Wastewater Infrastructure, Combined Sewer Overflow/Sanitary Sewer Overflow Projects	City of Mt Vernon	\$10,000,000.00
BIL-Grant	North Interceptor Sewer Replacement	City of Newburgh	\$3,559,825.00
BIL - Grant	Combined Sewer Control Facility	City of Newburgh	\$17,766,000.00
EPG	West Trunk Sewer Inflow and Infiltration Study	City of Newburgh	\$100,000.00
WIIA / PF	North Interceptor Sewer Replacement	City of Newburgh	\$11,155,000.00
WQIP	North Interceptor Sewer Replacement and Combined Sewer Control Facility	City of Newburgh	\$10,000,000.00
WIIA	Combined Sewer Control Facility	City of Newburgh	\$8,882,994.00
WQIP	North Street Sewer Separation	City of Newburgh	\$4,800,000.00
WIIA	Sewer Separation	Village of Endicott	\$75,295.00
WQIP	Sewer Separation	Village of Endicott	\$602,320.00
WQIP	Sewer Separation	Village of Endicott	\$800,000.00
WQIP	Sewer Collection System Improvements Phase 2	Village of Endicott	\$1,781,120.00
GIGP	Bird Island Treatment Facility Steam and Boiler System Energy Project	Buffalo Sewer Authority	\$2,950,000.00
NPG	MS4 Mapping	City of Mt Vernon	\$75,000.00
WIIA	Water Treatment Plant Filter and SCADA Upgrades	City of Newburgh	\$3,000,000.00
EPG	Liberty Street	City of Newburgh	\$50,000.00
GIGP	Broadway Reconstruction Project	City of Newburgh	\$800,000.00
BIL	Improvements for SPDES Compliance	City of Amsterdam	\$8,758,500.00
WQIP	Wastewater Treatment Performance Improvements	City of Amsterdam	\$10,000,000.00
WIIA	ECDEP Southtowns Advanced Wastewater Treatment Facility Expansion	Erie County	\$17,000,000.00
WQIP	ECDEP Southtowns - Phase 1	Erie County	\$17,000,000.00
EPG	NWQ WRRF Aeration Improvements	Monroe County	\$50,000.00
EPG	FEV Influent Improvements	Monroe County	\$50,000.00

Program	Project Description	Client	Amount
EPG	FEV Recycle Evaluation	Monroe County	\$50,000.00
EPG	Genesee Valley PS	Monroe County	\$50,000.00
WIIA	Genesee Valley PS	Monroe County	\$1,125,000.00
WIIA	FEV WRRF - Aeration System Improvements	Monroe County	\$3,775,000.00
WIIA	FEV WRRF - Secondary Clarifier Improvements	Monroe County	\$1,225,000.00
IMG	Long Beach Diversion	Nassau County	\$10,000,000.00
WIIA	Bay Park Conveyance Project	Nassau County	\$25,000,000.00
WQIP	Bay Park Conveyance Project	Nassau County	\$10,000,000.00
EPG	I/I Study - HLCSD	Ontario County	\$100,000.00
GIGP	Biosolids Facility	Saratoga County Sewer District	\$2,000,000.00
EPG	Flow Management Plan Implementation - Phase 1	Village of Endicott	\$50,000.00
EPG	Flow Management Plan Implementation Phase 2	Village of Endicott	\$100,000.00
WIIA	New Indian Brooks Water Treatment Plant	Village of Ossining	\$5,000,000.00
TOTAL GRANTS AWARDED (Fiscal Years 2021 through 2023)			\$247,881,054.0
<p><u>Legend</u></p> <p>BIL Bipartisan Infrastructure Law</p> <p>EPG Engineering Planning Grant</p> <p>GIGP Green Innovation Grant Program</p> <p>NPG Municipal Separate Storm Sewer (MS4) Mapping Grant</p> <p>PF Principal Forgiveness</p> <p>WIIA Water Infrastructure Investment Act</p> <p>WQIP Water Quality Improvement Program</p>			



Section 02. Proposed Team



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02. Proposed Team

Arcadis recognizes that a critical element of every successful project is a fully satisfied client, and that the key element facilitating this satisfaction is people — the key staff committed to a project with full support from management. Providing our clients with high-quality professional services is the hallmark of our organization. We assemble project teams of our most qualified staff to meet our clients' needs. We consider our clients to be part of the project team, and we work closely with them. We keep them informed of all progress and incorporate their input into the overall project development and implementation processes.

Arcadis understands that the successful and timely completion of every project relies on the technical competence and communication capabilities of individual team members, the blending of talents, and the commitment and availability of the senior level people assigned, combined with the overall team philosophy that we are a vital part of the County's efforts to effectively execute this important project. Arcadis has assembled a team of talented and experienced professionals to successfully complete the design and construction of Sewer Rehabilitation Project(s). We have developed the organizational chart below to identify key staff members and their project roles. **A capsule qualifications summary of each key personnel and the proposed subconsultant firms are provided on the subsequent pages.**

Key Project Team Summaries



A.J. Brooks, PE | Project Manager

**ME, Engineering/BS Civil & Environmental Engineering | Years with firm: 12
| Professional Engineer (NY); Asset Management; Construction Documents Technologist**

Mr. Brooks has experience with all facets of a project, from engineering studies and design to construction administration, oversight, and design services during construction on a wide range of engineering projects. He is experienced in water and wastewater treatment facility design, conveyance systems, stormwater drainage, pump system analysis, water quality analysis, hydrologic and hydraulic modelling. He has presented at several professional conferences such as NYWEA and AWWA. As your Project Manager, he will be the primary point of contact, responsible for overseeing the planning, evaluation, and schedule for the project, as well as regular communication with the County. Mr. Brooks has successfully assisted communities in obtaining and managing project financing and grants through various state and federal programs.



Claire Superak | Design Manager / Project Engineer

**MS, Environmental Engineering/BA, Environmental Science | Years with firm: 9
| Engineer in Training; Construction Documents Technologist; NASSCO Pipeline Assessment and Certification**

Ms. Superak provides support for the water design group. She contributes to a wide variety of projects, including collection system and wastewater treatment plant design, hydraulic modeling of wastewater treatment plants, inflow and infiltration analyses, and mixing and dilution studies. She is responsible for modeling using a variety of software, data analysis, and developing deliverable reports. Ms. Superak is involved in projects from conception and funding acquisition through design and construction. Research and Development Authority (NYSERDA).



Daniel Loewenstein, PE | Project Officer

BS, Civil Engineering | Years with firm: 43 | Professional Engineer (NY)

Mr. Loewenstein has a diverse background with over 40 years in the consulting engineering industry. He currently serves as the primary engineer and point of contact for numerous statewide term contracts for various New York State agencies. For these contracts, Mr. Loewenstein is responsible for projects ranging in size from \$1 million to over \$50 million. These agencies include the New York State Department of Environmental Conservation (NYSDEC), New York State Power Authority, Office of General Services, and New York State Energy Research and Development Authority (NYSERDA). Mr. Loewenstein has led many infrastructure projects for local municipal governments and private industry.



Robert Ostapczuk, PE, BCEE | Principal-in-Charge

BS, Environmental Engineering | Years with firm: 21 | Professional Engineer

Mr. Ostapczuk has a broad technical background in municipal engineering for water, wastewater and stormwater projects. His experience encompasses design and planning of water and wastewater infrastructure improvement projects ranging from 9 gpm to 200 mgd, planning and design of stormwater improvement projects including nature channel design for stream restoration and facilities rehabilitation.



Kevin Hogan, PE | Technical Advisor

BS, Environmental Engineering | Years with firm: 27 | Professional Engineer (NY); Construction Documents Technologist

Mr. Hogan is a principal engineer and certified project manager. He serves as a subject matter expert in the Stormwater and Watersheds Community of Practice and provides technical expertise nationally in the areas of Municipal Separate Storm Sewer Compliance. Mr. Hogan has extensive experience with sewer system investigations and environmental studies encompassing sewer system design, sewer system rehabilitation, water and sewer system modeling, and flood control studies. Mr. Hogan has also been the lead for global positioning system (GPS) survey of utilities, and geographic information system (GIS) mapping.



James Shelton, PE | QA/QC

BS, Chemical Engineering | Years with firm: 27

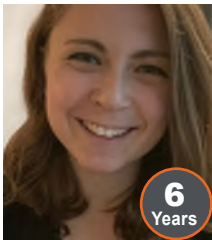
Mr. Shelton is the National Technical Director for Buried Infrastructure for large programs encompassing investigation, regulatory negotiation, condition assessment, engineering and capital planning, design, inspection, and construction for capacity assurance and/or rehabilitation of water and sanitary, combined, and storm sewer infrastructure. He is a nationally recognized industry expert, giving papers, presentations, and workshops to a national audience. He is closely involved in organizations such as the Water Environment Federation (WEF), the North American Society for Trenchless Technology (NASTT), and the National Association of Sewer Service Companies (NASSCO). His municipal engineering experience includes I/I studies and infrastructure evaluations, concept through detailed construction design of wastewater collection facilities, trenchless rehabilitation design, construction services, NPDES and MIPP permitting, and Municipal Facilities Planning (Act 537) reports.



Paul Batman, PE | QA/QC

MS, Environmental Engineering/BS, Environmental Health | Years with firm: 24 | Professional Engineer (DE, MD); Construction Documents Technologist; NASSCO Pipeline Assessment and Certification

Mr. Batman has more than 25 years of specialized expertise, serving as program manager, project manager, or senior engineer in sewer infrastructure investigation and rehabilitation projects and programs across the eastern United States. His experience includes inflow/infiltration (I/I) studies, SSES, infrastructure evaluations, force main assessment, gravity sewer physical condition assessments, gravity sewer design, gravity sewer operations and maintenance planning and implementation, water distribution design, sanitary sewer rehabilitation, storm system rehabilitation, preparation of construction/bid documents, construction administration services, design support during construction, community relations, and evaluation of effectiveness of I/I reduction efforts. Mr. Batman is currently Arcadis' national practice coordinator for buried infrastructure assessment, design and rehabilitation and is responsible for identifying and sharing our best talent, tools and practices with project teams nationwide to ensure high quality for our clients.



Miranda Cordiale, PE | Design Engineer & Construction Administration

BS, Environmental Resources Engineering | Years with firm: 2 | Professional Engineer (NY)

Miss Cordiale has more than six years of professional experience on linear waterline, stormwater sewer, and sewer design, and stormwater management. Responsibilities and experiences include project coordination, drafting and designing comprehensive plans, distribution analysis, field oversight, preparing engineering reports and contract bid documents, stormwater pollution prevention plan inspections, and data visualization.



Erica Van Althuis | Design Engineer

BS Environmental Engineering | Years with firm: 6 | Engineer in Training; Construction Documents Technologist

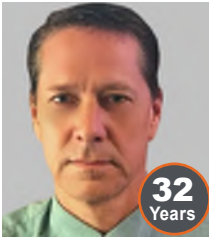
Ms. Van Althuis is a project engineer who resides in our Clifton Park office. She has worked on various planning and design projects for wastewater and stormwater collection systems, including sewer rehabilitation. This includes collecting and analyzing data, performing field investigations, manhole inspections, and condition assessments, developing cost estimates, preparing specifications and design drawings, and providing construction administration services. She is also proficient in a variety of software programs including, Civil 3D, ArcGIS, and PowerBI.



Lauren Johns, EIT | Design Engineer

BS, Environmental Engineering | Years with firm: 5 | Engineer in Training; Construction Documents Technologist

Ms. Johns provides support for the water design group. She contributes to a variety of projects including those pertaining to stormwater management, inflow and infiltration analyses, sewer design, and hydraulic and hydrologic modelling. Ms. Johns has experience in Bentley's PondPack, Computational Hydraulic International's PCSWMM, Esri's ArcGIS, and AutoDesk Civil3D.



Russel Mereo | Cost Estimating & Construction Administration

Master of Business Admin, University of Central Oklahoma, 1993, BS, Construction Science, University of Oklahoma, 1990 | Years with firm: 4 | Engineer in Training; Construction Documents Technologist

Mr. Van DeValk A project estimator in the Estimating & Cost Management Team. Responsible for servicing our clients in the preparation of cost estimating and cost management services from the concept level through stage gate estimates and final bid tender, and beyond.



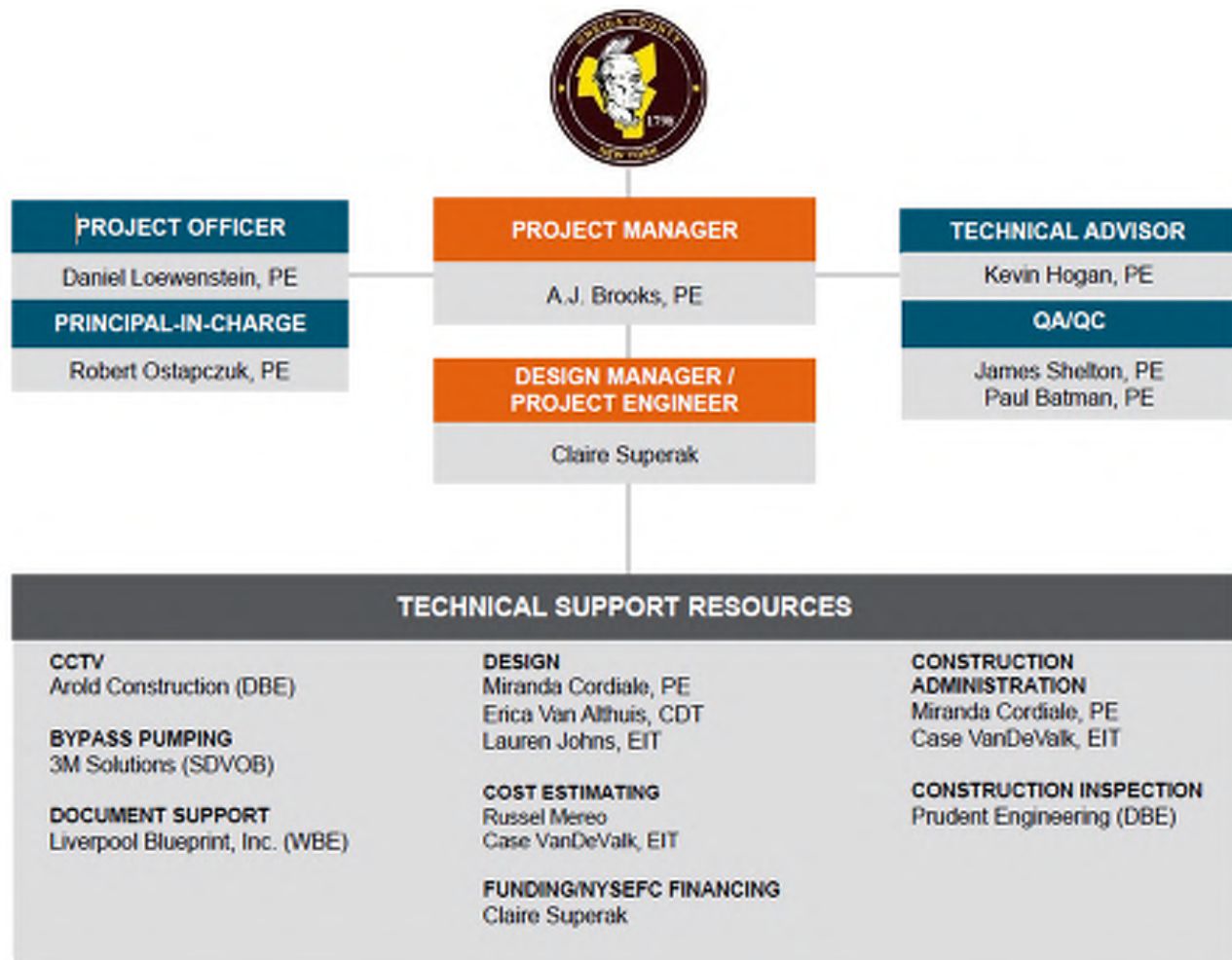
Case Van De Valk | Cost Estimating & Construction Administration

MS, Environmental Engineering/BA, Environmental Science | Years with firm: 4 | Engineer in Training; Construction Documents Technologist

Mr. Van DeValk supports a wide variety of projects, including both linear and in the fence designs. He is experienced with the design collection systems, water distribution systems, hydraulic modelling, and water and wastewater treatment plants. Mr. VanDeValk is experienced with cost estimating for both small and large projects and provides construction administration services.

Resumes

Detailed resumes for all Arcadis staff listed in the organizational chart can be found in [Appendix B](#). Qualifications for each of our proposed subconsultants are also provided.



