21-089

RESOLUTION AUTHORIZING THE AWARD OF A FAIR AND OPEN CONTRACT FOR ENGINEERING SERVICES PURSUANT TO N.J.S.A. 40A:11-3(B)

MOTIONED BY: Marotta
SECONDED BY: Guzman

WHEREAS, the North Hudson Sewerage Authority (hereinafter "Authority") is a public body, duly formed under the Sewerage Authorities law, constituting Chapter 138 of the Laws of New Jersey of 1946, as amended (Chapter 14A of Title 40 of the New Jersey Statutes Annotated) and possesses the powers set forth therein; and

WHEREAS, the Authority has selected the proposal of Mott MacDonald for annual engineering services for the purpose of satisfying its Bond Resolution, evaluating system requirements and preparing various investigations and reports as required by its NJPDES permit.

WHEREAS, the Facilities Review Board has reviewed this proposal and unanimously recommends its approval by the Authority Board.

NOW, THEREFORE, BE IT RESOLVED that the Authority appoints Mott MacDonald to provide engineering services for the Authority, as described in Appendix"A", for a period of one year commencing on February 1, 2022 and shall be compensated in an amount not to exceed $175,000.

BE IT FURTHER RESOLVED that the Executive Director of the Authority shall affix his signature to the contract and that the Secretary of the Authority shall publish a notice in the paper in accordance with the Local Public Contract Law.

BE IT FURTHER RESOLVED that the Authority has awarded this contract for professional services pursuant to N.J.S.A. 40A:11-3(b), . . .contracts for Professional Services pursuant to subparagraph (i) of paragraph (a) subsection (1) of section 5 of P.L. 1971, c.198 (N.J.S.A. 40A:11-5) may be awarded for a period not exceeding twelve (12) consecutive months."

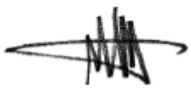
BE IT FURTHER RESOLVED that the contractor shall comply with the requirements of N.J.S.A. 52:32-44 (Business Registration of Public Contractors), N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 et seq. (Contract compliance and Equal Employment Opportunities in Public Contracts) with submissions by Corporations and Partnerships including a completed Disclosure of Ownership form (N.J.S.A. 52:25-24.2) as well as a completed Non-Collusion Affidavit.

DATED: DECEMBER 16, 2021

RECORD OF COMMISSIONERS' VOTE

	YES	NO	ABSENT
Commissioner Kappock	x		
Commissioner Marotta	x		
Commissioner Gardiner	x		
Commissioner Friedrich	x		
Commissioner Guzman	x		
Commissioner Velazquez	x		
Commissioner Barrera			x
Commissioner White	x		

THIS IS TO CERTIFY THAT THIS RESOLUTION WAS DULY ADOPTED BY THE NORTH HUDSON BOARD OF COMMISSIONERS ON DECEMBER 16, 2021.



SECRETARY

Appendix "A"

General Activities:

General contract services including monitoring contractual responsibilities and performance of the Contract Operator, attending Operations meetings, reviewing operator reports, presenting monthly Engineer's report at the Owner's monthly open public meetings, reviewing contract documents, updating the capital improvement program, responding to operator questions and project management.

Permit Compliance:

Assistance will be provided to the Owner in meeting its NJPDES permitting requirements for its collection system and wastewater treatment plants (WWTP). This includes monitoring the Owner's NJPDES permits and Administrative Consent Orders (ACO) and recommending actions to assure compliance, including preparation and submission of required compliance reports.

Capital Planning:

Engineer will work with the Owner to monitor and coordinate the Owner's capital needs with the New Jersey Environmental Infrastructure Trust (NJEIT). Engineer will assist the Owner in managing existing loans and aligning Capital Improvement Program schedules with future funding requests. Engineer will attend meetings with the NJDEP, NJEIT and the Authority loan coordinator on an as-needed basis.

Coordination with other Agencies:

Coordination with other municipal, state, federal, and other agencies or entities to provide support to the Owner as may be required to monitor and/or resolve issues, conflicts, and matters affecting the Owner's service area and wastewater treatment. Agencies or entities include but may not be limited to the New Jersey Department of Environmental Protection (NJDEP), U.S. Environmental Protection Agency, New Jersey Transit, the New Jersey Harbor Dischargers Group, private developers, and other engineering firms.

Coordination includes providing communications and attending meetings as directed by the Owner in order to represent or gather information in the interest of the Owner on programs and issues as they relate to planning that may affect the operation of the Owner's collection systems and wastewater treatment facilities.

Annual Report:

Preparation of the annual report for the Owner that details the condition of the Owner's treatment plants and collection system and recommends improvements. These improvements are incorporated into the Owner's capital improvement plan.

NOTICE OF RESOLUTION AUTHORIZING THE AWARD OF A FAIR AND OPEN CONTRACT FOR ENGINEERING SERVICES PURSUANT TO N.J.S.A. 40A:11-3(B)

THE NORTH HUDSON SEWERAGE AUTHORITY (the "Authority") has awarded a Fair and Open Contract for Consulting Engineer services pursuant to N.J.S.A. 40A:11-3(b), . . .contracts for Professional Services pursuant to subparagraph (i) of paragraph (a) subsection (1) of section 5 of P.L. 1971, c.198 (N.J.S.A. 40A:11-5) may be awarded for a period not exceeding twelve (12) consecutive months. The North Hudson Sewerage Authority has retained Mott MacDonald, Iselin, New Jersey, to provide consulting engineering services in connection with the management and operation of the Authority. The amount charged for these services will be determined in accordance with the Proposal received on December 15, 2021 on file with the Secretary of the Authority. This Contract will be in effect for one year or until such time as either party gives written notice to the other of termination.

This Contract and the Resolution authorizing it are available for public inspection in the offices of the Secretary of the Authority.

MOTT MACDONALD

Professional Services for Consulting Engineer

Statement of Qualifications

December 2021

The North Hudson Sewage Authority

MOTT MACDONALD

Ms. Belissa Vega, Purchasing Agent
North Hudson Sewerage Authority
1600 Adams Street
Hoboken, New Jersey 07030

Statement of Qualifications
Professional Services - Consulting Engineer

December 15, 2021

111 Wood Avenue South
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mottmac.com/americas

Dear Ms. Vega:

Mott MacDonald fully understands that assigning a seasoned professional that has earned the trust and confidence of the North Hudson Sewerage Authority (NHSA) is a key factor when selecting the Consulting Engineer for the Authority. That is the reason Mott MacDonald believes that Kevin P. Wynn, PE, PP, CME, BCEE has these qualifications and because of his commitment and dedication to the Authority is the best candidate for the Authority's Consulting Engineer position. In preparing the attached Statement of Qualifications for the Authority Engineer Professional Services Contract, we have highlighted our commitment to delivering client-focused services for effective and sustainable wastewater solutions. We are transmitting herewith one e-mail submission followed by one original per the requirements outlined by the Authority in its Solicitation for Professional Services for Consulting Engineer.

Mott MacDonald has extensive and long-term familiarity with the Authority's facilities and operations and we are prepared to dedicate the necessary staff to provide the services requested in the solicitation. If selected, Kevin Wynn will continue to serve as Authority's Consulting Engineer and your direct point of contact at Mott MacDonald. Mr. Wynn has been working with the Authority for several years and has managed, participated, and observed the process and worked toward a successful outcome on many of the Authority's design and construction projects. Through these assignments, Mr. Wynn has acquired the knowledge of the Authority's procedures and key personnel to facilitate the requested general consulting services.

Mr. Wynn will attend the Authority meetings and interact with the other Authority professionals. If selected as the Authority's Consulting Engineer, Mott MacDonald will make Mr. Wynn fully available to serve the Authority in this capacity.

On the various assignments associated with this contract, Mr. Wynn will be assisted by Karen J. Karvazy, PE. Ms. Karvazy has over 20 years of experience and has planned, designed, and evaluated several municipal wastewater treatment and collection facilities. Ms. Karvazy will also serve as a technical advisor on multiple tasks and initiatives including research of specific technical issues, completion of the Annual Report, and IBank administration. She will also manage the sewer connection application review program on behalf of the Authority.

MOTT MACDONALD

This team will be further supported by Project Engineer Robert Esposito, John Dening, PE, and Cassandra Ferrara who will be assigned tasks based on their areas of expertise ranging from hydrologic modeling to wastewater collection and treatment, green infrastructure, and civil and environmental design.

With a professional practice dating back to 1937, Mott MacDonald has a highly developed and diversified team of engineers, scientists, and planners. With our corporate headquarters in Iselin, New Jersey, and a staff of approximately 400 in the Garden State, we have an in-depth understanding of the applicable regulations and policies impacting the Authority. Our extensive local experience has been gained by serving as the consulting engineer in numerous municipalities, counties, and wastewater authorities. For many clients, we have been the appointed wastewater consulting engineer continuously for several decades. It is this local knowledge and expertise has helped drive our growth into a nationally recognized engineering enterprise in the wastewater and environmental fields.

The enclosed information demonstrates that Mott MacDonald has the local core team with the direct experience necessary to provide the Authority with comprehensive general consulting services. NHSA will benefit from working with our nationally recognized experts, and continuous commitment to serve you as our client. Our goal is to provide the Authority with comprehensive engineering advice including our services within wastewater collection system and plant design, geographic information systems and energy related service that will establish a foundation for your facility's and staff's continued excellent performance. Mott MacDonald is committed to delivering solutions that readily facilitate responsible capital planning, regulatory compliance, streamlined designs, cost-effective construction, and successful utility operations. It is this commitment to client care and responsiveness that Mott MacDonald continues to offer to the Authority.

We welcome this opportunity to be of continued service to the NHSA and would be happy to meet with you and other representatives of the Authority to discuss our qualifications and to answer any questions. Please contact us should you have any questions or need any additional information.

Very truly yours,

Mott McDonald

Peter E. Kocsik, PE
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Kevin P. Wynn, PE, PP, CME, BCEE
Vice President
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Section 1
Scope of services and submission form

Scope of services and submission form

Scope of services

Mott MacDonald has reviewed the services requested by the Authority for the Consulting Engineer professional services contract. Through our technical expertise and our proven record of accomplishment, Mott MacDonald is fully prepared to provide these services on behalf of the Authority.

Mott MacDonald has demonstrated the flexibility and resources to serve as the Authority's Consulting Engineer over the past eight years. We have always put the best interests of the Authority first and through our proposal we reaffirm our commitment. We back our commitment and showcase a range of experience in wastewater systems to take a project from concept through to commissioning including .feasibility and scoping studies, detailed design, specification and tender review, construction phase bidding and contract negotiations, project management and construction supervision.

We propose to continue our rolethat will be described within this Scope of Services. In addition, as needed our full range of services will serve the Authority when called upon. Mott MacDonald has a proven record working with the Authority on multiple initiatives including engineering construction and inspection, geotechnical review, design and wastewater collection system projects. We also have full inhouse surveying department based in our Iselin Office, and expertise in Energy systems and Georgraphic Information Systems.

Capital Project Planning

Mott MacDonald will continue to participate in bi-weekly Tracker Meetings to maintain the budgets of the various projects and the status of the capital improvements projects. The participants in this review will be the Authority and the Contract Operator.