DBE, M/WBE, and SDVOB SUBCONSULTANTS

Arcadis is committed to offering equal opportunity to qualified disadvantaged business enterprise (DBE), minority and women owned business enterprises (M/WBE), as well as service-disabled veteran owned businesses (SDVOB). Arcadis takes its role in using such firms seriously. We are proud of our proven track record of meeting or exceeding DBE, M/WBE, and SDVOB goals for projects receiving CWSRF and/or grant funding in New York and the meaningful contribution they provide toward achieving project success. We are committed to applying these businesses to the fullest extent, regardless of client participation goals, to mutually benefit our clients, the subcontractor, and Arcadis. We are confident that these firms will enhance our capabilities to complete this project on schedule, within budget, and to the County's satisfaction.

Arcadis proposes to fulfill the DBE participation goals for this project consistent with County requirements by using highly qualified, experienced. Arcadis will continually monitor the overall participation of the DBE firms throughout the life of the project to make sure participation goals are being met or exceeded.

Furthermore, Arcadis will take affirmative action to seek out and consider other DBEs, based on the specific scope of work, and affirmatively solicit their interest, capability, and prices on an as-needed basis.

Our proposed subconsultants and their respective roles for this contract are summarized below.



Arold Construction Company, Inc. (DBE/WBE) | CCTV Inspection

Arold Construction Company, Inc (DBE/WBE) is construction company located in Kingston, NY. The company provides a wide range of services including closed circuit television (CCTV) inspection, manhole inspections, and trenchless sewer repair. Arcadis has worked with Arold Construction on various inspection projects, including the City of Newburgh Long

Term Control Plan Implementation Planning Project, City of Glens Falls Henry Street Pump Station Inflow and Infiltration Improvement Planning Project, and the Watervliet Arsenal Sanitary Sewer Replacement Project.



Prudent Engineering, LLP (DBE/MBE) | Construction Inspection

Prudent Engineering, LLP (DBE/MBE), founded in 1992, headquartered in Syracuse, NY, is a rapidly growing civil engineering company handling projects of over \$10 million in construction value. Prudent offers multidisciplinary services in land surveying, construction

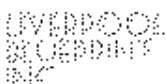
inspection, site, civil and structural design, bridge and highway design, and bridge condition inspection. Their land surveying services include topographic surveys, property and boundary surveys, base mapping, right-of-way mapping, and detailed reports. Prudent has worked as both a prime and a subconsultant for various counties, towns, and villages in New York, as well as private clients and contractors. Prudent has an excellent working relationship with Arcadis personnel, as they have conducted surveying services on numerous previous projects. Prudent will provide construction inspection services for this project.



3M Solutions, Inc. (SDVOB) | Bypass Pumping Planning

3M Solutions, Inc. (SDVOB), founded in 2014, is a civil and geotechnical engineering design, consulting and staff augmentation firm serving upstate New York. 3M is able to handle a wide array of projects ranging from residential/commercial site planning to temporary

and permanent utility systems. They offer a unique approach to projects through synergy of the engineering and construction disciplines based on a solid background in both. They will aid in developing temporary bypass pumping strategies for sewer rehabilitation work.



Liverpool Blueprint, Inc. (WBE) | Printing/Reproduction

Liverpool Blueprint is a NYS-certified WBE serving Central NY for almost 40 years. They offer reprographic services to architects and contractors.

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Section 03.

Engineer's Experience



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03. Engineer's Experience

Arcadis and its predecessor organizations have been involved in the evaluation, planning, design, and construction of collection and conveyance systems for more than 100 years. Our engineers have provided these services to a wide range of municipal, industrial, and private clients, developing new or replacement systems as well as evaluating and upgrading existing systems. The firm's range of services related to wastewater collection systems includes:

- Facility planning for the rehabilitation, upgrading, and expression of wastewater collection systems, or for the construction of new systems in unsewered areas
- Pipeline routing studies and environmental assessments for new sewer systems
- Design environmental monitoring, and construction phase services for new and rehabilitated trunk sewers, force mains, interceptors, and pump stations
- Development of Asset Management Plans
- Flow management planning

We are also on the forefront of innovation when it comes to trenchless technologies, condition assessment techniques and diagnostics, in advancing state-of-the-art asset management and condition deterioration theory, and in providing innovative, guaranteed-outcome approaches for pipe rehabilitation and I/I reduction, all with practical application and measurable benefits in mind.

Arcadis completes hundreds of water, wastewater and stormwater projects each year. Our vast resources allow us to conduct multiple projects with accelerated schedules simultaneously, respond to short time frames, maintain quality work, and meet budget and time constraints. Should increased support be necessary, our local team can draw from a resource pool of more than 5,100 employees nationally. In short, we have the availability and resources to successfully meet the needs of this Sewers Rehabilitation project.

Arcadis has successfully completed hundreds of sewer rehabilitation projects for communities nationwide in a wide variety of conditions. Figure 6.1, below, shows the map of Arcadis' experience in sewer management and rehabilitation projects across the U.S. We have provided design and construction phase services for replaced and rehabilitated pipelines, force mains, interceptors, service laterals, manholes and pump stations. We have designed around industry-standard pipe materials for pipeline renewal, including cured-in-place pipe (CIPP), sliplining with polyvinyl chloride (PVC), high-density polyethylene (HDPE) and centrifugally cast glass-fiber-reinforced polymer mortar (CCFRPM), pipebursting with HDPE, spray-on linings and coatings and spiral wind.

Our projects include trenchless renewal of gravity sewer pipes, pressure pipes and water mains. We have successfully completed rehabilitation of pipelines from 6 inches to 108 inches, from a few hundred feet to thousands of feet of pipe. Our experts have worked on ground-breaking trenchless rehabilitation projects involving alternative and innovative delivery methods (such as Nashville's unique Whites Creek Design-Build



Performance-Based I/I Reduction Contract), tight consent decree-driven deadlines (such as for New Castle County, DE), manhole rehabilitation by lining (cementitious and epoxy) and inserts fiberglass reinforced plastic, PVC, HDPE), service lateral renewals by relining and replacement, as well as innovative thickness testing, including broadband electromagnetic (BEM). Many of our rehabilitation design projects use existing mapping, GIS databases and sewer plans for preparation of the construction plans, significantly reducing time and effort to get from preliminary design into construction. We use sewer inspection data provided by the owner or obtained by us (flow monitoring, CCTV, smoke tests, wet weather isolation using weirs, manhole and field inspections) and apply our experience to select the most cost-effective rehabilitation methods, whether trenchless relining (CIPP, pipebursting, sliplining) or open-cut.



COLLECTION SYSTEM EVALUATION CAPABILITIES

Sewer System Inspection and Evaluation

Arcadis performs both field investigations and “desktop” studies of wastewater collection systems to address many types of issues. We have completed scores of studies on systems ranging in size from 20 to 1,800 miles of sewers, and we have the trained staff and equipment needed for this specialized work. We develop a unique approach for every project, specifically tailored to the needs and capabilities of each community. Our projects have involved performing all facets of sewer system investigations, as well as coordinating and evaluating data collected by municipal staff.

Our work addressing sewer system investigation typically falls into five categories: sewer capacity evaluations, infiltration/inflow (I/I) studies, sewer system evaluation surveys (SSES), condition assessment and asset management. For this project, we will be providing sewer system evaluations to make prioritized rehabilitation recommendations.

Physical Inspections

Arcadis coordinates and oversees physical inspections to assess the integrity and physical condition of sewer pipes and manholes and to determine the need for repair or replacement. We employ a wide range of collection system investigation and assessment technologies, selected in close consultation with the client in order to provide the most information for the least cost and lowest risk possible. Methods we use routinely include smoke and dye testing, hand-held cameras, and closed-circuit television (CCTV) inspection; we also use advanced robotic devices for special conditions. Pipe inspection enables identification of structural failure or joint failure, as well as other problems such as sulfide corrosion.

Flow Monitoring and Analysis

We have experience in planning and implementing flow monitoring programs to measure flows and water elevations in collection systems under both dry and wet weather conditions. A flow monitoring program often is conducted concurrently with programs for rainfall and water quality monitoring. Accurate and reproducible metering data are critical to all subsequent assessment work and form the basis for modeling; therefore, we take great care in selecting flow metering locations, meter types, and installation contractors.

Evaluation of Alternatives

Our engineers and scientists can develop and evaluate a range of alternatives to overcome insufficient capacity, reduce I/I or restore the structural integrity of the sewer pipe or service line. We examine each alternative with respect to technical effectiveness, cost, and associated environmental impacts, employing the techniques for cost-effectiveness analysis specified by the United States Environmental Protection Agency (USEPA).

Corrective Actions

Arcadis provides design and construction phase services to correct problems of insufficient capacity, excessive I/I or structural deficiencies. Corrective actions that we have implemented include sliplining, point repair, replacement, grouting, use of polymers to increase flow, and construction of parallel relief sewers.

Arcadis has performed numerous sewer evaluations, as demonstrated in **Table 2** which provides some of our relevant project experience.

Table 2 Relevant Project Experience

Project Name	I/I Reduction	Flow Metering	Smoke Dye Testing	Flow Isolation	CCTV Inspection	Manhole Inspection	Private Source Investigation	Modeling	Assessment	Program Design /Construction	Management
Endicott, NY: Inflow and Infiltration Study	■	■	■		■	■			■	■	■
Wallkill, NY: Inflow and Infiltration Investigations	■	■			■			■	■		
Mamaroneck, NY: Inflow and Infiltration Investigation and Sewer Condition Assessment	■	■			■	■	■	■	■		
City of Newburgh: North Interceptor Sewer Replacement			■		■	■		■	■	■	
City of Newburgh: North / Water Street Sewer Separation			■		■	■		■	■	■	
City of Newburgh: North Street Sewer Separation			■		■	■		■	■		
Glens Falls, NY: Henry Street Pump Station I&I Investigation	■	■	■		■	■			■		
Glens Falls, NY: Citywide I&I Investigation	■	■	■		■	■			■		
Watervliet Arsenal, Watervliet, NY: Sanitary Sewer Improvement Project			■		■	■	■		■	■	
Mt Vernon, NY:					■	■					
City of Albany, NY:					■	■			■	■	
White Plains, NY: Citywide Sanitary Sewer Hydraulic Modelling			■						■	■	
NYSOGS, Yonkers, NY:					■	■			■		
Ayer, MA: System Wide I/I	■	■	■	■	■	■			■		■
Bergen County Utilities Authority, NJ: Rain-Derived Infiltration/Inflow SSO Management Services	■										■
Franklin, MA: Sewer System Investigations, Rehabilitation and Sump Pump Inflow Removal Program	■	■	■	■	■	■	■	■	■	■	■
Frederick, MD: Hillcrest Orchards Rehabilitation	■	■			■	■			■	■	
Greater New Haven WPCA, East Haven and Hamden, CT: System-wide Infiltration/Inflow (I/I) Improvements Program	■	■			■	■	■		■	■	
Lehigh County Authority, PA: Sewer Capacity Assurance Program	■	■	■	■	■	■		■	■	■	■
Massachusetts Water Authority, Reading MA: Reading Extension Sewer & Metropolitan Sewer Improvements	■				■	■			■	■	■
New Castle County, CT: Sanitary Sewer Capacity Improvements	■	■	■	■	■	■	■	■	■	■	■
Norwalk, CT WPCA: Beacon Street Interceptor Service Area Sewer Rehabilitation	■		■		■	■			■	■	
Norwalk, CT WPCA: Sewer System Master Planning and I/I Rehab: Seaview and Cove and Norwalk River Interceptors	■	■	■	■	■	■		■	■	■	■

Project Name	I/I Reduction	Flow Metering	Smoke Dye Testing	Flow Isolation	CCTV Inspection	Manhole Inspection	Private Source Investigation	Modeling	Assessment	Program Design /Construction	Management
Portland, ME – Citywide Infiltration & Inflow Program	■	■	■	■	■	■	■	■	■	■	■
Stoneham, MA: Collection System and Pump Station Investigations and Rehabilitation for I/I Removal	■	■	■	■	■	■	■		■	■	■
The Metropolitan District, Hartford, CT: Sewer System Studies and Rehabilitation Design to Eliminate Sanitary Sewer Overflows	■	■	■	■	■	■	■	■	■	■	
Vernon, CT: Sewer Rehabilitation and CM/OM Program	■					■			■	■	■
Wilmington, MA: Multi-phase Sewer System Investigations and Rehabilitation	■	■	■	■	■	■	■		■	■	■



COLLECTION SYSTEM DESIGN AND CONSTRUCTION EXPERIENCE

Arcadis' engineers have executed hundreds of collection system projects for communities nationwide in a wide variety of terrain. We have provided design and construction phase services for new and rehabilitated trunk sewers, force mains, interceptors, laterals and branches, manholes, and pump stations. We have worked on pipelines ranging in length from a few hundred feet to over 40 miles and sizes ranging from 6 to 96 inches in diameter for communities ranging in population from 3,000 to millions.

Our plans and specifications for sewer projects include ancillary activities such as the protection and maintenance of existing structures, facilities and utilities; maintenance of traffic flow; local, state and federal permitting, sediment and erosion control; connection of new pipe to existing piping and manholes; dewatering; sheeting; shoring and bracing; accommodation of drainage; bypass pumping; and protection and restoration of property.

By working and collaborating on projects across the country, our team stays on top of industry and regulatory trends and can apply the lessons learned by other communities to each client's projects. It also means that we understand the whole solution to our clients' problems—from planning to design and to construction.

Pipe Rehabilitation and Repair

Arcadis has worked with numerous sewer utilities, as demonstrated in Table 3, to implement sewer rehabilitation programs that address their specific situation. We collaborate with utilities to develop programs that address unique system drivers, many which revolve around I/I problems. As a long-term program implementer (which is very different from program management), we understand which engineering and construction rehabilitation approaches work—especially with regard to minimizing cost while achieving the desired longevity of leakage reduction.

Our role of long-term Program Manager, especially when that role encompasses program conception, development, design, and construction, affords the opportunity to truly understand what engineering and construction approaches work effectively and reliably over time. Rehabilitation work frequently requires an evaluation of innovative technologies to overcome construction obstacles and manage flows and operations. Our experience in the rehabilitation of water and sewer systems throughout the U.S., under a wide range of conditions, provides Arcadis with in-depth knowledge of virtually all traditional as well as state-of-the-art rehabilitation techniques. We have evaluated and implemented a broad range of sewer pipe and service line repair methods to reduce the risk of pipe failure, and we have prepared emergency response plans for pipe failures.

Much of our work on improving existing systems has involved trenchless pipe repair techniques, including sliplining, cured-in-place pipe lining, grouting, spiral-wound expandable lining, pipe jacking, pipe bursting, and fold-and-formed pipe insertion – all of which are generally less costly and less disruptive than open cut pipe replacement construction.

Table 3 - Relevant Sewer Rehabilitation Design and Construction Experience

Project Name	Sewer Pipe Sizes	Approximate Linear Feet	Design	Construction	Manhole Rehabilitation	Pipebursting	CIPP	Tunneling/Boring and Augering	Open-Cut	Service Laterals
Endicott, NY: Sanitary Sewer I/I Removal Project	6-12	6,800	■	■	■		■		■	
Mamaroneck, NY: Inflow and Infiltration Investigation and Sewer Condition Assessment	6-24	30,000	■		■		■		■	
City of Newburgh, NY: North Interceptor Sewer Replacement	6-48	8,600	■	■	■		■	■	■	■
City of Newburgh, NY: North / Water Street Sewer Separation	1824	1,200	■	■			■		■	
City of Newburgh, NY: Downing Park and Third ST Storm Sewer	24-48	2,000	■	■			■		■	
Watervliet Arsenal, Watervliet, NY: Sanitary Sewer Improvement Project	8-24	8,500	■		■				■	■
Mt Vernon, NY:	8-24	10,000	■	■	■		■		■	
Mount Kisco, NY: Branch Brook Trunk Sewer	6-18	12,900	■	■	■		■			
New Castle County, DE: Sewer Rehab Program for Brandywine Hundred Basin	6-78	786,000	■	■		■	■		■	■
Monroe County DES, NY: Irondequoit Bay PS FM Lining and Structural Epoxy Lining	42-90	2,250	■	■			■			
The Metropolitan District Commission, Hartford, CT: Sewer Rehab Program to Eliminate SSOs	8-36	650,000	■	■			■			■
Stoneham, MA: Sewer System Rehab	6-15	134,000	■	■			■		■	
Norwalk, CT: Seaview and Cove Avenue Interceptor Reha and Norwalk River Interceptor Rehab	30-48	10,290	■	■		■		■	■	
Washington Suburban Sanitary Commission, NJ: Consent Decree Sewer Rehab Program	8-42	180,000	■	■		■	■		■	■
Lehigh County Authority, PA: Sewer Capacity Assurance and Rehabilitation Program	8-36	100,000	■	■			■			■
Franklin, MA: Sewer Rehab Program	6-24	11,000	■	■			■			
Wilmington, MA: Main Street Interceptor Rehab	36	3,100	■	■	■		■			
Walkill, NY: Stage I Rehab Program	6-18	7,000	■			■	■	■		
Vernon, CT: Sewer Rehab	24-27	5,900	■	■	■					■

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Section 04.

Engineer's Approach



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04. Engineer's Approach

PROJECT UNDERSTANDING

Oneida County operates the Oneida County Sewer District, which is administered through the County's Department of Water Quality and Water Pollution Control (WQ&WPC). The Sewer District is comprised of more than 45 miles of interceptor sewers, two pumping stations (Sauquoit Creek and Barnes Avenue) and the Oneida County Water Pollution Control Plant (WPCP). The Sewer District services approximately 110,000 residents, includes three potential environmental justice (EJ) areas, and covers an area of around 170 square miles through 15 different municipalities, including the City of Utica as well as the Oneida County Business Park. The City of Utica owns and operates a combined sewer collection system, and the other fourteen municipalities own and operate a separate sanitary sewer collection system. Due to sanitary sewer overflows (SSOs) at the Sauquoit Creek Pump Station (SCPS), Oneida County and the NYSDEC entered into an Order on Consent (No. R620060823-67) in 2007 to mitigate the SSOs. Since that time the County has worked to significantly decrease SSO volume through fourteen separate sewer rehabilitation and separation projects that cost over \$19.5M and rehabilitated approximately 155 miles of sewer. While the Order on Consent is now closed, and SSO volume has been notably reduced, there continues to be excessive I/I in the collection system. The County wishes to address the excessive I/I and has received \$26.5M in funding from the New York State Environmental Facilities Corporation (NYSEFC), inclusive of \$10.5M Bipartisan Infrastructure Law (BIL) grant, \$2.7M in BIL Hardship Financing, and \$6.6M in WIIA, to further rehabilitate the sewer collection system in conjunction with the municipalities that make up the Sewer District. The County seeks to retain the services of a professional engineer to complete preliminary investigation and design, final design, obtain regulatory approvals, bidding assistance, and construction administration and observation.

PROJECT APPROACH

Arcadis' approach for the design, and construction administration of the County's Sewer Rehabilitation Project is derived from our extensive experience with similar, successful approaches to sanitary sewer projects. The Albany Arcadis office has a long history of experience in the rehabilitation design for sanitary sewers preparing sewer rehabilitation designs for local and regional communities in a wide variety of terrain. Each project involves its own unique set of challenges, risks and opportunities. Through our value engineering approach, we are able to provide our clients with designs that meet their needs while achieving the goal of minimizing construction and operation and maintenance costs.

Pipe rehabilitation often is necessary to reduce the amount of leakage and/or to stabilize/repair a deteriorating pipe. This rehabilitation work frequently requires an evaluation of innovative technologies to overcome construction obstacles. Our experience in the rehabilitation of sanitary sewer systems, under a wide range of conditions, provides Arcadis with in-depth knowledge of virtually all traditional as well as state-of-the-art rehabilitation techniques.

We have developed a condition assessment process that consistently and clearly demonstrates why specific types of rehabilitation are optimal for a given pipe segment. The process incorporates a rating system built on the appropriate Pipe Assessment and Certification Program (PACP) codes and severity ratings. Our engineers review the assessment information and select final rehabilitation or replacement strategies based on life-cycle cost, and we work with clients to establish the priority ranking of pipe segments for rehabilitation.

Much of our local rehabilitation design work on improving existing systems has involved trenchless pipe repair techniques, including cure-in-place pipe lining, pipe jacking, which can be less costly and less disruptive than pipe replacement construction.

County staff will be on the project team to review the design to make sure it is operations and maintenance friendly.

PROJECT MANAGEMENT

Delivering this project successfully will require both a team with the right technical experience and outstanding project management leadership. Having led a number of projects with multiple stakeholders, our proposed Project Manager, AJ Brooks, recognizes that the key success factors for this project will revolve around coordination between the Arcadis Team and the County on the approach, adherence to schedule, and quality deliverables and recommendations. AJ will be supported by Project Officer, Daniel Loewenstein, a Senior Vice President and officer of the firm and Robert Ostapczuk, Vice President, as Principal-in-Charge.

Scope Management

Arcadis will provide large company project management to this important small project. Our approach to scope management involves the definition and adherence to a detailed Work Breakdown Structure (WBS). A WBS must define all activities required to complete the project as it is currently scoped. The WBS is used by our project managers, the project team and our clients throughout the project to identify changes in scope and to prompt the authorization of activities to begin at the appropriate time. Active adherence to this policy allows us to adopt a value engineering mentality throughout project execution by continuously assessing the impacts of project decisions.



Upfront Planning

Arcadis will implement many procedures to provide the outcomes that you desire, and it starts with development of a detailed project scope with detailed tasks and fee delineated by project staff classification for each task. An accompanying project schedule that contains a critical path and links to the detailed tasks and resources outlined in the scope and fee.

Proactive Communication and Coordination

Seamless communication between Arcadis and the County as well as proactive coordination and collaboration between project stakeholders and regulatory agencies is very important to an efficient project schedule. Arcadis will develop a communication and meeting plan specific to the project and it will be reviewed and approved at the kick-off meeting.

COST CONTROL

Budget control involves several key management processes, including:

- **Estimating.** The ability to rapidly develop accurate estimates of budget requirements for each WBS activity.
- **Resource-Level Budgeting.** Clearly communicating to each team member their allotted time for activity for each WBS element.
- **Forecasting.** Predict expected charges at project completion enables PMs to make mid-course adjustments as needed.

A critical component to maintaining project control is cost control. We will maintain a scope change log to track deviations in scope, the associated cost impact and the decision regarding the implementation of scope modifications. No changes in scope/cost will be implemented without prior approval from the County.

Schedule Control

Developing a realistic and accurate schedule is important. For the schedule to be maintained and accurately reflect project progress we will:

- Identify overall project duration using the work breakdown structure.
- Identify major milestones and deliverables.
- Identify schedule constraints.
- Develop overall schedule and review.
- Update and submit schedule with monthly reports.
- Use appropriate project management tools.

The Arcadis philosophy is grounded in the expert use of best of breed commercially available tools and systems. These systems are market leading, and thus recognizable by our clients. Examples include:

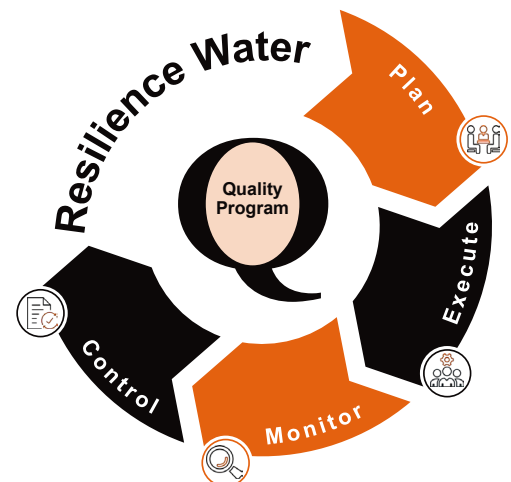
- **SharePoint/ Teams/ Flow (Project Collaboration):** Our team has successfully delivered dozens of local and regional projects that have benefited from these tools, facilitating collaboration and information sharing from simple to very complex environments.



Quality Control

Quality is an inherent, distinguishing attribute of Arcadis' work products. To accomplish quality, we will strive to understand, plan for, and meet our clients' needs and expectations while consistently conforming to the applicable standards of professional practice. Quality in our work is achieved through Quality Assurance and Quality Control procedures that will include: list of deliverables, schedule of quality reviews and responsible persons for in-house production reviews, as well as subcontractor quality control procedures and review requirements.

Our **Proposed Project Manager, AJ Brooks**, will be responsible for quality project deliverables. His responsibilities will include (i) understanding, planning for, and delivering the resources and activities needed to meet the County's expectations and (ii) conforming to applicable standards and confirming the execution of quality assurance and control measures and activities.





Arcadis Quality Assurance Program

We cannot hope to achieve our company mission “to create exceptional and sustainable outcomes for our clients” if we do not consistently produce the highest quality work product, all of the time. We, therefore, have a quality assurance program that brings quality control to all projects in a consistent and effective manner. Quality work is critical to the support of Arcadis’ organizational pillars of operational excellence and client focus. Quality is an inherent, distinguishing attribute of Arcadis’ work products. To deliver quality, we strive to understand, plan for and meet clients’ needs and expectations while consistently conforming to the applicable standards of professional practice.



Quality Control Plans

Arcadis’ Project Management Manual specifies that every project will develop and implement a project-specific quality control plan (QCP). It is up to the project manager to develop and implement a QCP for each of their projects, including any client-specific requirements. The QA/QC sign-off form is used to document multiple reviews of projects, such as 30%, 60%, 90%, and final reviews. Additional requirements may be mandated by the County, and they will be followed, but at a minimum, the project manager will keep this sign-off sheet along with supporting documentation that reviews by appropriate personnel have been performed. The sign-off must verify that staff have appropriate equipment, understand the scope and schedule of the work, and work in accordance with the client requirements and that appropriate project files and field logs are current and in good order.



Quality Reviews

At Arcadis, we are committed to delivering quality, and our quality reviews are therefore conducted by knowledgeable staff who are not otherwise involved in the project. We maintain a list of approved reviewers who are recognized internally — and often externally — as experts in different fields. These experts offer the highest quality reviews to our project team so that we can be confident we are delivering the best work.

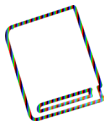
ARCADIS ACTIONS	ONEIDA COUNTY ACTIONS
Kickoff Meeting <ul style="list-style-type: none"> Review scope, fee, and schedule Present communication plan 	<ul style="list-style-type: none"> Approve schedule Adopt communications plan Defined project map
Monthly Progress Meetings <ul style="list-style-type: none"> Review budget and schedule Review project progress 	<ul style="list-style-type: none"> Identify budget or schedule concerns Provide feedback on project process/deliveries
Bi-Weekly Internal Team Meetings <ul style="list-style-type: none"> Review task level status and coordination Review project progress and task budgets 	<ul style="list-style-type: none"> Informal coordination at atsk level Accelerated schedule from simultaneous multiple task process
Monthly Internal Budget Reviews <ul style="list-style-type: none"> Internal review of task level budget 	<ul style="list-style-type: none"> Proactive budget review against project status
QA/QC Reviews <ul style="list-style-type: none"> Independent review of project scope versus content of deliveries 	<ul style="list-style-type: none"> Assurance that project scope is being executed Confirm quality goals of work product are being achieved
Risk Assessments <ul style="list-style-type: none"> Identify any schedule, cost, or quality concerns with project 	<ul style="list-style-type: none"> Proactive mitigation of budget, schedule, or quality issues during project implementation
Constructability Reviews <ul style="list-style-type: none"> Review construction methods and equipment/materials Identify more cost-effective alternate solutions 	<ul style="list-style-type: none"> Reduction in potential construction claims and change orders Lower bid price
Communications Plan <ul style="list-style-type: none"> Identify external stakeholders Identify engagement and approval schedules Identify easement acquisition process 	<ul style="list-style-type: none"> Receipt of stakeholder input for design No delays from permitting or easement acquisitions

SCOPE OF SERVICES



Kickoff Meeting and Review of Background Information

Arcadis will meet with County staff to review project scope and priorities, schedule, and discuss requests for information. Arcadis will establish a SharePoint site that will allow for an easy means of transferring files. Arcadis will review existing data and construction to date provided and develop a technical memorandum documenting information received and any additional information still needed and will discuss with County staff identified data gaps and collaboratively develop a plan to collect data or develop assumptions as required. The data evaluation process will compile all potential information sources necessary for system evaluation planning such as asset attribute data, record documents, condition and maintenance reports, and engineering. The County's CMMS, GIS data, and flow metering data should provide the bulk of the information needed.



Preliminary Design

Based on the data reviewed and analyzed Arcadis will rank each sub-basins with and plan field investigation for each high priority sub-basins. Field investigations are extremely important so that project designers have an understanding of the challenges of a particular area. Arcadis plans to complete CCTV inspections as well as SSES investigations as needed to locate specific sources identified by I/I analysis and modeling. The results of the inspections and investigations will serve as the basis for rehabilitation decisions going into the Basis of Design Report and 30% Design.

Arcadis will work with the County to perform SSES investigations. The investigations may include any of the following techniques for implementation in each sub-basin:

- **Flow Isolation and Measurement (nighttime weiring)** Performed at night, these measurements will identify which portions of the collection system within a sewer basin do and do not leak. While this is, strictly speaking, a measurement of base dry weather is also the best indicator of rainfall-induced infiltration.
- **Smoke Testing** - Performed when ground water levels are low, smoke testing will identify if direct inflow sources exist (e.g., sump pumps, cross-connected roof leaders or storm drains, badly leaking manholes/covers). Additional investigation will be necessary to find these particular sources. Smoke-testing is normally utilized for its effectiveness and low cost.
- **Door to Door Inspections** - Concurrent with the smoke-testing work, an optional service of door-to-door inspections can also be performed to look for evidence of directly connected sump pumps, punctured floor drains, and foundation drains.
- **Dye Testing** – Arcadis will perform dye testing in specific locations based on smoke-testing results that indicate cross-connected inlets and cross-flow with storm pipes, as well as at exposed sewers along streams to determine extent and severity of leakage.
- **Wet Weather Observations** – We will also determine optimal locations where the observations of flows in the system during wet weather events will yield the most valuable insight into how the system reacts to storm events.

Arcadis often selects CCTV project areas based on the results of smoke testing and flow isolation and measurement. Basement inspections conducted in conjunction with smoke testing can also identify several neighborhoods with a high proportion of sump pumps and floor drains connected to the sanitary system that represent easy, low cost flow reduction opportunities from a technical standpoint although their location on private property presents challenges both politically and logistically. Arcadis has successfully assisted other utilities work through these issues.

Based on the evaluation of flow data, model results, and SSES fieldwork, the areas within each meter sub-basin with the greatest potential for I/I removal by pipe rehabilitation will be inspected to determine the rehabilitation technique necessary. The primary method of internal pipe inspection will be CCTV inspection. Where lateral inspections are necessary, they will be inspected via cleanouts if present or by side-launch camera where they are

not. The inspections and deliverables will be in accordance with NASSCO standards for most efficient review and compatibility with the County's systems.

Based on the CCTV inspection results, our engineers with concurrence from the County will determine the most cost-effective and best rehabilitation technology for each pipe segment using a life-cycle cost analysis. Typically, the most cost-effective solution for pipes in fair to good structural condition is advanced grouting however cured-in-place point repairs and cured-in-place lining from manhole to manhole are applied when pipes are in poor condition and having more extensive structural defects. Pipe-bursting and partial or full-length excavated replacement would be considered for infrequent cases when a pipe cannot be lined or must be up-sized for capacity reasons. Lateral rehabilitation may be necessary to meet the target I/I reduction and the same methodology will be applied to the laterals. While typically less expensive than excavation and replacement, our experience has found effective and lasting lateral liners to be relatively expensive, so our engineers have spent much time working with grout suppliers, equipment manufacturers and grouting contractors to improve lateral grouting techniques and technology.

Arcadis will prepare a preliminary engineering report detailing the findings of the SSES, identify specific project areas, recommend remediation techniques specifically for the specific type of I/I sources for each project area, and provide a high-level cost estimate.



Basis of Design Report and 30% Design

Based on the findings and recommendations of the Preliminary Engineering Report, Arcadis will prepare a brief Basis of Design Report for each planned rehabilitation project area. Arcadis will walk the site/ project area to get an understanding of issues important, observe site features and other conditions that will augment the base mapping (LIDAR, ortho imagery, and GIS data) utilized for design.

The Basis of Design Report will provide an itemized list of defects including location and the proposed method of rehabilitation and/or repair. Arcadis will estimate volume of I/I reduced by the proposed rehabilitation work. Additionally, we will provide an engineer's opinion of probable project costs and an estimated construction schedule. Arcadis will submit the Basis of design work to NYSDEC and NYSEFC for review and approval.



Construction Documents

Arcadis will prepare Bid Documents (inclusive of Drawings and a Project Manual) for regulatory approval and bidding purposes for the Project. The Bid Documents will include Funding Agency language and requirements as required to obtain approvals for construction. The Project Manual will be developed utilizing Arcadis' standard documents, which are based on the Engineering Joint Construction Documents Committee (EJCDC) standards. Arcadis will utilize readily available LIDAR data, orthoimagery, record drawings and GIS mapping provided by the County to complete the Construction.

Arcadis will provide the County with electronic submittals at 60% and 90% design development phases for review and comment. Arcadis will update the construction cost estimate at the 60% (AACE Class 4) and 90% (ACEE Class 3) submittals.

Arcadis will meet with County representatives at the 60%, 90%, and final Bid document submission to review the design documents. Please note that meetings will either be conducted virtually or in person. Arcadis will attend public meetings, either virtually or in person, as required.

Throughout the course of design, Arcadis will evaluate construction sequencing to minimize shutdowns, bypass pumping and impacts to operations, in an effort to reduce risk and costs. During the 60% and 90% design review meetings, we will discuss maintenance of pipe operations so that the County will have an opportunity to assess construction sequence and required shutdowns, bypasses, and impacts to operations.