This committee develops and updates the asset management data base, capital plan and "The Project Tracker". Mott MacDonald will verify that these capital needs fit within the "Project Tracker". Once a project has been initiated, Mott MacDonald will assist the Authority with preparing the engineering Request for Proposal (RFP) for distribution to the On-Call engineers. Mott MacDonald will also be available to review the engineering proposals and make written recommendations to the Authority Engineer. Once the engineer is selected, Mott MacDonald will work with the consultant to set the design schedule and ensure that the milestones are met.

Funding Assistance

Once the Authority decides to move forward with a project, Mott MacDonald will work with the Authority's grants consultant to determine if the project can be funded through a grant other alternative sources.

The other avenue of funding is the New Jersey I Bank (IBank), formerly the Environmental Infrastructure Trust Program. Mott MacDonald is very familiar with the requirements of the IBank financing program. The firm typically has numerous projects with IBank financing each year and works closely with the NJDEP and IBank staff to meet financing milestones. We will utilize this expertise to prepare and update a report that summarizes the status of the various loans that fund the Authority's capital improvement projects. Table 5 of **Section 3** illustrates some Mott MacDonald projects that have involved IBank financing.

Mott MacDonald will assist the Authority in managing existing loans and aligning the Capital Improvement Program schedules with future funding requests. We will attend meetings with the NJDEP, IBank, and the Authority's loan coordinator on an as-needed basis.

Surveying

Mott MacDonald's in house survey team can be called upon for a range of site work and supply the Authority with needed information to make decisions about design direction or support a full scale design effort.

Mott MacDonald provides a full range of surveying services using state-of-the-art equipment employed by experienced professionals. Our services range from traditional boundary, topographic and existing conditions mapping, to specialty hydrographic services, to state of the art 3D laser scanning and BIM modeling. Our land development and construction experience includes projects requiring regulatory wage compliance and interfacing with construction design and management. The proven ability of the Group's staff results in accurate, efficient and economic service.

Geographic Information Systems (GIS)

Mott MacDonald's expertise and skill sets with GIS services include GIS assessment, GIS mapping, asset and data management, comprehensive GIS characterization, GIS reporting, surveying (topographic and GPS), GIS development for modeling, and development of GIS Standard Operating Procedures and training.

Construction Administration

Our services will continue to include the execution of the project which will include but not be limited to reviewing bid documents for constructability, value engineering and consistency. We would propose design progress meetings where we would be able to troubleshoot potential pitfalls and the Authority and interested stakeholders would have the opportunity to provide guidance on the design outcome.

One extremely important aspect of the is review is to ensure that the member municipalities within the service areas are consulted during the design phase whenever a capital improvement project involves working within their roadways. As the Authority is aware, working within such congested area with high traffic volumes can be very challenging. Furthermore, the member municipalities are very sensitive to the needs of their residents. Therefore, we recommend that we assist the Authority with taking a more proactive approach to integrate the requirements of the municipality into the bid documents.

Another extremely important aspect of our role will be reviewing if utility relocations may be required for a given project to avoid unnecessary change orders or project delays. Most importantly, we will enforce the project design schedule.

This approach to review design will also be utilized when capital work is performed within the Wastewater Treatment Plants. We would ensure that Jacobs has an opportunity to review and comment on the bid documents to insure it meets their expectations. This is especially important from a construction staging point of view.

Our oversight would continue through the construction process as we would attend progress meetings, review progress schedules, inform the Authority Engineer of any issues and provide recommendations for the resolution of said issues. Currently, we are following the construction of the Northwest Resiliency Park project, by attending progress meetings on behalf of the Authority and keeping the Authority informed.

Program management/operational oversight

This coordination discussed above for Engineering and Construction Projects can be extended to the maintenance activities of the Contract Operator and oversight of the CSO Program. It has been communicated to Mott MacDonald that the Authority has a need for an independent agent to interface with the Contract Operator to ensure that the Authority's best interests are protected. Mott MacDonald will review the Contract Operator's monthly status reports and any correspondence with the NJDEP that are required by the Authority's permit.

Coordination with other agencies

Mott MacDonald will support the Authority as may be required to monitor and/or resolve issues, conflicts, and matters affecting the Authority's service area and wastewater treatment with outside agencies or entities.

These parties include but may not be limited to the New Jersey Department of Environmental Protection, U.S. Environmental Protection, New Jersey Transit, the New Jersey Harbor Discharge Group, private developers, and other engineering firms. This work includes written correspondence and attending meetings as directed by the Authority.

Leak detection program

Ongoing meetings with SUEZ water will continue to be held on a quarterly basis, at minimum. The monitoring of flows to the River Road Wastewater treatment plant is critical because an increase above 9.5 million gallons per day discharge on an annual basis would trigger additional regulatory action from the DEP. The added concern for water main leaks directing flow into the combined sewer is that it reduces the Authority's capacity to handle rainfall events. All water main leaks into the Authority's combined sewer system impacts the frequency of CSO events. Ongoing meetings provides the Authority with an understanding of the level of effort SUEZ is making to address leak detection.

Sewer connection program

As the Long Term Control Plan is implemented, Mott MacDonald will continue to support the Authority with its objectives in requiring each new applicant wishing to connect into the combined sewer an Engineering Design which contributes to the Authority's combined sewer peak flow reduction goals. To date, Mott MacDonald has assisted in improving the sewer connection criteria and providing technical expertise and assistance with the Sewer Flood Protection Credit Program. Mott MacDonald will continue to support the Authority in these efforts through recommendations for modifications and execution of the Sewer Use Ordinance.

Permit compliance

Mott MacDonald has had extensive and on-going experience in assisting New Jersey dischargers in critical review of their NJPDES permit conditions, preparation of comments and in negotiating the settlements in direct discussions with NJDEP's staff. Mott MacDonald's engineers have an on-going working relationships with a number of key NJDEP personnel responsible for NJPDES permitting program. We also routinely participate in NPDES policy discussions locally and nationally through organizations such as the Water Environmental Federation (WEF), National Association of Clean Water Agencies (NACWA), New Jersey Water Environment Association (NJWEA) and Association of Environmental Authorities (AEA). This allows us to keep our numerous clients informed early about proposed regulatory policy changes and potential impacts so that planning can occur well in advance of final rulemaking.

General conveyance activities

Mott MacDonald currently serves as the Consulting Engineer for multiple sewerage authorities throughout New Jersey. Mott MacDonald has maintained relationships with several of these clients for over 30 years. In this capacity, Mott MacDonald will attend the Authority's public meetings, prepare contract documents, update the capital improvement program, provide project management, and address the sewerage operator's questions.

Mott MacDonald will assist the Authority in meeting its NJPDES permitting requirements for its collection system and wastewater treatment plants (WWTP). Mott MacDonald will continue assistance with the Green Infrastructure Program, Sewer Lining and Rehabilitation, and general support of all NJDEP requirements in compliance with NJPDES operating permits.We will continue to submit quarterly progress reports to the NJDEP for the Purac, Phase III project.

Annual report

Mott MacDonald will prepare an annual report for the Authority that will document and evaluate the condition of the treatment plant and the collection system facilities, and document needed improvements. The needed improvements may be used to develop the Authority's capital improvement plan.

Meetings

Our Scope of Work will include representing the Authority at the following meetings:

1. Operations
2. Facilities
3. Authority Public Meetings
4. The Harbor Discharges Group
5. PVSC CSO Group
6. Rebuild by Design
7. NJDEP CSO Progress Meeting
8. Public Participation for CSO Compliance

Project management

As indicated in our organizational chart, each of the above categories or subcategories of assignments will be managed by the Project Manager. The Assistant Project Manager will primarily be responsible for carrying out activities such as interfacing with the regulatory agencies and private developers. All monthly and annual status reports that are submitted to the Authority will be prepared by this management team. The project management team will be fully supported by the Mott MacDonald executive managers and the team project engineers for specific assignments.

Iselin Design Center

One of the ways Mott MacDonald will be capable of delivering cost effective design work is the fact that all of the supporting disciplines are located within a thirty-minute drive of the Authority's administrative offices in our Iselin Design Center. These disciplines include:

- Structural Engineering
- Instrumentation and Control
- Surveying
- Electrical Engineering
- Geotechnical Engineering
- Energy Systems
- GIS and Information Management
- Mechanical, electrical and plumbing
- Architecture
- Landscape Architecture

NORTH HUDSON SEWERAGE AUTHORITY

SUBMISSION FORM

1. Names and roles of the individuals who will perform the services and description of their education and experience with projects similar to the services contained herein including their education, degree and certifications:

Please see Section 2 - Key personnel.

2. References and record of success of same or similar service:

Please see Section 3 - Relevant experience.

3. Description of ability to provide the services in a timely fashion (including staffing, familiarity and location of key staff):

Please see Section 1 - Submission form.

4. Cost details, including the hourly rates of each of the individuals who will perform services and all expenses:

Please see Section 1, paage 1.9 for estimated cost of services. Remaining Cost Details are provided in Section 4, including the hourly rate structure for 2022.

Note: Attach additional sheets as necessary.

Firm Mott MacDonald, LLC Date: December 14, 2021

Authorized Representative (Print): David Thomas, CEng

Signature: Thomas. Title: Senior Vice President

Telephone No.: 973.912.2516 Fax No.: 732.540.0431

Submission form

1. Names and roles of the individuals who will perform the services and description of their education and experience with projects similar to the services contained herein including their education, degree and certifications:

A detailed organizational chart and resumes are provided in Section 2 of the submission. A concise description of the key personnel proposed for this project is provided below:

Kevin P. Wynn, PE, PP, CME, BCEE, Authority Consulting Engineer: As Authority Consulting Engineer, Mr. Wynn will be responsible for meeting our commitment to the Authority and will be the day-to-day contact person with the Authority. Mr. Wynn is a licensed New Jersey Professional Engineer and a Board Certified Environmental Engineer. With over 30 years of experience, he will coordinate all engineering work, communications with the NJDEP, discharge permit management, construction management, and technical regulatory compliance. He is currently the Project Manager for the H6/H7 and the 2017 Collection System Improvements construction projects. He is also the Project Manager for the Hamilton Avenue Sewer Improvements, the Park Avenue Siphon Improvements and the PURAC Improvements, Phase II. Additional information on education, degrees, certifications, and experience is available in his complete resume provided in Section 2.

Peter E. Kocsik, PE, Quality Assurance Manager: As our senior-level wastewater facilities design specialist, Mr. Kocsik will manage and monitor performance on our

project assignments. Mr. Kocsik will lead the quality assurance and quality control reviews and will provide the advisory technical support and input needed to address the Authority's wastewater infrastructure needs. With over 30 years of experience, Mr. Kocsik provides extensive technical leadership and knowledge in support of our major wastewater projects within the New Jersey and New York region.

Karen J. Karvazy, PE, Project Manager: Ms. Karvazy will assist Mr. Wynn on the project administration and management activities on our assignments for the Authority. She will continue to support the Authority through the ongoing review and management of the sewer connection applications with an understanding of the Authority's CSO reduction objectives. She has over 16 years of experience with municipal planning, design and construction, including upgrades of existing wastewater treatment facilities and rehabilitation of wastewater collection facilities.