Permitting, Regulatory, and Funding Agency Coordination

Arcadis will provide assistance in completing the most current NYSEFC Revolving Fund required forms and procedures, consisting of the Administrative Checklist and the Technical Checklist, submitting drawings and specifications, and responding to comments and questions by the NYSEFC, NYSDEC, and other regulatory agencies.

Arcadis will be responsible for coordinating with the NYSDOT and obtaining any necessary permits for work within the highway rights-of-way. Arcadis will also coordinate with Oneida County Department of Public Works for work within County highway rights-of-way.

Since portions of the existing sewer is located on CSX property a utility application will be required. Negotiating with CSX can be challenging and time consuming. Arcadis will submit permit applications and negotiate with CSX on the County's behalf.

As some of the existing sewer is comprised of asbestos cement pipe, Arcadis will coordinate with the necessary regulatory agencies to obtain variances that may be required to proceed with repair or replacement in accordance with New York State Department of Labor Industrial Code Rule 56.

This project has been identified as SEQR Type II action by the County and no further action is anticipated.



Bid Phase Services

Arcadis will assist the County throughout the construction procurement process, including the following tasks:

Preparation of the Bid Packages for each Construction Contract, including the 100% Bid Set Plans and Specifications and the Bidding Documents. Providing hard copies to the County for each contract. Arcadis will incorporate the required version of the NY State Revolving Fund Equivalency Project Mandatory Terms & Conditions into the contract documents.

- Generate work orders using the County's CMMS.
- Attend and participate in a pre-bid conference with prospective bidders for each construction contract, including preparation of an agenda and meeting minutes.
- Respond to Requests for Information (RFIs) during the bidding phase and prepare any necessary addenda.
- Prepare a Bid Analysis Report to include a bid tabulation, review of references and qualifications of bidders, review for completeness of bids, identification of any informalities in bids, balanced vs unbalanced bid items, and provide a recommendation for award to the County.
- Provide a conformed set of plans based on the addenda issued during the bid phase.
- Davis-Bacon prevailing wage requirements will be monitored for compliance with funding program requirements during the bidding phase.



Construction Phase Services

Arcadis will perform the following construction contract administration services for each construction contract:

- Prepare Construction Contracts for each project for execution by the County and successful Contractor(s).
- Schedule and attend, in conjunction with the County, the pre-construction conference to discuss general and specific requirements of the Contract Documents. Develop an agenda and create and distribute minutes for this meeting.
- Arcadis will review the Contractor's pre-construction submittals including, but not limited to, lists of subcontractors, schedules, schedule of values, and submittal log. Arcadis will review Contractor's submittals during construction; including shop drawings, material and equipment samples, and vendor O&M manuals to determine whether such submittals are in accordance with the Contract Documents. Arcadis will indicate what changes, if any, are necessary for each submittal and review necessary re-submittals until such point as submittals are in conformance with the Contract Documents. Arcadis has included up to two re-submittals in this scope of work. Arcadis will maintain a submittal log describing the current status of Contractors' submittals, as well as maintain records of vendor warranties and one set of approved shop drawings to be turned over to the County at the completion of construction. Maintain a submittal and shop drawing log to track resubmittals and submittal approval times to reduce the County's risk to delay claims.

- Arcadis will review the Contractor's construction progress schedule and provide comments to the Contractor and the County. Arcadis will review and make recommendations to the County for the approval of payment requests. Recommendations for payment will be based on the Contractor's progress to date, and shop drawing and procurement status.
- Arcadis will review, log, and respond to Requests for Information (RFIs), Requests for Field Changes, and Field Changes that are submitted in writing by the Contractor. We will prepare written responses for requests and prepare supplementary drawings that may be necessary for the interpretation and clarification of the Contract Documents.
- Arcadis will notify the County when a change in the Work is proposed or required that may cause a change in the Contract price or time. Arcadis will make recommendations of change, and evaluate whether a proposed change is justified, reasonable, and necessary. We will prepare and support the County in the negotiation of change orders and in the review of requests for time extensions and of claims, in accordance with the Contract between the County and the Contractor. Preparation of change orders shall include necessary drawing and specification modifications.
- Attend progress meetings with the County, the Contractor, and other stakeholders. Arcadis will develop agendas and create and distribute minutes for each progress meetings. Meetings will include a discussion of the work completed since the last progress meetings, the progress anticipated for the upcoming two weeks, the status of RFI's, change orders, and shop drawings.
- Assist the County with project coordination as well as notification to and relations with residents impacted by the work, utility owners, CSX and NYS DOT, and other stakeholders.
- Arcadis will make a site periodically by technical staff to observe the progress of the Work. Arcadis will participate in an inspection with the County to determine if the work is substantially complete and assist in determining if the work has been completed in general accordance with the Contract Documents. We will prepare a list of incomplete items (punch list) and obtain a schedule for their completion from the Contractor. Upon receiving written notice from the Contractor that the Work is complete, and a final inspection requested, Arcadis will conduct a final inspection to determine if the completed Work is acceptable.
- Arcadis will prepare quarterly reports to be sent to the New York State Environmental Facilities Corporation (NYS EFC) as required for NYS Clean Water State Revolving Fund and BIL. Arcadis will assist the County with document collection for closeout of the project in compliance with requirements of NYS EFC and the other sources of funding for this project.
- Arcadis will receive Contractor's as-built documents / field markups and prepare final record documents for the County. Arcadis will update the County's CMMS with completed construction work.

Arcadis will partner with Prudent Engineering, LLC. (DBE) to provide construction observation by a construction field representative. While inspecting the Work on site, the construction field representative will:

- Observe Contractor's construction activities and inform the Contractor when the Work being performed does not meet the requirements of the Contract Documents.
- Verify that deficiencies in the Work are corrected and properly documented.
- Prepare a daily log summarizing the day's observations and document installed unit price quantities. The daily log will include the date, weather conditions, construction Work in progress, size of the work force, equipment utilized, and condition of the Work.
- Maintain a photolog of daily construction activities.
- Review and comment on draft applications for payment from Contractor for accuracy and completeness prior to submission of application for recommendation for payment.
- Maintain and update field set of record drawings and provide documentation of completed work for the County's CMMS.



Section 05. References



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05. References

Evaluation of a consultant's performance encompasses several key factors, including technical excellence, application of knowledge gained through experience in conducting similar work, responsiveness to client needs under a variety of conditions, consideration for the local community and environment, and consistently meeting project schedules and budgets. Arcadis believes that the most significant measure of our performance in all aspects of project delivery is the opinion of our work held by our clients and their willingness to retain and recommend Arcadis for future work. The individuals listed below can attest to the quality of our work on projects relevant to the proposed work.

1

Project: Sewer Consolidation Project

Client: Chemung County Sewer District No. 1

Name: Ali Rennie, EIT

Address: 600 Milton Street, Elmira, NY 14904

Phone: 607-873-1596

Email: abrennie@chemungcountyny.gov

2

Project: Sanitary Sewer Rehabilitation

Client: Village of Mamaroneck

Name: Gino Frabasile, PE

Address: 123 Mamaroneck Avenue, Mamaroneck, NY 10543

Phone: (914) 825-8163

Email: gfrabasile@vomny.org

3

Project: Long Term Control Plan Implementation Projects

Client: City of Newburgh, NY

Name: Jason Morris, PE

Address: 83 Broadway, Newburgh, NY 12550

Phone: (845) 569-7448

Email: jmorris@cityofnewburgh-ny.gov

4

Project: Sanitary Sewer I/I Removal Projects

Client: Village of Endicott, NY

Name: Philip Grayson

Address: 40 Anson Road, Endicott, NY 13760

Phone: (607) 757-2457

Email: pgrayson@endicottny.com

5

Project: Sewer System Rehabilitation

Client: Westchester County

Name: Marian Pompa, PE

Address: 270 North Avenue, New Rochelle, New York 10801

Phone: (914) 813-5419

Email: mpp1@westchestergov.com

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Appendix A

Required Certifications



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Appendix A. Required Certifications

As part of the requirements of the RFP, this proposal includes the following documents as part of the submittal.

1. Offeror agreement
2. Non-Collusion Certification
3. Sexual Harassment Certification
4. Recycling Solid Waste Certification
5. Iran Divestment Certification
6. Purchase of tropical Hardwood Prohibition Certification

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IT IS UNDERSTOOD AND AGREED BY THE OFFEROR THAT:

1. This Request for Qualifications (hereinafter "RFP") does not commit Oneida County of Oneida (hereinafter the "County") to award any contracts, pay the costs incurred in the preparation of response to this RFP, or to procure or contract services. Oneida County reserves the right to accept or reject any or all submissions that do not completely conform to the instructions given in the RFP.
2. Oneida County reserves the right to amend, modify or withdraw this RFP, and to reject any submissions submitted, and may exercise such right at any time, without notice and without liability to any Offeror (hereinafter the "Respondent") or other parties for their expenses incurred in the preparation of a submission or otherwise. Submissions will be prepared at the sole cost and expense of the Applicant.
3. Submission of a submission will be deemed to be the consent of the Applicant to any inquiry made by Oneida County of third parties with regard to the Applicant's experience or other matters relevant to the submission.
4. The awarded agreement may be terminated in whole or in part, by Oneida County. Such termination shall not affect obligations incurred under the awarded agreement prior to the effective date of such termination.
5. Funds shall not be paid in advance and shall be used only for services as approved by Oneida County. Oneida County shall have no liability to anyone beyond funds appropriated and made available for the contract.
6. Any significant revision of the approved submission shall be requested in writing by the Applicant prior to enactment of the change.
7. Necessary records and accounts, including financial and property controls, shall be maintained and made available to the County for audit purposes.
8. All reports of investigations, studies, publications, etc., made as a result of this submission, information concerning individuals served, and/or studies under the project, are confidential and such information shall not be disclosed to unauthorized persons. Applicants acknowledge that Oneida County is subject to Section 6 of the Public Officers Law.

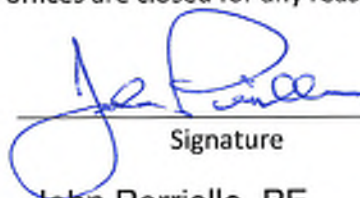
All references to time contained in this RFP are Eastern Standard Time. Applicants are encouraged to make their submissions in advance of the submission date, as the dates and times specified in this RFP may not be extended in the event Oneida County offices are closed for any reason, including, but not limited to, inclement weather.

Arcadis of New York, Inc.

Legal Name of Respondent's Organization

April 24, 2024

Date



Signature

John Perriello, PE

Printed Name

Vice President

Title

NON-COLLUSION CERTIFICATION

(GML § 103-D)

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his/her knowledge and belief:

1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; and
2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

I further certify that I have not, nor has my organization, been disqualified to contract with any municipality and I am, and/or my organization is, in a position to accept any contract subject to the provision of Section 103-d of the General Municipal Law.

The word "bid" shall be construed as if it read "submission" and the word "bidder" shall be construed as if it read "Respondent", whenever the sense of this certification so requires.

Arcadis of New York, Inc.

Legal Name of Respondent's Organization

April 24, 2024

Date



Signature

John Perriello, PE

Printed Name

Vice President

Title

SEXUAL HARASSMENT PREVENTION CERTIFICATION

(Lab. Law § 201-g)

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has, and has implemented, a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all his/her/its employees. Such policy, at a minimum, meets the requirements of Section 201-g of the Labor Law.

The word "bid" shall be construed as if it read "submission" and the word "bidder" shall be construed as if it read "Respondent", whenever the sense of this certification so requires.

Arcadis of New York, Inc.

Legal Name of Respondent's Organization



Signature

April 24, 2024

Date

John Perriello, PE

Printed Name

Vice President

Title

RECYCLING AND SOLID WASTE MANAGEMENT CERTIFICATION

(Res. No. 249 of 1999)

The Oneida County Board of Legislators at its May 26, 1999, meeting passed Resolution No. 249 dealing with the inclusion of recycling and solid waste management provision in Oneida County contracts. All waste and recyclables generated by the contracting party shall be delivered to the facilities of the Oneida-Herkimer Solid Waste Authority.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, that the bidder agrees to:

1. Comply with all applicable Federal, State and Local Statutes, rules and regulations, as may be amended, relating to the generation and disposition of recyclables and solid waste; and
2. Deliver exclusively to the facilities of the Oneida-Herkimer Solid Waste Authority (hereinafter the "Authority"), all wastes and recyclables generated within the Authority's service area by performance of this contract by the bidder and any subcontractors. Upon awarding of this contract, and before work commences, the bidder will be required to provide Oneida County with proof that Resolution No. 249 of 1999 has been complied with, and that all wastes and recyclables in the Oneida-Herkimer Solid Waste Authority's service area that are generated by the bidder and any subcontractors in performance of this contract will be delivered exclusively to Oneida-Herkimer Solid Waste Authority facilities.

I certify that I understand and agree to comply with the terms and conditions of the Oneida County Recycling and Solid Waste Management Program (R-249). I further agree to provide Oneida County proof of such compliance.

The word "bid" shall be construed as if it read "submission" and the word "bidder" shall be construed as if it read "Respondent", whenever the sense of this certification so requires.

Arcadis of New York, Inc.

Legal Name of Respondent's Organization

April 24, 2024

Date



Signature

John Perriello, PE

Printed Name
Vice President

Title

IRAN DIVESTMENT ACT COMPLIANCE CERTIFICATION

(GML § 103-g)

By submitting a bid in response to this solicitation or by assuming the responsibility of a contract awarded hereunder, each bidder, any person signing on behalf of any bidder and any assignee or subcontractor and, in the case of a joint bid, each party thereto, certifies, under penalty of perjury, that to the best of his/her/its knowledge and belief, that each bidder and any subcontractor or assignee is not identified on the Prohibited Entities List created pursuant to State Finance Law § 165-a (3) (b).

Additionally, the bidder is advised that any bidder seeking to renew, extend or assume a contract award in response to this solicitation, must certify at the time the contract is renewed, extended or assigned, that it is not included on the Prohibited Entities List.

During the term of the Contract, should Oneida County receive information that a bidder is in violation of the above-referenced certification, Oneida County will offer the person or entity an opportunity to respond. If the person or entity fails to demonstrate that he/she/it has ceased engagement in the investment that is in violation of the Act within ninety (90) days after the determination of such violation, then Oneida County shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages or declaring the bidder in default.

Oneida County reserves the right to reject any bid from, or request for assignment for, a bidder that appears on the Prohibited Entities List prior to the award of a contract and to pursue a responsibility review with respect to any bidder that is awarded a contract and subsequently appears on the Prohibited Entities List.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his/her knowledge and belief, she/he/it is not identified on the Prohibited Entities List.

The word "bid" shall be construed as if it read "submission" and the word "bidder" shall be construed as if it read "Respondent", whenever the sense of this certification so requires.

Arcadis of New York, Inc.

Legal Name of Respondent's Organization

April 24, 2024

Date


Signature

John Perriello, PE

Printed Name

Vice President

Title

PURCHASE OF TROPICAL HARDWOODS PROHIBITION CERTIFICATION

(SFL § 165)

Pursuant to Section 165 of the State Finance Law, any bid, submission or other response to a solicitation for bid or submission that proposes or calls for the use of any tropical hardwood or wood product as defined by Section 165 of the State Finance Law in performance of the contract shall be deemed non-responsive.

This prohibition shall not apply to:

1. To bid packages advertised and made available to the public or any competitive and sealed bids received or entered into prior to August twenty-fifth, nineteen hundred ninety-one; or
2. To any amendment, modification or renewal of a contract, which contract was entered into prior to August twenty-fifth, nineteen hundred ninety-one, where such application would delay timely completion of a project or involve an increase in the total monies to be paid under that contract; or
3. Where the contracting officer finds that:
 - a) No person or entity doing business in the state is capable of performing the contract using acceptable non-tropical hardwood species; or
 - b) The inclusion or application of such provisions will violate or be inconsistent with the terms or conditions of a grant, subvention or contract with an agency of the United States or the instructions of an authorized representative of any such agency with respect to any such grant, subvention or contract; or
 - c) The use of tropical woods is deemed necessary for purposes of historical restoration and there exists no available acceptable non-tropical wood species.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his/her knowledge and belief, she/he/it is not submitting a bid which would be deemed non-responsive.

The word "bid" shall be construed as if it read "submission" and the word "bidder" shall be construed as if it read "Respondent", whenever the sense of this certification so requires.

Arcadis of New York, Inc.

Legal Name of Organization

April 24, 2024

Date



Signature

John Perriello, PE

Printed Name

Vice President

Title



Appendix B Resumes



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Mr. Brooks is experienced in all facets of a project, from engineering studies and design to construction phase services on a wide range of engineering projects from water and wastewater treatment plants to collection and distribution systems. He has successfully assisted municipalities in obtaining and managing project financing and grants through various state and federal programs.