Robert Esposito, EIT, Project Engineer: Mr. Esposito has also worked on various wastewater infrastructure and civil engineering projects including maintenance of traffic planning, civil design, gravity sewers, and force mains. Specifically, his work on Authority projects include design for the Madison Avenue and H6/H7 improvements. Mr. Esposito has also supported the Authority through his work with the sewer characterization study and review of the work completed by Red Zone. Mr. Esposito will continue providing engineering support to the Authority through his role as Project Engineer.

John Dening, PE, CFM, Hydraulic Modeling and Analysis: Mr. Dening will oversee and manage any H&H modeling tasks as may be required. He has worked 17 years the field of H&H modeling and has experience in systemwide sanitary and combined sewer collection system modeling, watershed analysis, and modeling of customized hydraulic structures. He manages several modeling and report tasks for the Authority's combined sewer management permit, and has worked with several CSO municipalities. He also has experience in stormwater design, flood control and interior drainage analysis. Additional information on education, degrees, certifications, and experience is available in his complete resume in Section 2.

Sabina Martyn, PE, P.Eng, Project Engineer: Ms. Martyn has experience at the intersection of stormwater management and policy. She has served as the Project Engineer for the River Road and the H1 through H5 Modeling Projects on the behalf of the Authority. She is skilled in hydraulic and hydrologic modeling and analysis, and has been involved in several green infrastructure and combined sewer overflow undertakings, and is familiar with related software including ArcGIS, Bentley StormCAD, Infoworks ICM, Civil 3D Hydrographs, HEC-RAS, and WIN-TR 55. She has a strong understanding of regulatory triggers, approvals, and permitting as they relate to stormwater and flood hazard areas, and has served as liaison with regulatory agencies, stakeholder organizations, and members of the public for numerous projects. Ms. Martyn's experience also includes local and global research focused on water policy as it relates to climate change resiliency.

Duane Chapman, GIS/Information/ Assessment Management: Mr Chapman manages the water and wastewater GIS Group, which provides GIS database design and standardization, analysis, data conversion, and implementation services to water and wastewater utility clients in support of regulatory, planning, and asset management activities. Additional information on education, degrees, certifications, and experience is available in his complete resume in Section 2.

John Scheri, PE, BCEE, ENV SP, Wastewater Treatment Plant Design: Mr. Scheri is Mott MacDonald's Wastewater Practice Leader, based in our Iselin Office. In this role, he is responsible for technical guidance, cutting edge technology and oversight for the all wastewater projects undertaken by Mott MacDonald. As such, he will provide the Authority with over 25 years of experience and expertise in the management, design, and construction of wastewater treatment facilities. Additional information on education, degrees, certifications, and experience is available in his complete resume in Section 2.

Jurek Patoczka, PhD, PE, BCEE, Plant Process Engineer: As Mott MacDonald's lead Process Design Specialist, Dr. Patoczka's responsibilities include development and evaluation of wastewater treatment plant operation, expansion and upgrade alternatives, review of wastewater treatment plant designs from a process standpoint, design and supervision of laboratory and pilot plant treatability projects, and preparation of engineering and project reports. His expertise includes wastewater process optimization and increasing the treatment capacity of existing plants through minor modifications. Dr. Patoczka with his staff in Iselin, NJ have also assisted a number of dischargers in critical review of their NPDES permits and in negotiating and recalculating permit limits for toxic pollutants, particularly heavy metals. Dr. Patoczka is one of the principal authors of the WEF Biological Nutrient Removal Manual of Practice that is currently being updated. Additional information on education, degrees, certifications, and experience is available in his complete resume in Section 2.

2. References and record of success of same or similar service:

Wastewater management is a cornerstone of Mott MacDonald's engineering practice. The firm is routinely involved in all aspects of wastewater management, including day-to-day consultation, asset management, troubleshooting, plant evaluation and process studies, initial planning and feasibility studies, preliminary and final design, and start-up services. Mott MacDonald has an extensive NJ-based construction management team. We also provide contract operations through Mott MacDonald Operating Services, LLC.

In addition to our national level expertise, we will draw from our local experience as both the licensed operator and the named authority engineer for several municipal utilities in Northern New Jersey. Examples include services as the sanitary sewer consultant for the Cities of Bayonne and Elizabeth, the collection system operator for the City of Passaic, and the operator of the Caldwell Borough Sewage Treatment Plant.

Detailed information regarding Mott MacDonald's expertise on select aspects of our wastewater management practice is provided by the project briefs included in Section 3 of this proposal. In Section 3, we have supplemented the case studies with tables that summarize projects that we feel best demonstrate our capabilities and versatility to provide general consulting engineering services to the Authority. The following is a brief description of each table included in Section 3:

- Table 1 lists several of our Annual Wastewater Appointments and includes descriptions of the facilities involved, services rendered, years of service, and reference contact information
- Table 2 summarizes representative projects implemented by Mott MacDonald for Combined Sewer Overflow (CSO) abatement
- Table 3 lists representative projects on wastewater treatment plants, including engineering services for feasibility studies, design, permitting, funding assistance, and construction observation
- Table 4 summarizes Mott MacDonald's experience with wastewater treatment plant permitting, water quality studies, operational assistance, and treatability studies
- Table 5 illustrates Mott MacDonald's experience with the IBank Financing Program

We encourage the Authority to contact the references included in Section 3. However, our most compelling reference and record of success is on our assignments to date for the North Hudson Sewerage Authority. These assignments have ranged from funded capital improvements to smaller designs and repair work.

A listing of some of these projects include: Adams Street WWTP Sludge Line Replacement, Green Infrastructure Improvements, Sewer Cleaner and CCTV Truck procurements, Ibank Administration, Emergency Outfall Repair work, 2020 W1234 Emergency Outfall Lining, construction of the W1234 Outfall and Solids and Floatables Facility, support for the Long-Term Control Plan including the H6/H7 Collection System design, Madison Street Sewer System Improvements, the Park Avenue Siphon Improvements, the Jackson Street Wood Sewer rehabilitation, the 18th Street Pumping Station upgrade and its new combined sewer overflow force main, the Adams Street plant outfall rehabilitation, engineering services during construction for numerous sewer rehabilitation and replacement projects, and ongoing annual collection system and Adams Street and River Road WWTP improvement contracts. In addition to these construction related projects, we work with the Authority on multiple daily tasks and continually strive to meet their goals and objectives. We consider these small wins to be an important aspect of our services with the Authority. Most recent tasks include assistance with the H6/H7 dewatering permit, completion of bid for the new CCTV trucks and cleaning equipment and completion of the H6-H7 CSO Long Term Control Plan Project Phase 1 design.

3. Description of ability to provide the services in a timely fashion (including staffing, familiarity and location of key staff):

All key Mott MacDonald personnel that will work on this project are located in our full-service design center in Iselin. The proposed project staff are available to provide the proposed services in a timely fashion. Mott MacDonald has performed work in the North Hudson system and has a strong working knowledge of the history and operation of the combined sewer system.

4. Cost details, including the hourly rates of each of the individuals who will perform services and all expenses:

Mott MacDonald proposes to provide engineering services as the Authority Engineer on a reimbursable basis for actual time and expenses in accordance with our prevailing rate schedule. We have included a copy of our 2020 Rate Schedule in Section 4.

The annual budget based on the estimated level of effort of approximately 15 to 20 hours per week with similar level of service that we have provided working with the Authority during the past seven years as the Authority's Engineering Consultant.

We are prepared to continue our role with the Authority, as described in the Scope of Services above. The practice to oversee design and construction management efforts, and help streamline construction administration will enhance the way the Authority manages their projects.

The total cost of our services with this additional role would be approximately **$175,000:**

Figure 1.1

Consulting Engineer Proposed Cost of Services

1.	Construction coordination, administration of IBank, regulatory assistance, permit compliance	$100,000
2.	Meeting Attendance	$25,000
3.	Review of Capital Budgets	$12,000
4.	Preparation of the Annual Reports	$7,000
5.	Program Management/Operational Oversight	$20,000
6.	Assistance with NHSA Program Initiatives, including Leak Detection Program, Sewer Connection Program	$11,000
	Total Budget	**$175,000**

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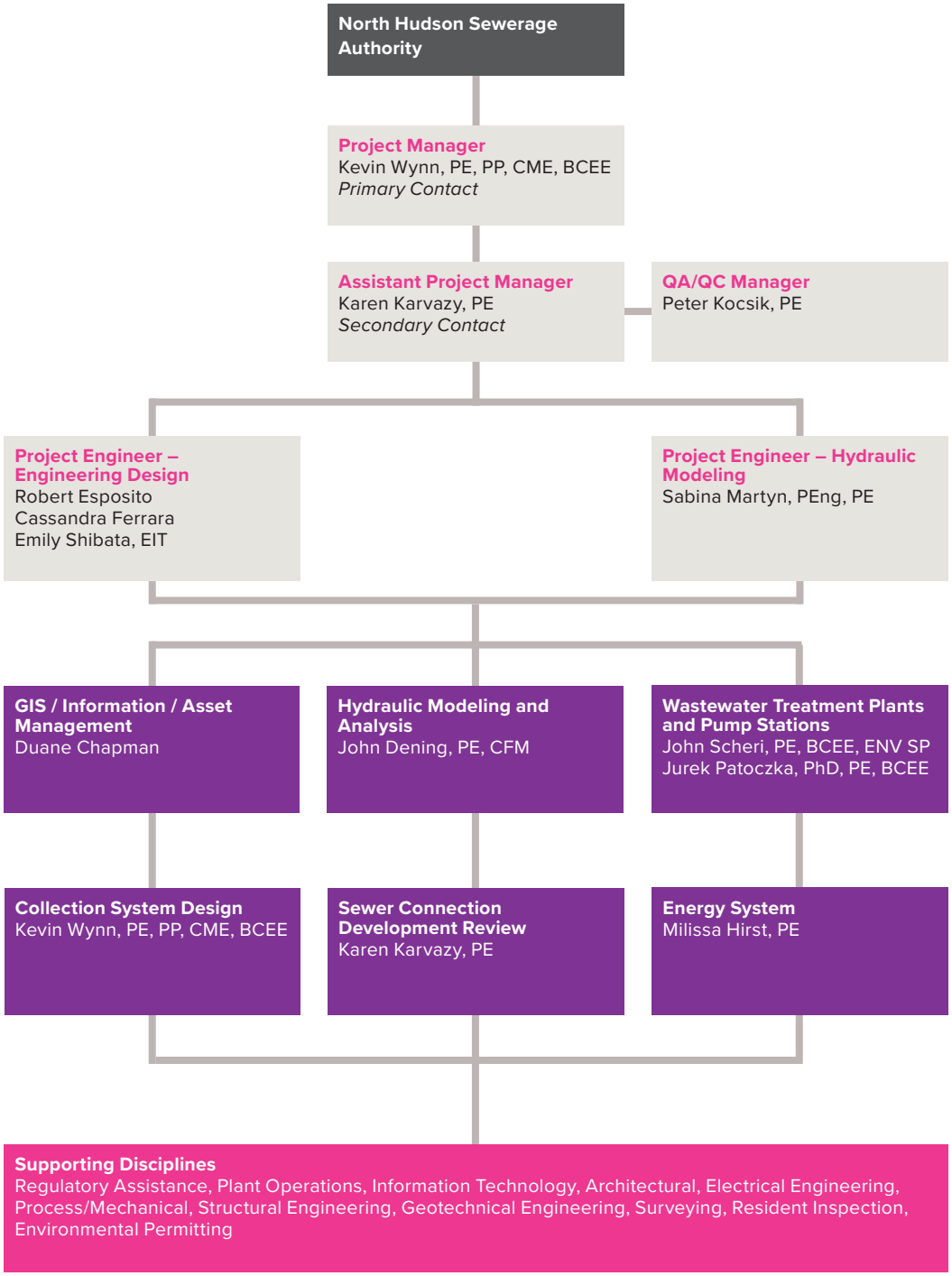
Section 2
Key personnel