AJ BROOKS, PE | Project Manager

RELEVANT EXPERIENCE

North Interceptor Sewer Replacement | City of Newburgh, Newburgh, NY

Project manager for the design and construction of a \$32M, 8,600-LF interceptor sewer replacement project ranging from 18 to 48-inch, approximately 2,000-LF of which was constructed by microtunnelling 50-ft below grade. Arcadis assisted the City in obtaining and administering \$29.7 Million in grants and zero-interest financing. Construction is anticipated to be completed in the Spring of 2024.

Watervliet Arsenal Sanitary Sewer Replacement | USACE-New York District, Watervliet, NY

Project manager for the design of approximately 6,800 linear feet of replacement sanitary sewer at the Watervliet Arsenal ranging from 8-inch to 24-inch and sewer rehabilitation consisting of 1,700 linear feet of cured-in-place pipe lining, chemical root treatment, point repairs, and manhole rehabilitation.

Grant Administration Services | City of Glens Falls, Glens Falls, NY

Project manager for on-call grant administration services for the City of Glens Falls. Assisting the city with identifying and scoping projects to maximize potential funding through various funding sources for critical infrastructure needs in the City. Responsible for developing funding strategy and administration of

grants from project inception to construction completion.

New Drain Outlet at Downing Park and Third Street Storm Sewer | City of Newburgh, Newburgh, NY

Project manager for a \$4M separate storm sewer and automated pond drain outlet project. The project was part of the City's LTCP aimed to decrease combined sewer overflows in a high-density urban community on the Hudson River. Assisted the City with Assisted the City in administering the grants through construction.

Gravity Sewer Infiltration and Inflow Study | City of Glens Falls, Glens Falls, NY

Project manager for a city-wide I/I study that included flow metering, smoke testing, and CCTV inspection of approximately 4,000 linear feet of combined sewer, sanitary sewer, and storm sewer.

Henry Street PS I/I Study | City of Glens Falls, Glens Falls, NY

Project manager for a \$100k infiltration and inflow study for the City of Glens Falls Henry Street Pump Station sewershed. Project included flow metering, smoke testing, and CCTV inspection of approximately 9,000 linear feet of sanitary and storm sewer, as well as recommendations for repair and rehabilitation. The project also included and an assessment of the pump station's approximately 100-year old force main for

Total years of Experience
12

Education/Qualifications
MS, Engineering, Rensselaer Polytechnic Institute, 2010

BS, Civil & Environmental Engineering, Rensselaer Polytechnic Institute, 2010

Professional Registration/Certifications

Professional Engineer - NY

Asset Management - Institute of Asset Management

replacement with options to reroute the force main so to minimize the impacts to the local hospital emergency room, and the rerouting of a sanitary pump station force main from an industrial user so that it no longer discharges to the gravity sewer tributary to the Henry Street Pump Station.



Ms. Superak provides support for the water design group. She contributes to a wide variety of projects, including collection system modeling, design, and construction, hydraulic modeling of wastewater treatment plants, inflow and infiltration analyses, and mixing and dilution studies. She is responsible for hydraulic and hydrologic modeling, performing data analysis, and developing design drawings and specifications. Ms. Superak is experienced in Visual Hydraulics, InfoWorks, CORMIX, and ArcGIS.

CLAIRE SUPERAK | Design Manager/Project Engineer/Funding/ NYSEFC Financing

RELEVANT EXPERIENCE

Inflow and Infiltration Study | Village of Endicott, NY

Provided planning and implementation of an inflow and infiltration (I/I) evaluation within the Village of Endicott Water Pollution Control Plant (WPCP) collection system. Conducted an analysis of flow metering data to prioritize sewersheds for a phased detailed investigation to develop specific rehabilitation actions to reduce inflow and infiltration and ultimately to lower flows to the wastewater treatment facility during wet weather conditions. Led the evaluation of a high priority sewershed for identification and characterization of rehabilitation work that will be performed to reduce stormwater flows to the WPCP. Oversaw CCTV inspection, smoke testing, and manhole inspections. Performed review of over 11,000 feet of sanitary sewer CCTV footage, 100 manhole inspections, and smoke testing of 11 miles of sanitary sewer. Developed a prioritization plan for the rehabilitation of the sanitary sewers and manholes including cost estimates for proposed rehabilitation work.

Henry Street Pump Station Evaluation | City of Glens Falls, NY

Developed an inflow and infiltration study and performed pump station evaluations to review the operational capacity of the Henry Street Pump Station for the City of Glens Falls. The Henry Street

Pump Station had a reported capacity of 400,000 gpd but experienced operation issues, particularly during wet weather events. A local industrial facility pumped non-industrial wastewater into the Henry Street Pump Station collection system, which is perceived to impact City Pump Station operation. The inflow and infiltration study included closed circuit television inspection (CCTV), manhole inspections, and smoke testing to identify stormwater infrastructure connections to the sanitary sewer. Rehabilitation recommendations with cost estimates were provided to the City to optimize City pump station operating capacity.

Gravity Collection Sewer System Infiltration and Inflow Study | City of Glens Falls, NY

Developed a City-wide flow metering program and inflow and infiltration study to evaluate alternatives to reduce the City's combined sewer overflows (CSOs) at the City's wastewater treatment plant (WWTP). Work performed included creation and implementation of a flow metering program, sewer cleaning and closed-circuit television inspection, and smoke testing to locate sources of stormwater entering the sewer. Responsible for review of CCTV footage and development of rehabilitation recommendations. Alternatives evaluated included green infrastructure, sewer separation, and combined

**Total years of
Experience**
9

Education/Qualifications

MS, Engineering, Rensselaer Polytechnic Institute, 2013

BA, Environmental Science, Skidmore College, 2011

Professional Registration/ Certifications

NASSCO (National Association of Sewer Service)

PACP (Pipeline Assessment Certification Program)

MACP (Manhole Assessment Certification Program)

LACP (Lateral Assessment Certification Program)

29 CFR 1910.120 40-Hour

HAZWOPER Safety Training

29 CFR 1910.146 Confined Space Entry Training

approaches to reduce peak flows to the WWTP during wet weather events. Reports complying with the NYS EFC Engineering Report Outline were prepared for future grant applications to implement the recommended peak flow reduction projects.



Mr. Loewenstein has a diverse background with more than 43 years in the consulting engineering industry. He currently serves as the primary engineer and contract manager for numerous statewide term contracts for various New York State agencies. The contracts have Mr. Loewenstein in responsible charge of projects ranging in size from \$1 million to more than \$50 Million. These agencies include the New York State Department of Environmental Conservation (NYCDEC), New York Power Authority (NYPA), Office of Parks Recreation and Historic Preservation, Office of General Services and New York State Energy Research & Development Authority (NYSERDA). As a Senior Vice President in the firm, he has the authority to draw upon whatever resources are needed to successfully deliver. He has a proven record of directing high quality work within budget and schedule and consistently maintains high levels of client satisfaction.

DANIEL LOEWENSTEIN, PE, BCEE | Project Officer

RELEVANT EXPERIENCE

Southeast NY (SENY) Project Management Implementation Services | NYPA, White Plains, NY

Principal-in Charge of all Arcadis contracts with NYPA, including Implementation Contractor in the SENY region, Environmental Services Contracts, and Environmental Permitting and Licensing Relative to development of New Electric Transmission and Generation projects. In this role is responsible for deliverables of the firm, both in Quality control and schedule and cost management. Directs resources of the firm to be responsive to the needs of NYPA.

North River Lighting Design | NYPA, New York City, NY

Responsible charge for the design and implementation of the lighting upgrade to the North River Wastewater Treatment Plant (WWTP). Project involves the replacement of more than 6200 light fixtures located in a 3 story 28-acre WWTP located below the New York State Office of Parks, Recreation and Historic Preservation Riverbank State Park in the Hudson River. This \$18 Million project required lighting studies and models for selection of new energy saving LED fixtures.

Standby Engineering Contract | New York State Department of Environmental Conservation (NYSDEC), Albany, NY

Arcadis was retained to provide environmental engineering services on a term contract basis to the NYSDEC. Served as contract manager for this \$50 Million term contract since its inception. Services provided generally consisted of preparation of Remedial Investigations, Feasibility studies, Remedial designs, Remedial Construction Management, and overall Site Management. In this capacity serves as the Engineer of Record for most projects that are delivered through this contract. Responsible for assuring overall quality management and performance of the services. Actively engaged in delivery of the work and review of the project activities. Some of the more recent and notable projects related to this contract were the fast tract design of the City of Newburgh Water treatment plant to remove perfluorooctanesulfonate from the City's drinking water. Also responsible for the design-build delivery method used by NYSDEC for remedial activities which were part of three NYS New York Works program projects and for construction of an emergency water interconnection to the Catskill aqueduct.

Total years of Experience
43

Education/Qualifications

BS, Civil Engineering, Rochester Institute of Technology, 1980

Professional Registration/Certifications

Professional Engineer – NY (#066594)

Board Certified Env. Engineer

Evaluating Alternatives for Biogas Cleanup and Use | Gloversville-Johnstown WWTP, Johnstown, NY

Project officer responsible for a study of biogas cleanup and end use alternatives for the anaerobic digester facility at the Gloversville-Johnstown Joint WWTP. End use alternatives that were evaluated included sale of biogas to an adjacent manufacturing facility and electrical generation using fuel cells, microturbines, or engine generator sets. Project is currently generating almost all its energy needs on site.



Mr. Ostapczuk has a broad technical and managerial background for municipal infrastructure specializing in wastewater and biosolids infrastructure planning, permitting, design and construction. He is a subject matter expert for Arcadis for biosolids and led the planning and design of the first wastewater treatment plant in the US capable exporting power fueled by biogas. He was previously the Vice Chair of a Sewer Board and Chairman of the Operations Committee for a 45 mgd wastewater treatment plant.

ROBERT OSTAPCZUK, PE, BCEE | Principal In Charge

RELEVANT EXPERIENCE

North Interceptor Replacement Project | City of Newburgh, Newburgh, NY

Principal In Charge for the replacement of 8 miles of the north interceptor sewer that intercepts one half of the City of Newburgh for conveyance to the Water Pollution Control Plant. Replacement required 2,000 LF of tunnelling through rock at a depth of 60 feet. Sewer ranged from 18 inches in diameter to 48 inches in diameter. Total construction value was nearly \$30M and received over \$25M in grants from WIIA, BIL and WQIP.

South Water Street Sewer Separation Project | City of Newburgh, Newburgh, NY

Project Manager for the planning, permitting, design and construction management of 2,000 LF of an 8 inch diameter gravity sewer, a wet well mounted pump station and 500 LF of force main. Construction included a 200 LF jack and bore under two CSX rail lines.

Columbia Street Phase I Sewer Separation Project | City of Cohoes, Cohoes, NY

Project Manager for the planning, permitting, design and construction of 2,400 LF of 8-to-12-inch gravity sanitary sewer to replace a combined sewer.

Columbia Street Phase II Sewer Separation Project | City of Cohoes, Cohoes, NY

Principal In Charge of the planning, permitting, design and construction

of 2,800 LF of storm sewer to replace a combined sewer. Storm sewer was 24-to-48-inches in diameter. Green Infrastructure was utilized to reduce runoff and the size of the storm sewer required to pass the 25-yr design storm.

Sewer Master Plan | Town of Poughkeepsie, Poughkeepsie, New York

Staff Engineer who evaluated the existing development patterns and zoning regulations. Assessed the condition and capacity of the existing interceptors, main trunks, pump stations, and inverted siphons. Determined the existing buildout percentage of the town and projected the 25-year future buildout percentage based on census data. Developed a model based on zoning laws, which accounted for greenspace requirements, road density, and acreage to determine the projected total flow. Prepared conceptual design plans of a new 12-mile interceptor and several smaller collection systems to accommodate future flows and for several immediate expansion areas within the town. Determined the number of future benefit units to estimate capital debt reduction and prepared cost estimates to use for future grant applications.

Catskill-Delaware Aqueduct Shaft 4 Interconnection | New York City DEP - CDA, New York, NY

Project Engineer responsible for the hydroelectric assessment of

Total years of Experience

29

Education/Qualifications

BS Environmental Engineering, Rensselaer Polytechnic Institute, 1996

Professional Registration/Certifications

Professional Engineer - NY, NJ (pending)

Board Certified Environmental Engineer - US

Construction Documents Technologist - Construction Specifications Institute

replacing one to two cone valves utilized to reduce head conditions of the Delaware Aqueduct entering the Catskill Aqueduct. Prepared conceptual layouts, capital and annual O&M budgets, simple return on investment (ROI) and permitting assessment. Final recommendation included the installation of a 1.2 MW Francis Turbine.

CSO Abatement Facility | City of Cohoes, Cohoes, New York

Project Engineer responsible for the evaluation of a continuous deflective separation system to treat combined sewer overflows from CSO Outfall 7 within the City of Cohoes. Prepared detailed construction documents for regulatory review and bidding purposes.



Mr. Hogan is a principal engineer and certified project manager. He serves as a subject matter expert in the Stormwater and Watersheds Community of Practice and provides technical expertise nationally in the areas of Municipal Separate Storm Sewer Compliance. Mr. Hogan has extensive experience with sewer system investigations and environmental studies encompassing sewer system design, sewer system rehabilitation, water and sewer system modeling, and flood control studies. Mr. Hogan has also been the lead for the global positioning system (GPS) survey of utilities and geographic information system (GIS) mapping.

KEVIN HOGAN, PE, CDT | Technical Advisor

RELEVANT EXPERIENCE

Sewer Rehabilitation Design **| Westchester County, White Plains, NY**

Manager and technical leader for two multi-million-dollar sewer system rehabilitation projects for Westchester County. The sewers requiring rehabilitation range from 12-inch collectors to large-diameter interceptors. The rehabilitation techniques for defective manholes included resetting and replacing frames and covers and lining manholes with a cementitious liner or epoxy material to provide waterproofing. Sewer rehabilitation included excavation point repairs, grouting lateral connections, and installing cured-in-place pipe. The projects included permitting with Federal, State, and local agencies. Challenges included working adjacent to streams, in wetlands, adjacent to railroads, and on private residential and commercial property. Arcadis provided a full range of services for this project, including design, permitting, bid phase, and design services during construction.

Citywide Sanitary Sewer Hydraulic Modeling | City of White Plains, White Plains, NY

The City of White Plains faces growing development pressure on its existing sanitary sewer system. To better plan for future growth, the City contracted Arcadis to build a sanitary sewer GIS and hydraulic model to evaluate the current and projected future capacity of the sanitary sewer infrastructure. This

work includes developing flow projections in five-year increments until 2030 using both land-use and population-based approaches. Population, employment, land use, subdivision plans, zoning, and related data will be used to develop projections and estimate the allocation of population. Work also includes a GIS Needs Assessment, training, and as-needed GIS and hydraulic modeling support services.

Sewer System Capacity Evaluation Program | Saratoga County Sewer District #1, Saratoga, NY

Assisted in evaluating the capacity of 175 miles of sanitary sewer. This evaluation included the development of a sewer capacity analysis modeling program that allows the sewer district to evaluate the existing and proposed future reserve capacity of their sewer. Specific tasks included calculating the capacity and accumulating and recording existing and potential future flow, and calibrating the model using existing metered data. Utilized GIS technology to create a sewer district map, identify drainage area, and estimate flows using tax parcel data.

Infiltration and Inflow (I/I) Services | Town of Wallkill, Wallkill, NY

Project manager tasks included sewer investigations, sump pump and illicit connection inspection program, sewer flow isolation and metering, and sewer hydraulic modeling. Responsible for the

Total years of Experience
27

Education/Qualifications

BS, Environmental Engineering, SUNY, 1997

Professional Registration/Certifications

Construction Documents Technologist - CSI

Professional Engineer (NY)

development of a strategy for the sewer investigations, managing and coordinating the investigation effort, and providing recommendations for sewer system rehabilitation to reduce I/I.

Sewer Investigation and Rehabilitation Design | Village of Mamaroneck, Mamaroneck, NY

Project manager and technical leader who negotiated the schedule and scope of work for a New York State Department of Environmental Conservation (NYSDEC) Consent Order to eliminate sanitary sewer overflows through the reduction of I/I in the Village over a five-year period. Tasks included negotiating scope and schedule with the NYSDEC, sewer investigations, sump pump and illicit connection inspections, sewer flow metering, and sewer hydraulic modeling. Responsible for the development of a strategy for the sewer investigations.



Mr. Shelton is Arcadis's Global Knowledge Leader for trenchless technologies and a national technical manager for condition assessment and rehabilitation of buried infrastructure. He is a nationally recognized industry expert, giving papers, presentations, and workshops to a national audience. He is closely involved in organizations such as the Water Environment Federation (WEF), the North American Society for Trenchless Technology (NASTT), and the National Association of Sewer Service Companies (NASSCO). Mr. Shelton's municipal engineering experience includes I&I studies and infrastructure evaluations, concept through detailed construction design of wastewater collection facilities, trenchless rehabilitation design, construction services, NPDES and MIPP permitting, and Municipal Facilities Planning (Act 537) reports.