Key personnel

Organizational chart



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Kevin Wynn, PE, PP, CME, BCEE

Education

MS, Environmental Engineering, New Jersey Institute of Technology, 1996

BS, Civil Engineering, New Jersey Institute of Technology, 1990

Registrations

Professional Engineer NJ #24GE03902500, 1995

Professional Planner NJ #33L100538200, 1997

Certified Municipal Engineer NJ, 1997

Board Certified Environmental Engineer, AAEE

Mr. Wynn has extensive experience providing engineering design and consulting services for residential/commercial site development and municipal engineering throughout New Jersey. His management responsibilities have included technical staff management and training, quality control, client liaison, and financial management of projects. He has extensive experience with New Jersey regulatory agencies, and has provided professional testimony on numerous occasions. As Project Director, Mr. Wynn has been responsible for negotiating contracts, preparing contract documents, project scheduling, and administering performance bonds. His contract administration duties include bid review, scheduling, processing contractor's payment requisitions, correspondence, managing project budgets, shop drawing review, and supervising construction inspection.

Mr. Wynn's responsibilities include obtaining the required approvals for projects, including US Army Corps of Engineers permits, New Jersey Turnpike approvals, New Jersey Department of Transportation permits, NJDEP Treatment Works Approvals, New Jersey Environmental Infrastructure Trust Loan Program approvals, and Soil Conservation Permits. He has assisted municipalities achieve compliance with the NJDEP's new Municipal Stormwater Management Regulations. This work included the preparation of Municipal Stormwater Management Plans, Pollution Prevention Plans, Mitigation Strategies, and Annual Reports/Certifications.

Selected projects

Consulting Engineer, North Hudson Sewerage Authority, Hoboken, NJ: Appointed Authority Consulting Engineer for an Authority that owns and operates two sewage treatment plants and a collection system that serves four municipalities in the northern portion of the County. Responsibilities include attending public meetings, managing capital improvement projects, review of developer plans, interaction with regulatory agencies, facility planning, and construction administration.

River Road Wastewater Treatment Plant Odor Control Improvements, North Hudson Sewerage Authority, West New York, NJ: Project Manager for construction phase services for the $0.6 million treatment plant improvement, consisting of the installation of a new activated carbon odor control system for the facility's sludge holding tanks and new chemical feed lines.

W1234 Solids and Floatbles Facility, North Hudson Sewerage Authority, Hoboken, NJ: Project Manager for the $14 Million construction of the W1234 Solids and Floatables Structure for CSO discharge to the Hudson River. The structure consists of a cofferdam with above ground landscaping. This project is nearing completion.

W1234 CSO Outfall, North Hudson Sewerage Authority, Hoboken, NJ: Project Manager for the $10 Million construction of approximately 840 linear feet of 96-inch diameter CSO outfall pipe and the rehabilitation of the existing parallel pipe.

Outfall Rehabilitation, Adams Street Wastewater Treatment Plant, North Hudson Sewerage Authority, Hoboken, NJ: Project Manager for the design and permitting for the rehabilitation of the 50-year old 48-inch diameter reinforced concrete pipe (RCP) outfall, and installation of by-pass pumping, for the Adams Street Wastewater Treatment Plant. Responsibilities include traffic control and the selection of internal lining.

Sewer Rehabilitation, Newark and Jackson Streets, North Hudson Sewerage Authority, Hoboken, NJ: Project Manager for the construction phase services for the rehabilitation of 10,000 lf of wood and brick sewers by gunite lining of the interior of the conduits.

Kevin Wynn, PE, PP, CME, BCEE (cont.)

Wooden Sewer Rehabilitation, North Hudson Sewerage Authority, Hoboken, NJ: Project Manager for the construction phase services for the $2.8 million rehabilitation of 3,500 lf of wood sewers by gunite lining.

Combined Sewer System Phase 3-4 Sewer Cleaning and Rehabilitation, Jersey City Municipal Utilities Authority, Hudson County, NJ: Served as the Project Director for the Authority's Combined Sewer System Capacity and Condition Assessment Study to inspect and evaluate its sewer system in order to identify actions needed to address structural and functional (i.e., hydraulic capacity) issues. The sewers scheduled to be addressed under this project were initially evaluated under Phases 3 and 4 of the Capacity and Condition Assessment Study. During these initial investigations, field data was collected at over 2,000 manholes using an InfraMetrix zoom camera to record the structural and operational condition of the inspected manholes and connecting pipes. Based on this field data, the Authority has compiled recommendations and prioritized sewer cleaning and rehabilitation needs in accordance with the Consent Decree agreement with the United States Environmental Protection Agency (EPA).

SuperStorm Sandy Post Disaster Assistance, Jersey City Municipal Utilities Authority, Hudson County, NJ: Managed the inspection and preparation of damage assessment reports for numerous assets owned and maintained by the Authority that were damaged by SuperStorm Sandy. This documentation supported Project Worksheets that were submitted to the Federal Emergency Management Administration (FEMA) to fund the repair of the Authority's damaged infrastructure.

Pumping Station, Combined Sewer Overflow (CSO) Force Main, and Outfall, North Hudson Sewerage Authority, Weehawken, NJ: Project Manager for the design and permitting of a 48-inch diameter combined sewer force main from the recently upgraded 18th Street Pump Station to a proposed outfall in the Hudson River. Currently during wet weather events, the pumping station discharges combined sewage to the Hudson River via an NJDEP-permitted outfall. Flow from the pumping station to the outfall is via a gravity sewer that also has storm drain inlets. The gravity sewer is undersized and is in a state of disrepair. The proposed force main crosses the New Jersey Transit Hudson/Bergen Light Rail Line, which requires a license to cross. The force main will be installed via microtunneling. Challenges encountered included numerous underground utility conflicts, a high water table, and unstable soil conditions.

Overpeck Valley Relief Sewer, Bergen County Utilities Authority (BCUA), Little Ferry to Englewood, NJ: Serving as Project Manager on the final design and permitting for the $60 million Overpeck Valley Relief Sewer. The project includes the construction of approximately 5.2 miles of a parallel relief sewer, ranging in size from 96-inch diameter to 42-inch diameter. The alignment of the project encompasses five municipalities. Just over 1 mile of the pipeline was microtunneled beneath the New Jersey Turnpike and the CSX Transportation, Inc. automobile transfer terminal. The pipeline was constructed to eliminate the discharge of raw sewage overflows into the Overpeck Creek. The BCUA has entered into an Administrative Consent Order (ACO) requiring BCUA to eliminate this overflow. The project was financed through the New Jersey Environmental Infrastructure Trust Loan Program.

Karen Karvazy, PE

Education

MS, Environmental Engineering, Duke University, 1998

BS, Environmental Engineering, North Carolina State University, 1995

Registrations

Professional Engineer NJ #GE53664

Memberships

American Society of Civil Engineers

Environmental and Water Resources Institute of ASCE

Ms. Karvazy joined Mott MacDonald with significant experience providing consulting engineering services to municipal clients for water supply, wastewater, and stormwater infrastructure planning, design, and construction projects. Her experience includes master planning studies and hydraulic modeling of pressurized and gravity flow networks.

Selected projects

Sewer Connection Reviews and Engineering Support, North Hudson Sewerage Authority (NHSA), Hudson County, NJ: Project Engineer providing ongoing support for multiple projects, including 100+ sewer connection development reviews, recommendations for sewer connection requirement revisions, and engineering support for ongoing design and/ or construction projects, including the 2016 improvements at the River Road Wastewater Treatment Plant, Adams Road Grit Classifier Replacement, and the W1234 Outfall.

Wastewater Master Plan, Town of Newton, Sussex County, NJ: Project Engineer responsible for the preparation of the Wastewater Master Plan report for the City's sewer collection system and wastewater treatment plant. Report recommendations included a 10-year, $12 Million Capital Improvements Program (CIP) based on risk management and a priority ranking system for upgrades at the treatment plant.

Screenings and Removal Study, Two Bridges Sewerage Authority, Morris County, NJ: Project Engineer responsible for the preparation of the Screenings and Removal Study Report, which included the capital and operations and maintenance (O&M) cost estimations for three proposed alternatives for improving screenings and grit handling at three satellite pump stations and the wastewater treatment plant. Based on the study findings, the client proceeded with the design of a centralized grit and screenings removal system and open impellor design upgrades at satellite pump stations.

Municipal Stormwater Utility Creation, City of Bartow, Polk County, FL: Project Manager responsible for developing a new stormwater utility and equitable rate structure for the City. The project was carried out to meet requirements from multiple stakeholders, including funding and regulatory agencies. Project achievements included a detailed inventory and reporting of stormwater structures, creation of a methodical approach for calculating and assigning impermeable areas of all commercial, residential, and institutional land parcels within City jurisdiction, calculations of probable City revenue of three potential rate structure scenarios, workshops and presentations to the Board of Commissioners and public to communicate the basis of the proposed rate structure, and completion of the method of billing through the County Tax Appraiser's office based on strict regulatory deadlines for public comment.

Wastewater Infrastructure Improvements Feasibility Study, City of Bartow, Polk County, FL: Project Manager in charge of a financial feasibility study for a proposed $34 million wastewater treatment plant expansion and collection system upgrade.

Wastewater Treatment Plant Upgrades, City of Frostproof, Polk County, FL: Principal Design Engineer of a 0.5 MGD expansion of a Sequencing Batch Reactor (SBR) wastewater treatment plant.

Wastewater Reuse System, City of Auburndale, Polk County, FL: Project Engineer for the design and permitting of a 1.5 MGD wastewater reuse sprayfield. The project required multiple spray zones and pumping rates.

Sewer System Master Plan, City of Auburndale, Polk County, FL: Project Engineer responsible for a 10-year master sewer system study, including review of existing capacity, future development, and presentation of a 10-year Capital Improvement Plan.

Karen Karvazy, PE (cont.)

Pump Station Flood Protection Improvements, City of Bartow, Polk County, FL: Senior Project Manager in charge of the design and funding procurement for flood protection improvements to a 4.0 MDG master lift station. Project design included a flood wall and documentation in accordance with FEMA requirements.

Force Main Improvements, City of Bartow, Polk County, FL: Principal Design Engineer of a 7-mile 24-inch diameter force main. Provided route analysis and design services from concept design through to the preparation of construction bid documents.

Sewer System Modeling, City of Bartow, Polk County, FL: Senior Project Engineer for the design of a 2,000+-node sewer system model which included acquiring and managing manhole location and invert and pump station and force main data. Responsible for sewer model construction and analysis using Bentley Systems SewerCAD modeling software, and preparation of the final report, which identified areas of deficiency within the sewer system.

Sewer System Operations and Maintenance (O&M) Plan and Manual, City of Newark, Essex County, NJ: Project Engineer responsible for the documentation of the O&M procedures for the City's combined sewer system, providing documentation of all sewer system maintenance procedures carried out by the City's Water and Sewer Utility. The project was completed in accordance with the terms of a USEPA Compliance Order.

Water System Analysis, City of Tallahassee, Leon County, FL: Project Engineer in charge of the review and analysis of the City's water system model to review areas of reported low pressure using Bentley systems WaterCAD modeling software. The analysis included identifying locations for and the installation of pressure recorders, flow testing at targeted test points, model calibration, data review, and reporting of system deficiencies.

10-Year Master Stormwater Plan, City of Bartow, Polk County, FL: Project Manager responsible for developing a Master Stormwater Plan. The project was performed in conjunction with the creation of the City's Stormwater Utility as a requirement for program funding by the Southwest Florida Water Management District. The project included a detailed mapping of all stormwater structures in place and prioritizing of proposed capital improvements with associated costs. The proposed capital improvements identified in this study were developed in tandem with the proposed Stormwater Utility rate structure.

Papers

"Proceedings for the World Environmental and Water Resources Congress 2015: Floods, Droughts, and Ecosystems" (Technical Co-Editor), Environmental and Water Resources Institute of ASCE, with Webster, V., 2015

"Gravity and Sanitary Sewer System Design and Construction" Chapter (contributing author), ASCE Manual of Practice N. 60, 2nd edition, 2007

Peter Kocsik, PE

Education

MS, Civil Engineering, New Jersey Institute of Technology, 1985

BS, Civil Engineering, New Jersey Institute of Technology, 1981

AAS, Civil Engineering Technology, Middlesex County College, 1978

Registrations

Professional Engineer NJ #24GE03067600, 1985

OSHA Confined Space Entry

Memberships

Association of Environmental Authorities

New Jersey Water Environment Association

Water Environment Federation

Mr. Kocsik's extensive experience includes with the planning, design, and construction of various wastewater, water, and stormwater facilities. He has been responsible for numerous sewer system studies and capital improvement programs for various sewerage authorities throughout New Jersey, and is currently serving as the Appointed Engineer for several utilities authorities. He is familiar with NJDEP regulations and permitting requirements as well as funding agencies, such as the New Jersey Environmental Infrastructure Trust (NJEIT), the USEPA, and the Federal Emergency Management Agency (FEMA). As Area Manager for wastewater services in Mott MacDonald's Iselin, NJ headquarters, Mr. Kocsik supervises a staff of approximately 50 engineers, designers, and field inspectors involved in the design and construction of new sewer systems, the rehabilitation of aging sanitary sewers, the upgrade of wastewater pumping stations, and the modernization of wastewater treatment facilities.

Mr. Kocsik has served as Project Manager for numerous wastewater projects ranging from capacity studies to the design and construction of wastewater treatment plants. These projects have included wastewater conveyance capacity studies, preparation of sanitary sewer master plans and wastewater management plans, design and construction administration of interceptor and collection sewer systems, design of new and rehabilitation of existing wastewater pump stations, and the planning and design of improvements to various wastewater treatment plants. He has experience in pipeline assessment and trenchless pipeline rehabilitation techniques to rehabilitate aging sewers, including slip-lining, cured-in-place pipe (CIPP) lining, pipe bursting, and internal rehabilitation. He has served as the Project Engineer for the design and construction engineering services for over 100 miles of sanitary sewers, ranging from 8-inches to 120-inches in diameter, and over 50 pump stations, with capacities up to 85 MGD.

Selected projects

Central Wastewater Treatment Plant Boiler Building, Middlesex County Utilities Authority (MCUA), Sayreville, NJ: Project Manager for the design and construction phase services for the construction of a new boiler system and building for various plant operations at the 132 MGD wastewater treatment plant.

Northern Wastewater Treatment Plant (WWTP) Aeration Upgrades, Ocean County Utilities Authority, Ocean County, NJ: Client Manager and Project Engineer for the design of aeration blower upgrades at the 32 MGD Northern WWTP, as well as the feasibility study and design for the replacement of two 700-HP blowers and the replacement and re-routing of SS aerial blower piping to primary treatment tanks. The project Includes electrical and control upgrades and other miscellaneous plant upgrades.

Main Flow Meter/Primary Influent Line, Central Treatment Plant, Middlesex County Utilities Authority (MCUA), Sayreville, NJ: Project Manager for a $7 million improvement to the Central Treatment Plant to provide system redundancies. Project involved the construction of a secondary 120-inch diameter primary influent line between the aerated grit tanks and primary sedimentation tanks to supplement the suspect primary PCCP pipeline. Also included was the construction of a new 96-inch diameter magnetic flow meter (largest in USA at the time) on the new 120-inch pipeline and a replacement of the 72-inch venturi with a second new 96-inch Mag meter on the primary line. Modifications to both the effluent channel of the aerated grit tank and influent channel of the primary sedimentation tank. Work was completed while maintaining average daily flows of 100+ MGD.

Modifications to the Seven Mile Beach Wastewater Treatment Plant, Cape May County Municipal Utilities Authority, Cape May, NJ: Assisted the Authority in the study of a biofilter facility to replace existing stack towers to control odor emissions from the Seven Mile Beach/Middle wastewater treatment plant.

Peter Kocsik, PE (cont.)

Wastewater Treatment Plant Evaluation, Cape May County Municipal Utilities Authority, Ocean City, NJ: Conducted a study of existing rotating biological contactors (RBCs) at the wastewater treatment plant to optimize chemical addition and achieve desired removal rates to meet discharge permit parameters.

Advanced Wastewater Treatment Plant, Woodstown Sewerage Authority, Salem County, NJ: Project Engineer in charge of contract administration of a 0.525 MGD advanced wastewater treatment plant. The project involved constructing a new plant around the old facilities while maintaining plant operations. The new plant utilizes counter-current aeration basins, clarifiers, sand filtration, and ultraviolet (UV) disinfection.

Wastewater Re-Use Pump Station, Middlesex County Utilities Authority (MCUA), Sayreville, NJ: Project Manager of the design and construction of a 7 MGD wastewater effluent re-use pump station. The effluent re-use pump station provides a supply of water to a 700 MW power plant located 3 miles away for the wastewater treatment plant. The $5.5 million facility was built on time to meet the strict schedule of the power plant construction.

Edison Pump Station Rehabilitation, Middlesex County Utilities Authority (MCUA), Woodbridge, NJ: As part of the Edison force main project, the MCUA desired major upgrades to the 85 MGD Edison pump station. Improvements included the replacement of five 500 HP sewage pumps, new variable frequency drives (VFDs), new pump controls, conversion from 2,400v power to 480v power, a new load-sharing natural gas generator system, a new dual discharge header, and replacement of valves and piping. Project also included the design of a temporary 85 MGD by-pass pumping system convertible to a permanent by-pass pumping system.

Gulley Road Sewage Pump Station, Freehold Township, Monmouth County, NJ: Construction phase engineering of a 1.5 MGD sewage pump station including shop drawing review.

Pump Station and Force Main Upgrading, Ocean County Utilities Authority, Bayville, NJ: Project Engineer responsible for an alternative feasibility study and subsequent design to upgrade existing wastewater pump stations and force mains. The design involved rehabilitating and upgrading a 12.0 MGD and a 19.0 MGD pump station and constructing 23,000 feet of parallel 36-inch diameter force mains.

College Avenue Sewage Pump Station, City of New Brunswick, Middlesex County, NJ: Design and preparation of contract drawings for rehabilitation of a small sewage pump station.

Sunset Lake Pump Station, Upper Deerfield Township, Cumberland County, NJ: Project Engineer responsible for the design and construction administration of a 0.5 MGD sewage pump station equipped with a variable frequency drive.

Half Acre Road and Dey Road Pump Stations, Cranbury Township, Middlesex County, NJ: Project Engineer in charge of the design of the 3.5 MGD Dey Road pump station and 1.5 MGD Half Acre Road pump station. The projects also involve the extension of a 16-inch diameter force main approximately 4,000 feet from the Dey Road pump station and the extension of a 12-inch diameter force main from the Half Acre Road pump station.

Modifications to Sewer System Pump Stations, Landis Sewerage Authority, Cumberland County, NJ: Project Engineer for the modifications to six existing wastewater pumping stations within the sewer system. The projects included the replacement of stationary, standby generator systems for the Oak Road and New Pear Street pumping stations, the installation of a new generator at the Brewster pump station, and the replacement/installation of comminutor facilities at the Lincoln Avenue, Little Robin, and Linwood Avenue pump stations.

Maple Avenue Pump Station, South Plainfield Borough, Middlesex County, NJ: Project Engineer responsible for the design of a 7.5 MGD wastewater pump station and force main to serve the Borough and alleviate capacity issues within the existing Plainfield Joint Meeting sanitary sewer system.

Bypass Pump Station, Manasquan River Regional Sewerage Authority, Monmouth County, NJ: Project Engineer responsible for the design and construction engineering services for a 4.5 MGD emergency bypass pumping station located at the Upper Manasquan Pump Station site. The emergency bypass pump station included independent power source pump controls separate from the main pumping station facility.

Robert Esposito

Education

BS, Civil Engineering, New Jersey Institute of Technology, 2018

AS, Engineering, Essex County College, 2016

Mr. Esposito has worked on various wastewater infrastructure and civil engineering projects including maintenance of traffic planning, civil design, gravity sewers, and force mains. Specifically, his work on NHSA (Authority) projects include design for the Madison Avenue and H6/H7 improvements. Mr. Esposito also supported the Authority through his work with the sewer characterization study and review of the work completed by Red Zone.

Selected projects

2020 Collection System Improvements, North Hudson Sewerage Authority, Union City and Weehawken, NJ: Perform condition assessments of specific existing combined sewers . Determined whether the sewer could be repaired with cured-in-place pipe (CIPP) lining or needed to be replaced via open cut excavation. Drafted all drawings associated with project.

2019 Collection System Improvements, North Hudson Sewerage Authority, Union City and Weehawken, NJ: Assessed condition of specific existing combined sewers . Determined whether the sewer could be repaired with cured-in-place pipe (CIPP) lining or needed to be replaced via open cut excavation. Drafted all drawings associated with the project.

Sewer Rehabilitation Phase 3-4, Jersey City Municipals Authority, Hudson County, NJ: Provided design and inspection services, including all necessary traffic control plans. Provided inspection services when needed.

Sewer Rehabilitation Phase 1-2, Jersey City Municipals Authority, Jersey City, NJ: Assisted with the design of the proposed combined sewer replacement and water main replacement for various locations throughout the city. Responsible for logging and reviewing all contractor requests for information (RFIs) and submittals.

Boulevard East Combined Sewer Improvements, North Hudson Sewerage Authority, Hoboken, NJ: Provided design services for the proposed separate storm sewer, rehabilitation of the existing combined sewer, and design of a 24-inch diameter force main.