JIM SHELTON, PE | Technical Advisor

RELEVANT EXPERIENCE

Brandywine Hundred Sewer Rehabilitation and Capacity Assurance Program | New Castle County, DE

Program manager for the development and implementation of a multi-year comprehensive investigation and design program to determine the nature, extent, and location of I&I in the 420-mile Brandywine Hundred Sewer System, with the goal of eliminating reducing I&I and SSOs. The program has progressed through I&I and SSES evaluations (including smoke testing and nighttime weiring), hydraulic capacity modeling, rehabilitation and replacement designs, bidding and construction services, and I&I reduction evaluations.

Sewer Program Management | DC Water, Washington, DC

Program Manager overseeing the development and implementation of DC Water's \$1.6B sewer collection system capital improvement program. Program was operated as multiple sub-programs focused on condition assessment, planning, engineering, rehabilitation, and upgrade of its separate sanitary sewer, storm sewer and combined sewer systems. Primary role was management of the inspection, planning, and design activities required for assessing, rehabilitating, upgrading and otherwise improving DC Water's

sewer conveyance systems inclusive of pipelines, pumping stations, and related infrastructure.

Little Rock Large Diameter Sewer Assessment and Rehabilitation Program | Little Rock Water Reclamation Authority, Little Rock, AR

Technical director for the planning, prioritization, inspection and rehabilitation of the entire 130 large diameter (18-60-in) sanitary sewer inventory. Arcadis conducted emergency and expedited rehabilitation work. Serving as technical advisor during design and construction phase. Seven expedited and high priority projects have been designed and inspected by Arcadis to date.

Sewer Capacity Assurance and Rehabilitation Program | Lehigh County Authority, Allentown, PA

Program manager for the implementation of a comprehensive program to eliminate I&I-induced wet-weather overflows in Lehigh County Authority's (LCA's) sanitary sewer interceptor system as required by a USEPA consent order. The program includes flow metering, I&I studies, SSES, hydraulic capacity modeling, physical condition assessment, alternatives evaluation, regulatory progress reporting, and capital planning and budgeting.

Total years of Experience
40

Education/Qualifications

BS, Chemical Engineering, University of Pennsylvania, 1984

Professional Registration/Certifications

Professional Engineer – DE, FL, ID, MD, NJ, OH, OK, PA, VA, AR

Large Diameter Pipe Evaluation and Replacement Program | JEA, Jacksonville, FL

Served as technical advisor for the rehabilitation of more than 900 miles of large-diameter water, gravity, and force main pipelines for risk assessment, capital program development, conceptual design, and management of final design and construction over a 5-year period.

Mud Run Trunk Sewer Rehabilitation | Akron, OH

Technical Design Consultant for the rehabilitation of a 13000 lf section of 30"-36" RCP combined sewer trunk line using CIPP and 51 manholes using spray applied epoxy liners.



Mr. Batman more than 27 years of specialized expertise in buried infrastructure design, construction, and rehabilitation. He has led and supported collection system investigation and rehabilitation projects and programs across the country. His experience includes I&I studies, flow analysis, SSES, inspection, physical condition assessment, sewer design, sewer O&M planning and implementation, and design and construction for sanitary and storm sewer rehabilitation.

PAUL BATMAN, PE | QA/QC

RELEVANT EXPERIENCE

Storm Pipeline Inspection, Assessment, and Rehabilitation | Fairfax County, VA

Assistant program manager directing assessment and rehabilitation of 80 miles of conveyance infrastructure.

JEA Large Diameter Evaluation and Replacement Program | JEA, Jacksonville, FL

Technical advisor for risk assessment, capital program development, conceptual design for over 900 miles water, gravity, and force main pipelines.

Rose Creek, Rebsamen, Grassy Flats, and Rock Creek I&I Reduction Program | Little Rock Water Reclamation Authority, Arkansas

Program Manager for this 5-year, \$35M program which quickly identified and prioritized I&I sources across a 375-mile sewershed and moved them quickly to rehabilitation. This program successfully reduced I&I by over 35% across the system and resulted in release from a state Consent Order.

Brandywine Hundred Sewer I&I Reduction Program | New Castle County, DE

SSES task leader, sub-project manager and design leader for a series of sewer rehabilitation projects totaling over 100,000 LF of collection pipe and associated manholes and laterals in support

of the program which successfully reduced I&I across the system to comply with a state regulatory order. Rehabilitation technologies included cured-in-place pipe lining, pipe joint grouting, excavated repairs and manhole rehabilitation.

Big C Sewer Assessment | Albany Water Board, Albany, NY

Technical Lead for the assessment and repair/ rehabilitation recommendations for approximately 7,700 LF of combined sewer consisting of 96" to 114" sewer constructed of brick and concrete

Consent Decree Sewer Rehabilitation Program BOA | Washington Suburban Sanitary Commission, Laurel, MD

Principal Engineer and professional engineer of record for design of rehabilitation for I&I reduction in sewers ranging from 8- to 48-inches, including many sites in historically, environmentally, and/or culturally sensitive areas. The rehabilitation work included lining, pipe bursting and open cut replacement and totaled over \$60M of construction.

Sewer Management Program | District of Columbia Water & Sewer Authority, Washington, DC

Technical advisor providing guidance, expertise, and quality assurance for pipe inspection and assessment as well as pipe rehabilitation technologies and techniques. Also provided QA/QC

Total years of Experience
27

Education/Qualifications

MS, Environmental Engineering, Drexel University, 1999

BS, Environmental Health Sciences, West Chester University, 1996

Professional Registration/ Certifications

Professional Engineer – DC, DE, MA, MD, NY, PA, VA

NASSCO Pipeline, Lateral and Manhole Assessment and Certification Programs (PACP, LACP, and MACP)

and guidance for Arcadis-performed flow monitoring and analysis work.

Lake Street Outfall Assessment | Chemung County Sewer District, Elmira, NY

Condition Assessment Engineer performing man-entry inspection of 3,600 LF of 48-inch reinforced concrete outfall sewer pipeline.



Miss Cordiale is a Water Engineer 2 based in Arcadis' Clifton Park, New York office. Miss Cordiale has more than six years of professional experience on linear waterline design, storm sewer design, and stormwater management. Responsibilities and experiences include project coordination, drafting and designing comprehensive plans, distribution analysis, field oversight, preparing specifications, preparing engineering reports, stormwater pollution prevention plan inspections, and data visualization.

MIRANDA CORDIALE, PE | Design/Construction Administration (Technical Support)

RELEVANT EXPERIENCE

N. Interceptor Construction | City of Newburgh, Newburgh, NY

Project Engineer responsible for reviewing construction submittals and construction inspection during the installation of a 36-inch interceptor sewer to meet the requirements for the City of Newburgh's Long Term Control Plan (LTCP). This project is currently in construction.

North/Water St | City of Newburgh, Newburgh, NY

Project Engineer responsible for designing and preparing documentation for project changes, construction administration, and internal/external project coordination. The City of Newburgh requested engineering design and construction services to install an approximately 2,350 LF of gravity sewer ranging in size from 18-inch to 24-inch in diameter via open-cut along North Street and Water Street and Liberty Street per the City's (LTCP). This project required construction oversight, designing contract changes when field conflicts arise, and coordination with various utility entities and private communities.

Vacuum Truck Construction | City of Newburgh, Newburgh, NY

Project Engineer responsible for producing conformed drawings and specifications, construction administration, attending the preconstruction meeting, and reviewing construction submittals

for the construction of a Vacuum Truck Unloading Facility. This project is currently in construction.

Eastview WD3 Pump Station and Transmission Main | Westchester County, Valhalla, NY

Project Engineer responsible for the project design of a 5,245 linear foot 16-inch ductile iron transmission main from the Eastview Pumping Station to the existing water tank on the opposite side of Sprain Brook Parkway, and site design for the Eastview Pump Station. The project includes the use of air release valves in concrete vaults and the installation of 288 linear of the proposed 16-inch transmission main in 36-inch steel casing via jack and bore. Project Engineer responsibilities include designing and drafting comprehensive plans for the proposed transmission main, compilation of specifications, site design and permitting.

Broadway at Oak Street Real Time Control Chamber | Buffalo Sewer Authority, Buffalo, NY

Project Engineer responsible for design, project coordination, construction phase services, public outreach, and client interface for the construction of a real time control chamber to meet the requirements of the Buffalo Sewer Authority's TCP.

Hazelwood Real Time Control Chamber | Buffalo Sewer Authority, Buffalo, NY

Total years of Experience
5

Education/Qualifications

BS, Environmental Resources Engineering, SUNY College of Environmental Sciences and Forestry, 2017

Professional Registration/Certifications

Professional Engineer – NY

Project Engineer responsible for the public outreach and construction services of a real time control chamber to meet the requirements of the Buffalo Sewer Authority's LTCP. The chamber was to be built to mitigate combined sewer overflows of an 8.5 ft diameter combined sewer pipe.

Michigan Avenue Waterline Rehabilitation Project | City of Buffalo - Water Division, Buffalo, NY

Project Engineer responsible for the design and construction phase services for the rehabilitation of 4,000 LF of 36-inch water main and 500 LF of 48-inch water main along Michigan Avenue in the City of Buffalo, New York. The rehabilitation of the water main included traditional open cut replacement and "slip-lining" with fusible PVC pipe.



Ms. VanAlthuis is a Project Engineer who resides in our Clifton Park office. She has worked on various planning and design projects for wastewater and stormwater collection systems, including sewer rehabilitation. This includes collecting and analyzing data, performing field investigations, manhole inspections, and condition assessments, developing cost estimates, preparing specifications and design drawings, and providing construction administration services. She is also proficient in a variety of software programs including, Civil 3D, ArcGIS, and PowerBI.

ERICA VAN ALTHUIS, CDT | Design (Technical Support)

RELEVANT EXPERIENCE

City of Mount Vernon I/I | City of Mount Vernon, NY

As a result of sampling, sewersheds were prioritized for further investigation to identify and remove illicit discharges to the City of Mount Vernon's storm sewers. Methods to identify the sources include conducting additional sewer sampling, conducting CCTV and manhole inspections, and smoke testing. Prepared bid documents for sewer cleaning and investigation and rehabilitation projects for bidding purposes. Also performed sampling of sewers and the inspection of manholes, which will be prioritized based on severity of condition. This project is ongoing.

Endicott-Vestal: Infiltration and Inflow (I/I) | Village of Endicott, Endicott, NY

As a result of the flow metering study conducted in 2020, sewersheds were prioritized for further investigation to identify sources of inflow and infiltration. The 2021-2022 study included investigating the remaining sewers in Meter Area 4 in the Village of Endicott as well as Meter Area 7-3 in the Town of Vestal. This project included smoke testing, flow isolation, closed-circuit television (CCTV) inspections and manhole inspections. Reviewed CCTV footage and provided rehabilitation recommendations and prioritized cost estimates. This project is still ongoing, with final inspections wrapping up in May 2023.

Hulse Ave I/I | Town of Wallkill, Wallkill, NY

Arcadis provided oversight for the closed-circuit television inspection of over 40,000 LF of sanitary sewer and performed the inspection of the manholes. The CCTV inspection logs were coded using the Pipe Assessment Certification Program coding. Arcadis reviewed the inspection videos and logs, summarized the pipe conditions, and provided recommendations for both manhole and pipeline rehabilitation. The recommendations were prioritized based on severity of both condition and potential for I/I. Also reviewed CCTV and manhole inspections and provided rehabilitation recommendations and prioritized cost estimates.

Area 4 Sewer Design | Village of Endicott, Endicott, NY

Arcadis prepared bid documents for the Village of Endicott Sanitary Sewer Rehabilitation Project for bidding purposes, prepared bid documents, comprising of both drawings and a project manual, developed an estimate of probable construction cost for the village and evaluated bypass pumping needs. Also assisted in the bidding process, including conducting a pre-bid conference and preparing meeting notes, responding to contractor questions, preparing addenda, reviewing the contractor bids, and providing a bid evaluation to the Village.

Total years of Experience

5

Education/Qualifications

BS, Environmental Resources Engineering, SUNY-ESF, 2018

Professional Registration/Certifications

Engineering Intern

Construction Document Technologist – (CDT)

Wastewater Planning On-call | Citizens Energy Group, Indianapolis, IN

Closely worked with the planning and rehabilitation departments over the last three years to identify needs of the wastewater collection system. Analyzed GIS and CCTV data to identify priority sewer rehabilitation projects. Investigated reported sewer problems and wrote memos recommending solutions. Assisted in the creation of the wastewater collection system master plan and compiled PowerBI dashboard for the collection system.



Ms. Johns provides support for the water design group. She contributes to a variety of projects including those pertaining to stormwater management, inflow and infiltration (I/I) analyses, sewer design, and hydraulic and hydrologic modelling. Ms. Johns has experience in Bentley's PondPack, Computational Hydraulic International's Personal Computer Storm Water Management Model, Esri's ArcGIS, and AutoDesk Civil3D.

LAUREN JOHNS, EIT | Design (Technical Support)

RELEVANT EXPERIENCE

Sanitary Sewer Evaluation Survey | City of Mount Vernon, Mount Vernon, NY

Arcadis developed a Sanitary Sewer Evaluation Survey for the City of Mount Vernon in parallel with an Illicit Discharge Action Plan. The document provides information on steps to take prior to starting the investigation and establishes priorities and methodologies for sewer system investigation and rehabilitation. Ms. Johns assisted with the records review and GIS updates of the sewer system. Implementation of the document has begun and Ms. Johns is assisting with the planning of the investigation, review of survey data and reporting to regulatory agencies.

Endicott and Vestal I/I Study | Village of Endicott, Endicott, NY

As a result of a flow metering study conducted in 2020, sewersheds were prioritized for further investigation to identify sources of inflow and infiltration. The 2021-2022 study included investigating the remaining sewers in Meter Area 4 in the Village of Endicott as well as Meter Area 7-3 in the Town of Vestal. This project included smoke testing, flow isolation, CCTV inspections and manhole inspections. Ms. Johns used available data in GIS for flow isolation planning and analyzed the results to determine priority locations for CCTV. She also coordinated with the CCTV subcontractor and trained Village and Town staff to perform manhole

inspections. Ms. Johns reviewed CCTV and manhole inspections and provided rehabilitation recommendations and prioritized cost estimates.

Meter Areas 7, 9, 10 I/I Study | Village of Mamaroneck, Mamaroneck, NY

Arcadis performed a Village-wide inflow and infiltration study for the Village of Mamaroneck. The final areas of this study, Meter Areas 7, 9, and 10, were investigated in 2021. Work for this project included flow isolation, smoke testing, CCTV investigations, manhole inspections and assistance coordinating with homeowners to remove illicit connections previously discovered. Ms. Johns reviewed CCTV footage and provided rehabilitation recommendations and a prioritized cost estimate.

West Basin Data Review | Village of Mamaroneck, Mamaroneck, NY

The Village of Mamaroneck hired a contractor to perform CCTV inspections of the sewers within the West Basin sewershed. This project also included test and sealing infiltrating service connections. Arcadis was awarded a contract to review the CCTV inspections and provide a condition assessment of the sewers, and recommendations for rehabilitation and reducing infiltration. In addition, Arcadis was also tasked with documenting the results of the service connection grouting program in a GIS model. Ms. Johns was

Total years of Experience

5

Education/Qualifications

BS, Environmental Engineering,
Clarkson University, 2019

Professional Registration/ Certifications

Engineer In Training (EIT) – NY

Construction Documents
Technician (CDT) - (CSI)

10-hour Construction Safety and
Health Training

responsible for reviewing the CCTV footage, providing rehabilitation recommendations and a prioritized cost estimate for the rehabilitation work. She also assisted in analyzing the sewer grouting results and assisted in creating a GIS model of the results for future use by the Village.



Mr. Mereo is a project estimator in the Estimating & Cost Management Team. Responsible for servicing our clients in the preparation of cost estimating and cost management services from the concept level through stage gate estimates and final bid tender, and beyond.

Russel Mereo | Cost Estimating/Construction Administration (Technical Support)

RELEVANT EXPERIENCE

FEV Electric WRRF Electrical System Improvements | Rochester, NY

Lead Estimator. Improvement to the primary medium voltage switchgear and distribution cabling system in addition to developing a recommended standby generator system for the FEV WWTF.

Prison Point CSO Charleston Navy Yard | Cambridge, MA

Lead Estimator. Massachusetts water Resource Authority wastewater treatment facility renovation.

Well Field Expansion | Fort Drum, NY

Lead Estimator. \$16m addition of a new well field consisting of (5) new wells. This included water mains, new power, communications, and back-up power to the individual wells.

Floodproofing of Piers | Port of San Francisco, CA

Lead Estimator. Responsible for the development of an estimate outlining various options for deployable and permanent protection against future water level rise.