Adams Street Plant Outfall, North Hudson Sewerage Authority, Hoboken, NJ: Assisted with the design of a new 24-inch diameter outfall.

Combined Sewer Overflow Long Term Control Plan (CSO LTCP) H6-H7, North Hudson Sewerage Authority, Hoboken, NJ: Assisted with the design of the proposed separate storm sewer and force main. Responsible for drafting of all plan, profile, and detail sheets. Assisted with the design of proposed special stromwater structures.

Madison Street Infrastructure Improvements, North Hudson Sewerage Authority, Hoboken, NJ: Assisted with the design of the proposed replacement of the combined sewer within Madison Street from 9th Street to 11th Street. Responsible for drafting of all plan, profile, and detail sheets. Oversaw and directed all test pits for utility location.

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Sabina Martyn PEng, PE

Education

MPA, Environmental Science & Policy, Columbia University, 2014

BEng, Water Resources Engineering, University of Guelph, ON, 2009

Registrations

Professional Engineer NY, NCEES Results, 2017
ON #100150594, 2013

Health Canada Workplace Haz Materials Info System, 2014

Certified Inspector of Sediment & Erosion Control, 2011

Memberships

Canadian Green Building Council

Ontario Water Works Association

Professional Engineers of Ontario

Ms. Martyn has gained significant water resources engineering experience, particularly in the area of stormwater management and policy. She has a strong understanding of Federal, State, and Provincial regulatory triggers, approvals, and permitting processes, and has served as liaison with regulatory agencies, stakeholder organizations, and members of the public for numerous projects. She is also skilled in stormwater modeling and analysis, including the use of ArcGIS, AutoCAD, Bentley StormCAD, Infoworks ICM, Civil 3D Hydrographs extension, SWMHYMO, HEC-RAS, EPA-SWMM, and WIN-TR 55.

Ms. Martyn's experience includes extensive local and global research focused on water policy as it relates to climate change resiliency. For the United Nations, she completed a high-level literature review and assessment of UN-Water, identifying program objectives and progress and proposed operational recommendations. She was also involved in an assessment of proposed legislation to provide Federal funding to US coastal states for the development of climate change adaptation plans. Her 2013 Global Public Policy Network Conference presentation "Cooperative Natural Resource Management as a Foundation for Regional Trust-Building" received a Best Presentation Award.

Selected projects

Saw Mill Run Hydraulic Model Gap Analysis, Pittsburgh Water and Sewer Authority, Allegheny County, PA: Assisted with reviewing the existing SWMM hydraulic model, and undertook an analysis to identify calibration and validation deficiencies based on WaPUG modeling standards. Identified gaps in existing flow monitoring data and proposed sites for future monitoring or re-calibration to eliminate the gaps. Prepared maps in ArcGIS to visually represent the monitoring sites, and prepared documentation of the gap analysis in a report and PowerPoint presentation. Assisting with the development of a scope of work with recommendations for future monitoring.

Marcel Lakes Sewer System Model, Pennsylvania-American Water, Delaware Township, PA: Assisted with the development of an InfoWorks ICM sewer model to evaluate the hydraulics of the proposed gravity sewer system, based on topography characteristics and population (loading). Ensured that adequate slopes and velocities were maintained in the sewer pipes. Calculated an estimated loading for the existing low pressure portion of the system. Prepared mapping in ArcGIS to represent the existing sewer system and proposed alternatives.

Hydraulic and Hydrologic Analyses, Pump Stations and Boat Ramp, City of Brigantine, Atlantic County, NJ: Assisted with determining drainage areas in ArcGIS, as well as ponding areas based on elevations. This information, as well as rainfall data, was input into Infoworks CS to determine drainage to the outfall under existing conditions and proposed conditions with a pump. An approximate pump sizing to produce the required level of flood mitigation was determined. The results were used for a benefit-cost analysis to support the City's application for funding under the Flood Hazard Risk Reduction and Resiliency Grant Program and HUD funding.

PATH Tunnel, City of Toronto, ON: Assisted with the sanitary, storm, and combined sewer relocation design. Completed hydraulic calculations for existing and proposed conditions, and assisted with the preparation of a technical memorandum presenting the proposed design.

Combined Sewer Overflows (CSOs) Long-Term Control Plan (LTCP), City of Elizabeth, Union County, NJ: Completed a spatial analysis using ArcGIS to assist in selecting sites for flow monitoring. Assisted with the preparation of the Flow Monitoring Report. Assisting with the development of the sewer system flow model based on the identification of CSO events using flow monitoring data and Sliicer software.

Sabina Martyn PEng, PE (cont.)

Wastewater Treatment Plan Improvements, Two Bridges Sewerage Authority, Morris County, NJ: Responsible for coordinating the exchange of construction detail submittals between the consultant and contractor to ensure effective record-keeping and adherence to project schedule.

Green Stormwater Infrastructure (GSI) Site Feasibility Evaluations, New York City Department of Environmental Protection (NYCDEP), Queens and Brooklyn, NY: Assist with site walk-throughs to evaluate locations for the possible installation of green stormwater infrastructure (GSI) elements. Site inspector for drilling activities for borings and permeability tests. Responsible for collecting background site plans from the housing authority (NYCHA), school construction authority (NYCSCA), and the Department of Parks and Recreation (DPR), and assisting with digitizing data for the creation of walk-through maps in ArcGIS.

Trumbull Street and Progress Street Drainage System, City of Elizabeth, Union County, NJ: Assisted with Bentley StormCAD stormwater modeling, updating plans and drawings, and preparing documentation report and permitting documents for NJDEP. Assisted in preparing a report for a Flood Hazard Area (FHA) permit, which included collecting background soils, endangered species, and land use information.

Permitting Assistance, Mid-Halton Wastewater Treatment Plant Phase IV and V Expansion, Regional Municipality of Halton, ON: Assisted in coordinating consultation with regulatory agencies and local governments to ensure that all regulatory issues were addressed and necessary permits and approvals were obtained. This included organizing and attending meetings and preparing presentation materials.

Southeast Collector (York-Durham Region) Trunk Sewer Expansion, Regional Municipality of York, Markham, ON: Assisted with an environmental impact study for the multi-million dollar expansion of the sanitary sewer. Tasks included performing field work, preparing site assessments for contaminated areas, compiling and manipulating dewatering data, and working with aerial photos.

Stormwater Management Review, Verona High School, Verona Board of Education, Essex County, NJ: Providing third-party review of stormwater management plans for proposed athletic fields at the high school that were submitted to the Township by another consultant. Responsible for ensuring that the model and plans adhere to local and state stormwater requirements and providing comments as necessary.

Stormwater Management Plan, Mid-Halton Wastewater Treatment Plant Phase IV and V Expansion, Regional Municipality of Halton, ON: Assisted with the development of the site Stormwater Management Plan and drainage and grading plans. Tasks included consultation with local and provincial government agencies as well as conservation authorities. The project involved a sensitive receiving body, which required Level 1 Stormwater Design Criteria, and incorporated Low Impact Development (LID) measures into the design in order to reduce peak runoff and minimize pond size.

Stormwater Management Master Plan, Town of Innisfil, ON: Assisted in completing field pond studies and developing a Stormwater Management Master Plan. Assisted with the production of geographic information system (GIS) maps and figures, development of presentation materials, and preparation of reports.

Schedule C Class Environmental Assessment (EA), Mid-Halton Wastewater Treatment Plant Phase IV and V Expansion, Regional Municipality of Halton, ON: Assisted with the completion of a Municipal Class EA for the expansion of the wastewater treatment plant and effluent sewer. This included preparing presentation materials for meetings with regulatory agencies, assisting in performing excavation calculations, providing initial evaluation of alternatives, and assisting with the coordination and preparation of the Environmental Study Report.

Harmonized Federal/Provincial Schedule C Class Environmental Assessment (EA), Niagara-on-the-Lake Wastewater Servicing Study, Regional Municipality of Niagara, ON: Assisted in facilitating the Harmonized EA process, fulfilling the requirements of both Federal and Provincial EAs for the relocation and expansion of a wastewater treatment plant. This required identification of Federal EA triggers and extensive consultation with Federal, Provincial, and local regulatory agencies, such as Parks Canada and Niagara Peninsula Conservation Authority. Tasks included preparing presentation materials, coordinating public and agency consultation efforts, and assisting in the preparation of reports.

Schedule C Class Environmental Assessment (EA), Sutton Water Pollution Control Plant Expansion, Regional Municipality of York, ON: Assisted with the completion of a Municipal Class EA for the expansion of a water pollution control plant. Tasks included preparing presentation materials, recording proceedings of meetings, and assisting with the coordination and preparation of the Environmental Study Report.

Duane S. Chapman

Education

MS, Natural Resources, University of Rhode Island, 1999

BS, Environmental Management, University of Rhode Island, 1997

Registrations

ESRI Certified ArcGIS Desktop Professional3

Mr. Chapman has significant experience in the design, development, and management of Geographic Information Systems. He currently manages the water and wastewater GIS Group, which provides GIS database design and standardization, analysis, data conversion, and implementation services to water and wastewater utility clients in support of regulatory, planning, and asset management activities.

Selected projects

Water Geographic Information System (GIS) Database Improvements, Jersey City Municipal Utilities Authority, Hudson County, NJ: Project Manager for the update of an existing enterprise GIS database to facilitate engineering and planning needs. The existing data model was updated to accommodate information necessary to support planning and asset management capabilities. Conflated as-built record plans, intersection cards, and overall system maps with the existing data. The database contains approximately 330 miles of water mains and will support engineering, planning, asset management, and daily utility operations.

Water Geographic Information System (GIS) Database Improvements, New York American Water, Nassau County, NY: Project Manager for the update of the existing enterprise GIS database to facilitate engineering and planning needs. Conflated as-built record plans, water main cards, and overall system maps with the existing enterprise GIS database to update approximately 1,250 miles of water mains. Data was updated to include work order and install year, pipe material, and pipe lining. Database will be utilized to perform hydraulic modeling and pipeline replacement prioritization planning activities.

Water Utility Geographic Information System (GIS), District of Columbia Water and Sewer Authority (DC Water), Washington, DC: Task Manager for the data conversion of the Authority's existing water distribution system (1,300+ miles of water mains) mapping into an enterprise GIS database. Responsibilities include development of a project work plan, interfacing with the client, providing progress and budget reports, and resolving data conversion issues. Assisted in the support of asset management activities, including water main rehabilitation prioritization, capital improvement project tracking, DDOT project coordination, global fire flow analysis, and other hydraulic modeling assignments.

Water Geographic Information System (GIS), Passaic Valley Water Commission, Passaic County, NJ: Project Manager for the survey of approximately 75,000 water utility assets utilizing sub-centimeter GNSS Global Positioning System (GPS) equipment, and field verification of the Commission's retail customer database. Coordinated field crews, sub-consultants, and GIS staff for the successful completion of the project within a 7 month time frame.

Water Distribution Utility Geographic Information System (GIS) Mapping, Middlesex Water Company, Iselin, NJ: Project Manager for the creation of an ArcGIS enterprise geodatabase. Coordinated in-house and sub-consultant staff in the conversion of 1,500 miles of water distribution infrastructure from approximately 10,000 individual source records (system maps, valve cards, as-builts, workbooks, databases, etc.). Extensive QA/QC procedures were developed and implemented to meet client specifications.

Water Geographic Information System (GIS), Trenton Water Works, Mercer County, NJ: Project Manager for the creation of an enterprise geodatabase of water distribution utility assets. Coordinated weekly activities of field crews, sub-consultants, and GIS staff to produce a seamless database for the assets within the City boundary. The geodatabase will be leveraged for asset management, planning activities, and field operations.

Duane S. Chapman (cont.)

Wastewater Management Plan, Essex County, NJ: Currently providing Geographic Information System (GIS) analysis and data coordination services in support of the County-wide Wastewater Management Plan. Efforts include data management and coordination among the nine municipalities, seven sewer service providers, and eight water supply purveyors.

Wastewater Management Plan, Clinton Township, Hunterdon County, NJ: Performed data gathering, data creation, and Geographic Information System (GIS) analysis in support of the Township's Wastewater Management Plan. A build-out analysis was performed at the parcel level to determine the future demand of the Township's wastewater needs. Undeveloped/under-developed properties were identified, environmentally constrained areas were removed, and current zoning applied. The built-out properties were assigned wastewater demands, based upon State guidance, and summed with current demands, and surplus/deficits were identified.

Wastewater Geographic Information System (GIS), Rockaway Valley Regional Sewerage Authority, Morris County, NJ: Provided oversight for the implementation of a web-based GIS for the Authority, which serves nine member municipalities. Tasks included mapping interceptor sewer locations, facilities, service areas, and user charge system. Service areas were delineated on a parcel level and integrated with various databases. The GIS database was deployed via the Internet, allowing authorized personnel to access information through a web-browser.

Sanitary Sewer Geographic Information System (GIS), Bergen County Utilities Authority, Bergen County, NJ: Coordinated the data conversion of over 1,600 miles of sanitary sewer alignments owned by the 46 member municipalities and the Authority. The mapping along with field investigation will aid the Authority in determining areas of the system that are experiencing high infiltration and prioritize areas for rehabilitation within the 125-square mile service area.

Municipal Geographic Information System (GIS), Mantoloking Borough, Ocean County, NJ: Coordinated and managed the deployment of a municipal GIS including sanitary sewer, storm sewer, cadastral, and environmental resources, and planimetric, topographic, and aerial landbase datasets. Trained Borough personnel in the use of ESRI software and methods to streamline business processes with the use of GIS.

Water and Wastewater Geographic Information System (GIS), West Virginia American Water, Charleston, WV: Project Manager for the creation of an enterprise geodatabase of water distribution and sanitary sewer utility assets. Coordinated activities of data conversion sub-consultants and GIS staff to produce a seamless database for the assets within the Company's service areas. The geodatabase will be integrated with the Company's CMMS database for asset management, planning activities, and field operations.

Wastewater and Stormwater Geographic Information System (GIS), Hanover Township, Morris County, NJ: Coordinated field collection and GIS database development for the Township's sanitary and storm sewer assets. Asset locations were captured using a combination of Global Positioning Software (GPS) and conventional survey techniques. The GIS database was assembled from various local, county, and state databases. Township personnel were trained to access the GIS from ESRI desktop software.

Water and Sewer Geographic Information System (GIS) Mapping, East Windsor Municipal Utilities Authority, Mercer County, NJ: Project coordination and quality control for data conversion efforts between an off shore subconsultant and the Authority. Produced 200-scale book maps of the system for field personnel. Trained Authority personnel in the use of GIS technologies.

Water and Sewer Geographic Information System (GIS) Mapping, Hackettstown Municipal Utilities Authority, Warren County, NJ: Coordinated efforts between Global Positioning Software (GPS) survey, topographic land base development, and as-built data conversion. Developed integration strategy with existing GIS and customer databases. Trained Authority personnel in the use of GIS technologies. Utilized the various GIS databases to perform an analysis to assist the Authority in asset management and planning activities.

Geographic Information System (GIS) Re-Engineering Study, Washington Suburban Sanitary Commission, Laurel, MD: Assisted with the assessment of the existing GIS platform in order to make recommendations for improvement. Responsibilities included reviewing GIS data maintenance and conversion procedures and making recommendations for improvement.

John Dening, PE, CFM

Education

MS, Civil Engineering, Cooper Union, 2003

BS, Civil Engineering, Cooper Union, 1999

Registrations

Professional Engineer NJ #24GE04551700, 2005

Certified Floodplain Manager #US-09-04666, 2009

Memberships

American Society of Civil Engineers

Association of State Flood Plain Managers

Chi Epsilon

New Jersey Association of Floodplain Management

Tau Beta Pi

Mr. Dening has been involved in a variety of water resources projects, including Combined Sewer Overflow (CSO) Long Term Control Plans (LTCPs) and preliminary design, roadway drainage, flood control, stormwater management, hydraulic studies, and Flood Hazard Area/Stream Encroachment permits. He is extremely knowledgeable in stormwater analysis and control, and is responsible for the review of site development stormwater management plans for compliance with local and State stormwater rules and regulations for a number of clients. His other responsibilities include client liaison, hydraulic modeling, and design assistance for dam rehabilitation, stormwater management plans, roadway drainage projects, and CSO projects.

He has prepared Stormwater Pollution Prevention Plan updates and provided assistance with annual reporting for Stormwater Pollution Prevention Plan compliance for numerous municipalities in New Jersey. Mr. Dening has significant experience in the hydrologic analysis of sites and hydraulic analysis of rivers and gravity piping systems using a wide variety of computer models, including XP-SWMM, InfoWorksCS, HEC-RAS, HEC-2, HEC-1, HEC-HMS, and StormCAD.

Selected projects

Stormwater Design Template, North Hudson Sewerage Authority, Hoboken, NJ: Developed target criteria for a spreadsheet to design stormwater detention facilities for smaller redevelopment sites. The intent of the spreadsheet was to allow sizing of stormwater facilities to be accomplished quickly and consistently with a few basic inputs. The goal was to replicate a wooded condition hydrology for the 2-year storm.

Hamilton Avenue Feasibility Study, North Hudson Sewerage Authority, Weehawken, NJ: Developed an InfoWorks model of the contributory drainage area for the existing combined sewer, which is shallow and relatively flat, leading to frequent surface and basement flooding. The root cause was determined to be inadequate sewer size and slope. Potential upgrades were modelled and a recommendation was made to upgrade the sewer from Hamilton Avenue to a steeper section downstream. Project was designed to anticipate future upgrade elsewhere in the system.

18th Street 48-inch Combined Sewer Overflow (CSO) Force Main, North Hudson Sewerage Authority, Weehawken, NJ: Project Engineer responsible for various project aspects including preparing a New Jersey Transit occupancy permit application, site layout, review of hydraulic calculations, and project plans and specifications.

Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP), North Bergen Municipal Utilities Authority, North Bergen, NJ: Analyzed regulator and interceptor capacity of the combined sewer system. Identified potential upgrade to the interceptor and modifications to regulators to accommodate regulatory requirement to convey 2, 4, 6, and 8 times the dry weather flow. Assisted with cost estimates and upgrades to convey required flow to the wastewater treatment plant.

Adams Street Wastewater Treatment Plant Outfall Rehabilitation, North Hudson Sewerage Authority, Hoboken, NJ: Project Engineer responsible for the coordination of utilities, temporary bypass layout, reviewing rehabilitation technologies, and preparing the waterfront development permit for the rehabilitation of the 48-inch diameter outfall.

Jackson and Newark Street Sewer Rehabilitation and Hoboken Wood Sewers Rehabilitation, North Hudson Sewerage Authority, Hoboken, NJ: Provided construction management services including coordination, project meetings, and shop drawing review.

Odor Control System Upgrades, North Hudson Sewerage Authority, West New York, NJ: Designed piping for chemical feed system. Reviewed shop drawings, and performed overall project coordination services.

John Dening, PE, CFM (cont.)

Manhattan Avenue Combined Sewer Overflow (CSO) Outfall Ditch Rehabilitation, Jersey City Municipal Utilities Authority, Hudson County, NJ: The CSO outfall ditch was damaged and choked with debris following Superstorm Sandy. As part of the rehabilitation, a waterfront development permit was required. Prepared compliance text and calculations to demonstrate the required compliance with the Flood Hazard Area Rules (NJAC 7:13). The permit was successfully obtained for the project.

Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP), City of Elizabeth, Union County, NJ: Responsible for overseeing various aspects of the Long Term Control Plan (LTCP) being formulated under the City's individual CSO permit issued in 2015. Met regularly with NJDEP personnel as well as the hydraulically connected Joint Meeting of Essex and Union County. Prepared system characterization work plan and oversaw metering and sampling effort. Oversaw updating and recalibrating of city-wide InfoWorksICM model to accommodate new meter and field data.

Wet Weather Flow Treatment and Disinfection Demonstration Project, Bayonne Municipal Utilities Authority (BMUA), Hudson County, NJ: In an effort to facilitate the development and implementation of Combined Sewer Overflow (CSO) Long Term Control Plans in New Jersey, the BMUA undertook pilot testing of flow treatment and disinfection technologies, making use of grants from the USEPA and NJDEP. Responsible for day-to-day project coordination, interacting with regulatory agencies, equipment suppliers, advisory team, and oversight team, as well as construction and field operations, including the sampling and analysis team. Design duties included preparation of the project layout.

Verona/Gebhardt Avenue Storm Sewer Improvements, City of Elizabeth, Union County, NJ: Project Engineer responsible for hydraulic modeling of a 1.3ac-ft inline storage conduit to alleviate flooding in the vicinity of Verona and Gebhardt Avenues. Used XP-SWMM dynamic routing to evaluate the hydraulic gradient within the culvert during storm attenuation, prior to pumping to Trotter's Lane Branch tributary. Used HEC-RAS to evaluate the tributary for regulatory purposes.

South Street Flood Control Improvements, City of Elizabeth, Union County, NJ: Prepared design plans and specifications for 1,400 lf of 36-inch diameter storm sewer and additional drainage structures along Burnet Street to alleviate flooding at the Amtrak overpass on South Street. Utilized StormCAD and NJDOT criteria for hydraulic design of proposed piping and spread calculations at inlets. Prepared bid plans and specifications, provided bid phase services, and coordinated construction phase services. Project construction required extensive utility coordination and relocation.

Ash Brook Erosion Repair, Scotch Plains Township, Union County, NJ: Prepared permit documents for streambank stabilization to prevent erosion from compromising an existing sanitary sewage pumping station. Oversaw hydraulic modeling of Ash Brook to demonstrate compliance with New Jersey Flood Hazard Rules (NJAC 7:13). Coordinated with NJDEP to create a design that satisfied their requirements. Permit was obtained.

Picatinny Emergency Power, Southeast Morris County Municipal Utilities Authority, Morris Township, NJ: Oversaw the hydraulic modeling to evaluate the floodplain of the Ohio Brook adjacent to the proposed generator site. By working with NJDEP, established that the generator could be constructed under a permit by rule. Modeling results were used to show compliance with FEMA and State funding requirements for critical facilities.