GM Silao Brine Treatment | Silao, Mexico

Lead Estimator. Alternative solutions for routing of brine wastewater to treatment ponds. Options ranged from in cost from \$2.6m to \$76m.

Helena Floodwall Replacement | West Helena, Arkansas

Lead Estimator. Replacement of existing flood protection with a new \$25m 3,635 lnft concrete floodwall to include flood gate.

BNSF Railway Industrial Waste and Tank Farm Improvements | Klamath, Oregon

Lead Estimator. Replace and rehabilitate deteriorating industrial wastewater piping and pond liner. Install new tank farm platform.

Wentworth Hall Library | Westwood, Massachusetts

Lead Estimator. Relocate to a new location the existing 3,941 sqft historical library building and add an expansion for new proposed size of 8,309 sqft.

Ferrero Candy Factory | Bloomington, Illinois

Lead Estimator. Proposed \$200m 445,908 sqft candy processing assembly plant to include an adjacent 4 story office building. Scope and project quantities were derived from a 3D BIM Model.

Total years of Experience
32

Education/Qualifications

Master of Business Admin,
University of Central
Oklahoma, 1993

BS, Construction Science,
University of Oklahoma, 1990



Mr. VanDeValk has experience with project cost estimation and performing construction administration tasks. These projects include the WD3 Eastview Pumping Station, City of Amsterdam WWTP upgrades and the Town of Greenburgh Chlorine Contact Tank construction.

Case VanDeValk, EIT | Cost Estimating/Construction Administration (Technical Support)

RELEVANT EXPERIENCE

Eastview WD3 Pumping Station | Westchester County, NY, Valhalla, NY

A new drinking water pump station was designed to transfer water from the Catskill-Deleware Aquaduct to a water tower in the Town of Eastview. Due to the elevation difference between the tower and the pump station and the volume of water being moved through the pipe (up to 3 mgd) in the event of an emergency pump shutdown due to a power outage water traveling back towards the pump station could create a water hammer effect causing damage to transmission piping and valves. To alleviate this problem air release valves and surge relief valves need to be installed at certain locations along the transmission main. Cost estimating and construction administration services, such as specification review and modification for required air release and surge relief valves, were provided.

Amsterdam: WWTP Improvements for SPDES Compliance | City of Amsterdam, NY, Amsterdam, NY

The Wastewater Treatment Plant for the City of Amsterdam, originally built in 1972, is set to undergo plant upgrades in order to meet SPDES permit limits. The plant is currently permitted to process ten million gallons per day. Specifically upgrades to the secondary clarification system and chlorine contact tanks are required. Due to the scale of the project and available funding, accurate cost

estimation was crucial to allow client to determine which aspects of proposal will be constructed.

Greenburgh: Chlorine Contact Tank and Chemical Feed Station at Knollwood Pump Station | Town of Greenburgh, NY, Greenburgh, NY

The Town of Greenburgh is currently in the process of building a chlorine contact tank and chemical feed station to treat the drinking water that the town gets from the Catskill/Delaware aqueduct. This station is needed due to NYCDEP discontinuing their use of chlorination at the beginning of 2023. The Town of Greenburgh will need to apply its own chlorination disinfection to meet current regulations. Construction administration services were provided to ensure communication between contractors and engineering firm was as efficient as possible to allow for project construction to continue.

Total years of Experience

6

Education/Qualifications

MS, Civil Engineering, Clarkson University, 2022

BS, Civil Engineering, Clarkson University, 2020

Professional Registration/ Certifications

Engineer In Training (EIT)



Appendix C

Relevant Projects

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New Drain Outlet at Downing Park and Third Street Storm Sewer

City of Newburgh, New York



Planning and Investigation

Downing Park was designed by Fredrick Law Olmstead and Calvert Vaux in 1889, the same landscape architect who design New Yorks Central Park. The most prominent feature of the park is Downing Pond. When the pond elevation rises due to rainfall it overflows a weir in a drain outlet structure which was directly connected to the City's combined sewer system. This was a major source of inflow.

As part of the City's Long Term Control Plan Implementation Arcadis performed hydrologic and hydraulic modelling to determine volume of inflow and flooding that occurs and the feasibility to remove this flow by means of a separate storm sewer in a high-density urban area.

Arcadis recommended that a new drain outlet be constructed with an automated valve that would lower the pond elevation prior to rainfall

event and connect the outlet to new separate storm sewer.

Since there was no storm sewer near Downing Park, Arcadis evaluated where a new storm sewer could discharge flow. Arcadis evaluated three different routes and assessed existing capacity for additional flow in down gradient storm sewers and selected the most cost-effective option, which was the shortest option with the least amount of potential utility conflicts.

Design

Arcadis performed CCTV inspection of the existing 48-inch corrugated metal storm sewer and discovered large defects in the storm sewer. Arcadis recommended that the storm sewer be rehabilitated by means of cured in place pipe (CIPP) lining.

Arcadis designed a new precast valve vault with an electrically actuated pinch valve that with a

Client

City of Newburgh, NY

Client Contact

Jason Morris, PE
Commissioner of Public Works & City Engineer
83 Broadway
Newburgh, NY 12550
845.569.7349
jmorris@cityofnewburgh-ny.gov

Total Value

\$628,000M (Consulting Fee)
\$5M (Construction)

Key Personnel

Robert Ostapczuk
A.J. Brooks

Relevancy

- ☒ CCTV Inspection
- ☒ Inflow Reduction
- ☒ Stormwater Separation
- ☒ CIPP Lining

draw down pipe in Downing Pond that automatically opens prior to a high intensity rain event to drawn down the Pond's water surface elevation to provide storage.

Additionally, Arcadis designed a new 24-inch separate storm sewer that connects an existing storm sewer discharging to the Hudson River.

Construction

Arcadis provided construction administration and construction inspection services for the construction of the new 1,700 linear feet of 24-inch storm sewer, new drain outlet, valve vault, automated controls, and an additional 2,000 linear feet of cured in place pipe lining ranging from 36 inch to 48 inches in diameter.

Since this project was in an urban area adjacent to the largest hospital in the area, construction coordination was critical. Arcadis assisted the City with coordinating between the Contractor and community members, the hospital, reviewed and helped develop traffic control plans to ensure that emergency vehicles were not impeded as a result of the project.

Construction for the project was approximately \$5M and was funded by a combination of funding from NYSEFC (combination of WIIA grant and hardship financing) and City funds.

Arcadis assisted the City in administering the funding and coordinating with NYSEFC.



Brandywine Hundred SSES, I/I & Sewer Rehabilitation and Capital Assurance Program

New Castle, Delaware



Comprehensive program for SSES, I/I and Rehabilitation for a basin of over 400 miles of sewers. The basin includes the oldest and most problematic sewers.

New Castle County owns and operates wastewater collection and conveyance facilities that comprise approximately 1,600 miles of gravity sewer and interceptors, 42,000 manholes and more than 150 pump stations. The County system includes the Brandywine Hundred Sewer

System, which encompasses four (4) sewersheds with more than 420 miles of sewer located in some of the County's most densely populated areas. The Brandywine system contains some of the oldest and most problematic sewers in the county's inventory.

Since 2002, Arcadis has served as Program Manager for a comprehensive sewer rehabilitation program which complies with a Secretary's Order issued by the

State in 2003 and requires the reduction of sewer overflows over a specified period. As Program Manager, Arcadis self-performs all sewer rehabilitation planning and design work and also oversees all construction.

SSES Program The SSES program includes a multi-tiered flow monitoring program set-up and operated by Arcadis: a 5-year monitoring program (2002 – 2006) which involved 40 flow meters in 30 sewersheds (10 to 15 miles per meter); and 15 meters to be



Client

Department of Special Services
New Castle County, DE

Client Contact

Robert Roff
Sewer Operation Services Manager
302.395.5868
rroff@nccde.org

Total Value

\$35M (Program Fees)

Key Personnel

Paul Batman
Jim Shelton

Relevancy

- ☒ Flow Monitoring
- ☒ I/I Analysis
- ☒ Quantification of Existing Flows
- ☒ Source Detection
- ☒ Trunk Sewer Inspection
- ☒ Exposed Sewers & Manholes
- ☒ GIS
- ☒ Future Flow Analysis
- ☒ Data Analysis
- ☒ Develop Rehab Needs
- ☒ Comprehensive Strategies
- ☒ Community Outreach

rotated through sewer basins over the next 8 years (through 2014). Other SSES evaluations performed by Arcadis include: in- pipeline inspections using digital state-of-the-art CCTV (300,000 LF to date), including Aquazoom; smoke testing (360 miles); springtime flow isolation studies (200 miles); manhole inspections (more than 1,500); building inspections (3,000); and above-grade trunk walk inspections (more than 120 miles of interceptor reconnaissance including multiple passes). A stand- alone GIS system, which was set up to manage and map the

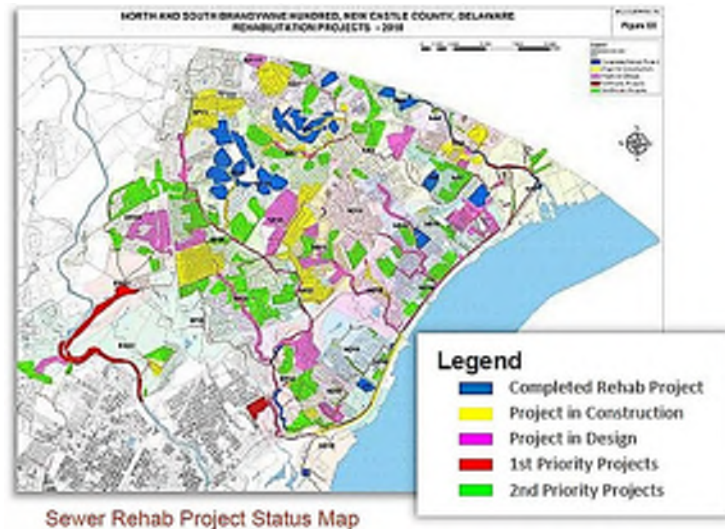
extensive database produced by the SSES program, is linked to the County's CIMS for potential future asset management applications. Using the first few years of flow monitoring data, a systemwide hydraulic model was calibrated and applied to screen potential SSO locations (subsequently checked with field inspections) and identify interceptor capacity constraints and strategies for capacity improvements and source reduction throughout the 420 mile sewer system.

Comprehensive Sewer Rehabilitation and Replacement Program.

Guided by the baseline hydraulic assessment, Arcadis prioritized the entire service area for rehabilitation using as criteria the contribution of I/I, the anticipated failure period and others, and identified projects requiring repair or replacement in terms of the established priorities. Based on the rehabilitation prioritization work, a \$400 million capital program for the repair, replacement and expansion projects was identified, budgeted and is being designed and constructed over a period of 15 years in accordance with a rehabilitation plan negotiated with State regulators.

The sewer rehab program includes trenchless pipe lining, lateral lining, lateral and mainline joint grouting, manhole replacement and repairs and pipe bursting. As part of this ongoing program, Arcadis is responsible for design and bidding of over 500,000 LF of sewer rehabilitation projects, the majority of which employ trenchless technologies. Work to date includes construction oversight of cured-in-place pipe lining of more than 200,000 LF of mainline sewers and more than 2,000 laterals.

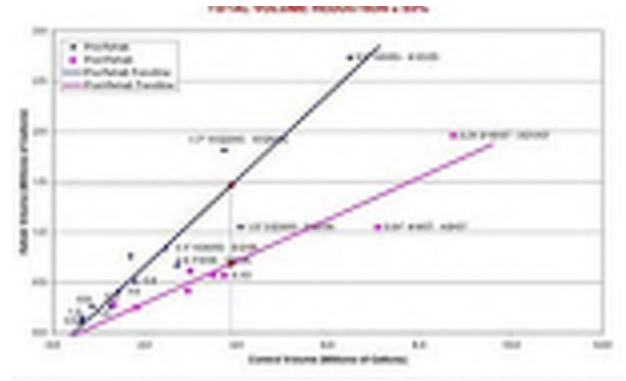
Community Outreach Programs and Easement Negotiation. The sewer rehabilitation construction work followed extensive public outreach programs for construction area homeowners which were planned



and implemented by Arcadis. To date we have attended more than 40 civic association meetings to explain the need for the project to affected homeowners. Arcadis has held hundreds of one-on-one meetings with property owners, prepared easement agreements with accompanying figure(s) depicting the limits of trespass and construction and the requirements of restoration and managed all communications with the homeowners needed to acquire the formal written easements.

Arcadis successfully negotiated temporary access agreements with more than one thousand property owners and acquired more than 75 temporary construction easements or new permanent easements to allow the work to be completed without condemnation or public outcry.

Post-Rehab Flow Monitoring. To document the I/I reductions achieved by the sewer rehab projects, 10 flow meters are dedicated to pre- and post-rehab flow monitoring in subareas scheduled for construction projects.



Arcadis' flow monitoring studies of rehab basins vs. control basins have demonstrated post-rehabilitation flow reductions between 40% and 50%.

Six months of flow monitoring data is collected prior to the sewer rehab construction to establish the baseline I/I contributions. Following the sewer rehab construction, an additional six months of flow monitoring is performed to document the I/I reductions. To date, flow reductions between 40 percent and 80 percent have been documented for individual subdivision rehabilitation projects.

Infiltration / Inflow Improvements

New Haven, Connecticut

East Haven Infiltration / Inflow Study. Arcadis performed a study of the East Haven sewer system to examine the system's physical characteristics and identify areas of high I/I. An eight-week flow metering program that involved 28 flow meters, a rain gauge, a groundwater gauge and four salinity probes was performed. The metering data was analyzed to develop recommendations and schedule for an additional SSES. The recommended plan will help reduce extraneous flows and reduce transport and treatment costs while providing a long-term, system-wide approach to effectively preserving the sanitary sewer system. The follow-on SSES work began in the spring of 2009 starting with meter area 10. The project team conducted manhole inspections, flow isolation and television inspection to find sewer deficiencies leading to infiltration. Arcadis recommended rehabilitation of approximately 12,000 LF of sewer line.

New Haven and Hamden I/I Rehabilitation. Arcadis provided design, bidding and construction services to complete sewer rehabilitation in the Morris Cove, Lower Shepard and Upper Thorpe Sewersheds. The project included rehabilitation of approximately 50,000 LF of sewer and 250 manholes. Rehabilitation involved CIP lining of sewer, cementitious lining of manholes and minor point repairs. Construction closeout was conducted in September 2009 with a final construction cost of \$3.1 million. I/I rehabilitation design has continued with the State Street Sewershed in Hamden. Recently completed design includes rehabilitation of over 20,000 LF of pipe.

East Haven and Hamden – I/I Removal Phase II – SSES. Arcadis conducted Phase II SSES in Meter Areas 5, 9 and 13 in East Haven and in the Middle Thorpe Drive Study Area in Hamden to identify excessive I/I sources. Arcadis performed a detailed review of existing mapping and record drawings and sewer maintenance records of the existing sewer system. Arcadis performed 590 manhole inspections, approximately 120,000 LF of flow isolation and approximately 84,000 LF of television inspection. Metering data was analyzed to develop recommendations for future sewer rehabilitation. Rehabilitation includes 35,000 LF of CIP lining pipes (8-27-inches in diameter) and repairs to 350 manholes. The recommended plan will help reduce extraneous flows and reduce transport and treatment costs while providing a long-term, system-wide approach to effectively preserving the sanitary sewer system. The final report included a listing of all sources of I/I, cost effectiveness analyses and alternatives for rehabilitation or replacement of deficient sewer system components.

Woodbridge I/I Study. Arcadis conducted an I/I study to identify excessive I/I in the Town of Woodbridge. Arcadis performed a review of existing mapping and record documents, previous I/I studies, sewer maintenance records, pump station, flow metering locations and sewer overflow records. Arcadis developed a flow monitoring program for an eight-week period and then analyzed existing data along with metering data to identify I/I sources. The recommendations and schedule for the implementation of the

Client

City of New Haven, CT

Client Contact

Bruce Kirkland
Project Manager
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Total Value

\$1.2M (Consulting Fees)

Key Personnel

Paul Batman

Relevancy

- ☒ I/I Analysis
- ☒ Develop Rehab Needs
- ☒ Comprehensive Strategies

additional investigations will form the basis of future SSES.

Phase III I/I Rehabilitation.

Arcadis provided design, bidding and construction services to complete sewer rehabilitation in the Lower Farm River, Area 10 in East Haven and the State Street Sewershed in Hamden. The project consists of rehabilitation of approximately 35,000 LF of sewer and 200 manholes. Rehabilitation involves CIP lining of sewer pipes (8-27-inches in diameter), cementitious lining of manholes, lateral lining and minor point repairs.

I/I Investigation and Sewer Condition Assessment

Mamaroneck, New York

The Village of Mamaroneck is currently under a Consent Order from the New York State Department of Environmental Conservation (NYSDEC); Private Source Investigation for sanitary sewer overflows. Arcadis was awarded contracts to assist the Village with the elimination of sanitary sewer overflows, the reduction of infiltration and inflow, and performing a sewer condition assessment. Arcadis completed a five-phase inflow and infiltration investigation throughout the entire Village. Arcadis developed and negotiated this program with the NYSDEC and assisted in the development of the Consent Order. This program includes the following:

Flow Metering and Prioritization.

At the onset of the program, flow meters, rain gauges, and ground water gauges were installed throughout the Village to monitor the flows during dry and wet weather conditions. Statistical analysis was performed on the flow data to determine average and peak flows, base flow patterns, the magnitude of rain derived I/I. This data was used to identify the areas in the Village with the most I/I to prioritize investigations.

Hydraulic Modeling. Hydraulic modeling was completed in one area of the Village to identify hydraulic restrictions and assist in the determination of the cause of the sanitary sewer overflows. Tasks included model development, model calibration, alternative analysis and recommended improvements. The alternative analysis included system modifications to relieve bottlenecks and to provide sufficient capacity for sizing the system to eliminate surcharging conditions.

CCTV and Manhole Investigations and Condition Assessment.

Arcadis provided oversight for the closed-circuit television inspection of approximately 40 miles of sanitary sewer and performed the inspection of the manholes. The CCTV inspection logs were coded using the Pipe Assessment Certification Program coding.

Residential Sump Pump Inspections.

Arcadis inspected homes for illegal connections of sump pumps, area drains, foundation drains, and/or roof drains to the sanitary sewer, and assisted the Village to coordinate the removal of the illicit connections with residence.

Code Review and Update. Arcadis assisted the Village with the review of the current regulatory ordinance and code documents and provided recommendations for updates, particularly with regard to private sewer lateral inspections and repairs.

Sewer Rehabilitation Design and Bid Assistance. Arcadis developed technical specifications, details and design drawings for the rehabilitation of four drainage areas

Client

Mamaroneck, NY

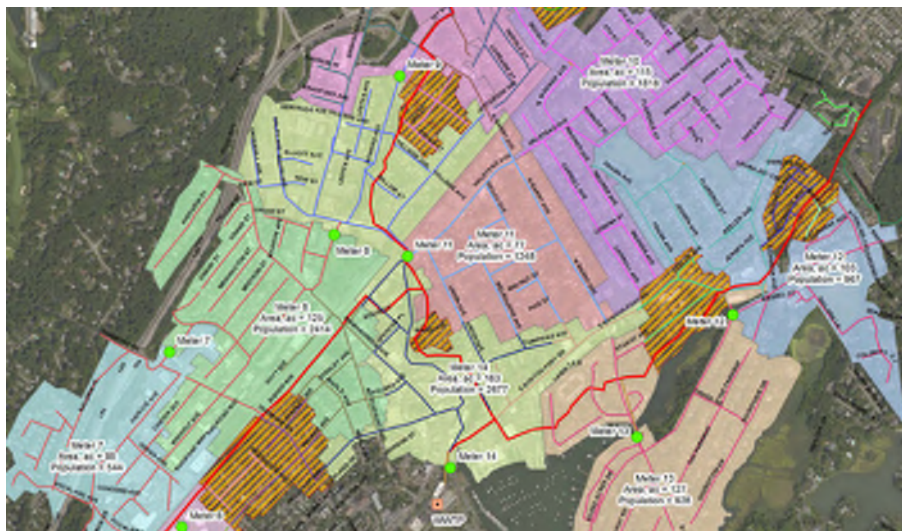
Completion Date

2015 - Ongoing

Relevancy

- ☒ GIS/Data Management
- ☒ Permitting
- ☒ Flow Metering
- ☒ Smoke/Dye Testing
- ☒ CCTV Inspection
- ☒ Manhole Inspection
- ☒ I/I Reduction
- ☒ Collection System Modelling
- ☒ Condition Assessment
- ☒ Design/Construction
- ☒ Program Management
- ☒ Private Source Investigation
- ☒ Funding Assistance
- ☒ Regulatory Driver

within the Village and provided assistance during the bidding phase and in selection of the contractor. The rehabilitation was completed in 2022, and Arcadis is preparing design drawings, specifications and cost estimates to rehabilitate the next four areas.



South Water Street Sewer Separation

City of Newburgh, New York



Comprehensive program for SSES, IArcadis provided planning, design, bidding, construction administration, inspection and services design services during construction for a permanent solution which included over 1,800 feet of new 8-inch gravity sanitary sewer, a 300-gpm wet-well mounted pump station, and nearly 600-feet of 6-inch HDPE force-main conveying flow to the City's Water Pollution Control Plant (WPCP). The pump station was sized to handle existing flows as well as future flows from undeveloped City owned properties in the area serviced by the new gravity sanitary sewer. Existing building sewer laterals were disconnected from the storm sewer and were tied into the new gravity sewer. The gravity sewer crosses beneath a section of the CSX railroad adjacent to the WPCP, requiring the sewer to be jack and bored in accordance with CSX requirements. Arcadis assisted the City in obtaining a WIIA award and zero interested financing for the project through the CWSRF

Program. Arcadis assisted the City with managing the grant and financing from its inception through construction completion. Including document collection of monthly and quarterly Minority/Woman-owned Business Enterprise (M/WBE) utilization plans, subcontract agreements, American Iron and Steel certification and De-minimis tracking, and proof of payments to M/WBE subcontractors.



Client

City of Newburgh, NY

Client Contact

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Total Value

\$248K (Consulting Fees)
\$1.67M (construction Fees)

Key Personnel

Robert Ostapczuk
A.J. Brooks
Claire Superak

Relevancy

- ☒ Sewer Separation
- ☒ Sewer Laterals
- ☒ NYSDOT Coordination
- ☒ CSX Transportation Coordination

Flow Management and I&I Investigation

Village of Endicott, New York



Flow Monitoring Program

The Village of Endicott Wastewater Treatment Plant (WWTP) reported an influent wastewater average daily flow of 9.4 mgd in 2017, which was 94 percent of the design flow (10 mgd). WWTPs operating in accordance with their SPDES permits are subject to 6 CRR-NY 750-2.9 which requires that when the influent flow reaches or exceeds 95 percent of the design flow in a calendar year, a flow management plan must be developed to identify and implement reductions in hydraulic loading or capital improvements must be identified to increase flow capacity. As a result, the Village wanted to commence a program to evaluate rain-derived inflow and infiltration (RDII).

Arcadis devised two separate flow metering programs that would help the Village understand sources of RDII in their sanitary sewers. The first round of metering included five flow meters and two rain gauges located throughout the WWTP service area to monitor the

flows during dry and wet weather conditions. The second round of metering further delineated the existing sewersheds where excessive I/I was discovered and included a total of 14 flow meters and two rain gauges. Additionally, data from two pump stations from neighboring communities that flow to the Village WWTP was obtained and included in the data analysis phase of this project.

Statistical analyses were performed on the data to determine average and peak flows, base flow patterns, the magnitude of RDII, and to determine the capture ratios. Based on the outcomes of the flow metering studies, a prioritization plan for further investigation as well as a preliminary cost and proposed schedule was developed and provided to the Village for sewer rehabilitation planning.

Arcadis assisted the Village in securing two \$50,000 New York State Environmental Facilities Corporation (NYSEFC) Engineering Planning Grants for these projects.

Client

City of Endicott, NY

Client Contact

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Contract Term/Completion Date

018 - ongoing

Total Value

\$930K (Consulting Fees)

Key Personnel

Robert Ostapczuk
Kevin Hogan
Claire Superak
Lauren Johns
Erica VanAlthuis

Relevancy

- ☒ Flow Metering
- ☒ Smoke/Dye Testing
- ☒ CCTV Inspection
- ☒ Manhole Inspection
- ☒ I/I Reduction
- ☒ Condition Assessment
- ☒ Funding Assistance
- ☒ Design
- ☒ Construction

Inflow and Infiltration Investigation and Planning.

At the end of 2018 the Village of Endicott WWTP average annual flow exceeded the 95 percent design flow and was required to develop a Flow Management Plan in accordance with 6 CRR-NY 750-2.9 (c). Arcadis developed a flow management plan in collaboration with sewer board members from the Village of Endicott, the Town of Union, and the Town of Vestal.

Arcadis conducted a robust investigation to identify and

quantify sources of I/I in the WWTP collection system.

- Flow metering was conducted in the Towns of Union and Vestal to supplement previous work completed by Arcadis to quantify flows coming from each catchment that contributes to the WWTP influent.
- Smoke testing was completed throughout the collection system as a cost-effective method to identify sources of inflow, such as catch basins, driveway drains, area drains, and roof leaders.
- CCTV inspections were conducted to perform a condition assessment of the sewer pipe and locate defects and infiltration sources due to structural and operational defects.
- Manhole inspections were completed to identify sources of groundwater infiltration and intermittent surface inflow.

Arcadis used this information to develop a 10-year plan to conduct further investigations and to complete sewer rehabilitations as needed to reduce I/I within the collection system.

Recommended alternatives for sewer rehabilitation and nutrient removal upgrades were summarized in a preliminary engineering report for the Village to use in pursuing funding opportunities through the Environmental Facilities Corporation (EFC).

Meter 4 I/I Investigation. The Meter 4 drainage area represented the highest priority areas based on the temporary flow metering previously completed by Arcadis.

The investigation utilized smoke testing, night-time flow isolation, closed circuit television (CCTV) inspection, and manhole

inspections. Smoke testing was conducted in the sanitary sewer to identify potential inflow sources such as driveway drains and rain gutters. CCTV inspection was completed to locate sources of infiltration through cracks or breaks in the sewers, poorly sealed joints or lateral connections, or other defects. Similarly, Arcadis completed manhole inspections to evaluate the condition of manholes and evidence of inflow and infiltration. Arcadis also provided manhole inspection training to both Village and Town staff. These staff completed many of the manhole inspections to help reduce the total project cost. Nighttime flow isolation was performed as part of the second contract to further isolate problem areas and reduce the number of sewers requiring CCTV inspections.

The data collected from the investigation work was reviewed, recommendations were made for rehabilitation based on type of defect and severity of I/I, and the defects were ranked based on severity or the potential for I/I. Sewers and manholes with defects indicating high possibility of I/I or with severe structural concerns were recommended for rehabilitation.

Arcadis assisted the Village in securing \$100,000 in funding from the NYSEFC Engineering Planning Grant for the sewer investigations.

Sewer Rehabilitation Design.

Arcadis was awarded the contract to design and assist in the bidding for the sewer rehabilitation work identified in the investigation. Arcadis prepared bid documents for the sewer rehabilitation work, comprising of both drawings and a project manual. The rehabilitation techniques for defective manholes included resetting frames and covers, replacing frames and covers, and lining manholes with a cementitious liner or epoxy material to provide waterproofing. Sewer

rehabilitation included point repairs, grouting lateral connections, and installing cured-in-place pipe. An estimate of probable construction cost was developed for the village and bypass pumping needs were evaluated. Arcadis assisted in the bidding process, including conducting a pre-bid conference and preparing meeting notes, responding to contractor questions, preparing addenda, reviewing the contractor bids, and providing a bid evaluation to the Village.

Arcadis assisted the Village in securing a \$602,320 grant from New York State Department of Environmental Conservation WQIP and a \$75,925 grant from the NYSEFC WIIA for this work. The project will soon be awarded to the lowest bidder at a fee of \$673,671.

North Interceptor Sewer Replacement

City of Newburgh, New York



Planning and Investigation

The was North Interceptor originally constructed in the late 1960's and ranges in size from 12-inch at the northern of the City to 30-inch diameter at the southern. It collects combined sewage from the eastern portion of the City. Fifteen of the seventeen CSO diversion structures are located within sewersheds of the North Interceptor.

One of the projects of the City's approved LTCP (prepared by Arcadis) was increasing the capacity of the North Interceptor to maximize collection and treatment of wet weather.

Arcadis performed CCTV inspection of the North Interceptor to locate unmapped lateral connections and sources of inflow.

Arcadis completed a geotechnical investigation, consisting of drilling soil and rock to determine top of rock, and perform rock cores for testing to determine rock strength where the new interceptor sewer

would be replaced in a different location, to free up greenspace, promote more downtown revitalization and locate the interceptor to a public right of way.

Design

Arcadis utilized Infoworks to update the hydraulic and hydrological model that was developed as part of the LTCP to size the new North Interceptor Sewer. Arcadis evaluated different pipe types and shapes to address the large variation in flow between dry and wet weather.

The new interceptor design included reconstructing and relocating approximately 6,800 linear feet of the interceptor sewer ranging from 18-inches to 48-inches in diameter. An approximately 1,900 linear foot section of the new interceptor sewer was constructed via microtunneling 40 to 60 feet below the ground surface in solid rock.

The northern portion of the interceptor had to be designed

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City of Newburgh, NY

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Contract Term/Completion Date

018 - ongoing

Total Value

\$3.96M (Consulting Fees)
432M (Construction Fees)

Key Personnel

Robert Ostapczuk
A.J. Brooks
Claire Superak
Lauren Johns
Miranda Cordiale

Relevancy

- ☒ CCTV Inspection
- ☒ Sewer Replacement
- ☒ Inflow Reduction
- ☒ Stormwater Separation
- ☒ CIPP Lining
- ☒ Microtunneling
- ☒ Jack and Bore
- ☒ NYSDOT Coordination
- ☒ CSX Coordination

between buildings in a condominium complex that was constructed on and around the existing North Interceptor.

Public Outreach

Arcadis assisted the City with public outreach to key stake holders in the vicinity of the project to present alternative vehicular and pedestrian traffic routes during construction from a safety and business standpoint. Arcadis prepared renderings of the project

and frequently asked questions pertaining to the construction in residential and institutional (Mount Saint Mary College) areas.

Construction

Arcadis provided construction administration, resident engineer, construction inspection and design services during construction for the project.

Due to the vast area of the project, at various times during construction Arcadis conducted meetings with NYSDOT, the City's Water Department, Central Hudson Gas & Electric, and the City's Police and Fire Departments to coordinate ongoing activities, conflicts and road closures.

We identified water service laterals encountered and the City's Water Department inventoried materials and replaced lead service lines as they were encountered.

Project Financing and Grants

The project construction cost is estimated at approximately \$32M and will be completed in early summer 2024. Arcadis assisted the City in acquiring and administering over \$26M grants from WQIP, WIIA, BIL and the US EPA, with the balance of the project financed by a zero-interest hardship loan through the SFR program.



North Water Street Sewer Separation

City of Newburgh, New York



Planning and Investigation

Arcadis completed smoke testing and CCTV inspections of the northern most combined sewer drainage area. Smoke testing observations included connections to catch basins and roof leaders on private residences. CCTV inspection did not reveal additional sources of inflow or stormwater connections to the combined sewer but did reveal some structural defects that may result in groundwater infiltration. Arcadis recommended rehabilitation of the combined sewer by cured in place pipe lining to reduce infiltration and to preserve its structural integrity.

Arcadis performed a hydraulic and hydrologic analysis to determine the impact of wet weather flows for the 10-year and 25-year, 24-hour design storm events on the existing combined sewer and CSO outfall. Model results indicated that the development of a separate storm sewer would reduce CSO flows to the CSO outfall during the 10-year

design storm by approximately 3.1 million gallons (MG) per event.

Design

Arcadis designed a new storm sewer for the separation of the combined sewer system that included approximately 1,700 linear feet of HDPE and CIP (in NYS DOT ROWs) sewers and 820 linear feet of cured in place liner. Bid documents included full width pavement restoration, new granite curbs in the historic district and ADA complaint sidewalks.

Construction

Arcadis is providing construction administration with a part time resident engineer and full time inspector. Significant coordination was required between NYS DOT and CHG&E, as NYS DOT wanted to upgrade an intersection during the construction and CHG&E had a project to replace natural in the vicinity of the construction. Substantial completion was granted in December 2023 and

Client

City of Newburgh, NY

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Contract Term/Completion Date

018 - ongoing

Total Value

\$759K (Consulting Fees)
\$5M (Construction Costs)

Key Personnel

Robert Ostapczuk
A.J. Brooks
Claire Superak
Miranda Cordiale
Case VanDeValk

Relevancy

- ☒ CCTV Inspection
- ☒ Inflow Reduction
- ☒ Stormwater Separation
- ☒ CIPP Lining
- ☒ NYSDOT Coordination

final completion is scheduled for June 2024 after final restoration of pavement, pavement markings and grass are established.

Project Financing

The project planning was completed with an Engineering Planning Grant from NYS EFC and the project was awarded a 25% WIIA grant. The remainder of the project was financed with a zero-interest hardship load from the SRF program.

About Arcadis

Arcadis is the leading global Design & Consultancy firm for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. We are more than 35,000 people, active in over 70 countries that generate \$4.2 billion in revenues. We support UN-Habitat with knowledge and expertise to improve the quality of life in rapidly growing cities around the world.

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Utilities must plan for unprecedented scenarios while navigating a changing workforce, but where should leaders focus?

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