Low Level Basin Hydraulic Characterization, City of Baltimore, Baltimore County, MD: Assisted in a series of project tasks including sensitivity analysis, redeveloping hydrologic parameter, diurnal flow patterns and magnitudes, and reviewing project methodology. Project required the use of InfoWorkCS (Wallingford) and customized spreadsheets. Also responsible for quality control.

Brush Creek Reconnaissance Study, US Army Corps of Engineers, Kansas City District, Kansas City, KS: Study was performed to formulate and evaluate flood reduction measures along Brush Creek. Hydraulic engineer responsible for review of HEC-RAS models of hydraulic improvement alternatives. Assisted in writing the hydraulics report. Implemented hydraulic modeling for an additional alternative.

Tallmans Island Water Pollution Control Plant Interceptor Modeling, New York City Department of Environmental Protection, Queens, NY: Hydraulic engineer for the study of the Queens combined sewer system to determine alternatives for increasing the wet weather flow to Tallman Island to twice the design dry weather flow. Responsibilities included XP-SWMM modeling calibration and manipulation.

John Scheri, PE, BCEE

Education

MS, Civil and Environmental Engineering, Rutgers University, 1996

BS, Civil Engineering, University of Delaware, 1989

Registrations

Professional Engineer
NJ #24GE03858600, 1994
MD #40728, 2011
NY #089564-1, 2011
VA #0402049089, 2011
CT #PEN.0028309, 2011
DE #19549, 2014

Industrial Waste Treatment Operator (N-1) NJ #0015318, 1995

Board Certified Environmental Engineer, AAEE #09-20053, 2009

OSHA Hazardous Waste Site Ops. Supervisor, 2000

OSHA Hazard Communications Training, 1994

OSHA Hazardous Waste Site Operations, 1994

OSHA Confined Space Entry, 1993

OSHA Occupational Exp to Bloodborne Pathogens, 1993

Memberships

American Society of Civil Engineers

Water Environment Federation

Mr. Scheri provides engineering consultation services to various municipalities, regional authorities, and private corporations. His responsibilities have included primary client contact, project administration, attendance at public meetings, expert testimony, and representation to regulatory agencies. He has extensive experience in various aspects of the planning, design, permitting, and construction of municipal and industrial wastewater treatment facilities. These have included wastewater management and facilities planning, hydraulic modeling, and evaluation of alternative treatment technologies, detailed design, and construction phase engineering. His project duties routinely include hydraulic analysis of pipelines, pumping systems, and treatment facilities, pump selection, process equipment selection and design, cost estimation, and design coordination. His significant construction phase experience includes the management and coordination of construction methods and procedures, project coordination, contractor quality control, contractor change order negotiation, and client representation.

Selected projects

Wastewater Treatment Plant Improvements, Two Bridges Sewerage Authority, Morris County, NJ: Project Director for improvements to the 35 MGD (peak design flow) facility, consisting of a new mechanical screening and grit removal facility, 4,160-volt electric power primary switchgear facilities, 3,500-kW standby power generators, reconditioning of the 6 MGD on-site pump station, and other miscellaneous improvements. Responsible for preliminary design of all facilities, and detailed design of electrical, pumping, and site improvements. All new facilities were designed to provide protection against the 500-year flood elevation and improve overall operational resiliency. Responsible for NJDEP treatment works, flood hazard area, wetlands permits, and local planning board approval. Secured financing through the New Jersey Environmental Infrastructure Trust (NJEIT), provided bid phase services, and directed construction services for the $17 million project.

Ultraviolet (UV) Disinfection Facilities, Two Bridges Sewerage Authority, Morris County, NJ: Principal-in-Charge of UV disinfection facilities for the wastewater treatment plant. Design includes UV facilities in a pile-supported masonry building, post-aeration tank modifications including a new diffused aeration system, new effluent pumping, new effluent flow meter, and a new standby generator for the facilities. Additional facilities included a dry polymer feed system to enhance final settling tank performance, new chemical feed facilities, SCADA controls, and electrical power distribution. Obtained American Recovery and Reinvestment Act of 2009 (ARRA) funding and New Jersey Environmental Infrastructure Trust (NJEIT) financing for the $6.7 million project. Obtain permits for construction including NJDEP Freshwater Wetlands, Flood Hazard Area, and Treatment Works Approval (TWA), along with local Planning Board approval. Directed construction phase engineering services including inspection, office engineering, project controls, and contractor negotiations.

Primary Digester No. 2 Improvements, Hanover Sewerage Authority, Morris County, NJ: Project Director for the design, permitting, bid, and construction phases for wastewater treatment plant upgrades, including the installation of a 100-kW digester gas-fired cogeneration system, replacement of a 55-ft. diameter primary digester cover with a membrane cover and “cannon” mixing system, installation of continuously-raked mechanical bar screens in the plant’s influent pump station, construction of a new sodium bisulfite feed system and building, and other miscellaneous site improvements. The project includes an innovative heat pump heating and cooling system for the raw sewage pump station, using treatment plant effluent for the heat source/heat dump. Provided oversight for the preparation of a Treatment Works Approval (TWA) permit application and the New Jersey Environmental Infrastructure Trust (NJEIT) loan application package.

John Scheri, PE, BCEE, ENV SP (cont.)

Rockaway Wastewater Treatment Plant Facilities Plan (R-152), New York City Department of Environmental Protection (NYCDEP), New York, NY: Participated in facilities planning activities that evaluated alternatives to upgrade the existing facility to a state of good repair and implement nutrient removal versus converting the facility into a pumping station to convey wastewater to the 26th Ward wastewater treatment plant. Part of the team assigned to evaluate conveyance alternatives to pumping flow across Jamaica Bay. Several alignments were analyzed, and operational considerations included potential for combined sewer overflow (CSO) storage and long-term maintenance and access. Both trenchless and traditional methods of construction were evaluated, and planning level costs were developed for each alternative.

Mechanical Bar Screen Replacement, Town of Newton, Sussex County, NJ: Project Director for the replacement of a climber bar screen with a continuously-raked mechanical bar screen at the wastewater treatment plant. Project tasks included the preparation of a Basis of Design Report, detailed plans, and specifications. Plant upgrades included channel modifications, new screen controls, interconnection with existing compactor/washer controls, and washwater piping replacement, along with one overhead rollup door. Provided bid and construction phase services, including project close-out.

Wastewater Treatment Plant Influent Chamber Modifications, Washington Borough, Warren County, NJ: Project Manager for the design of a new in-channel screw screen, housed in a pre-fabricated bus shelter-type enclosure for weather protection. Provided oversight for NJDEP Treatment Works Approval (TWA) permit application, Basis of Design report, plans, specifications, and cost estimate for the proposed facilities.

Mid-Halton Wastewater Treatment Plant Phase IV/V Expansion, Regional Municipality of Halton, Oakville, Ontario, Canada: Involved with the development of technical memoranda and formats regarding equipment selection for the expansion of the plant from 20 MGD to 33 MGD. The expansion considers the future expansion phase to further increase plant capacity to 49 MGD. Project expansion elements include an expanded North Pump Station, new influent flow distribution chamber, new headworks containing screenings removal and two vortex grit removal units, four new primary clarifiers, two new aeration tanks, four new final secondary clarifiers, new ultraviolet (UV) disinfection facility, new ferric, caustic, and sodium hypochlorite chemical feed facilities, and a new anaerobic digester and ancillary bio-solids improvements, as well as the design of a new 3.6-mile outfall tunnel into Lake Ontario. Coordinated initial activities with the process, structural, and cost estimating groups.

Piscataway Wastewater Treatment Plant, Washington Suburban Sanitary Commission, Laurel, MD: Conducted peer review of the facilities design for the 120 MGD peak flow wastewater treatment plant. Facilities included headworks facilities, including mechanical bar screens, vortex-type grit removal, and 20 MG off-line peak flow equalization facilities.

Wastewater Treatment Plant Final Clarifier Phase IV Modifications, Passaic Valley Sewerage Commissioners (PVSC), Newark, NJ: Performed constructability review and developed the sequence of construction for the rehabilitation of 12 final clarifiers, each consisting of three clarifier mechanisms, at a 330 MGD wastewater treatment facility. The rehabilitation project scope included new scum removal systems, mechanism repairs, sandblasting and repainting of exposed and submerged steel surfaces, and modifications and repurposing of existing abandoned, but intact, piping systems. The construction sequence was developed to minimize clarifier downtime and maintain normal plant operations.

Central and South Side Pumping Station Improvements, Two Bridges Sewerage Authority, Essex and Morris Counties, NJ: Engineer-of-Record for the design, permitting, and construction phase engineering oversight of $5.47 million of improvements to the 15.8 MGD Central and 9.6 MGD South Side wastewater pumping stations. The project was undertaken to maintain future reliability and serviceability. The project includes site and architectural improvements, and the replacement of pumps, valves, gates, electrical power distribution equipment, and instrumentation and controls, along with the installation of emergency back-up pump connections, portable pumps, and a standby generator. Obtained low interest financing through the New Jersey State Revolving Fund loan program. Responsible for construction engineering services, including inspection, office engineering, project controls, contractor negotiation, commissioning of facilities, and project certification. Performed a factory witness test in Germany for the 200 hp dry pit submersible pumps.

Pine Brook Road Pumping Station, Two Bridges Sewerage Authority, Morris County, NJ: Project Manager for the design, permitting, and construction phase engineering oversight of a 1.0 MGD wastewater pumping station. The project was undertaken to improve worker safety and increase operational flexibility and reliability. The project included the conversion of the existing wet well into a submersible pump station, a new masonry electrical building, new pumps, generator, and controls. Obtained low interest financing for the project through the New Jersey State Revolving Fund loan program. The construction cost was $859,000.

Jurek Patoczka, PhD, PE, BCEE

Education

PhD, Environmental Engineering, Vanderbilt University, 1986

MS, Chemical Engineering, Krakow Technical University, 1976

Registrations

Professional Engineer NJ #24GE03875600, 1994

Board Certified Environmental Engineer, AAEE, 1996

OSHA Confined Space Entry

Memberships

American Academy of Environmental Engineers

International Association on Water Quality

Water Environment Federation

As Process Design Specialist, Dr. Patoczka's responsibilities include development and evaluation of wastewater treatment plant expansion and upgrade alternatives, review of wastewater treatment plant designs from a process standpoint, design and supervision of laboratory and pilot plant treatability projects, and preparation of engineering and project reports. His major areas of expertise include assistance in optimizing the existing plant's performance and troubleshooting of wastewater treatment plant upsets. Dr. Patoczka's professional experience in the private consulting industry was preceded by academic research and teaching assignments.

Dr. Patoczka's particular experience includes plant upgrade for nitrogen and phosphorus removal by biological and chemical means, control of activated sludge filamentous bulking and foaming, troubleshooting of nitrification upsets, and effluent toxicity evaluations. Recent major projects involved the evaluation of the ability of existing plants to achieve new, stringent limits for phosphorus and heavy metals. Laboratory and full-scale demonstration tests are performed to document the effectiveness of chemical addition and other technological modifications in removal of phosphorus and trace concentration of heavy metals. Alternative methods of mitigating permitttees' exposure to new limits include water quality studies, such as the development of site-specific hardness, Water Effect Ratio, and Translator information.

Selected projects

Chlorine Produced Oxidant (CPO) Immediate Demand and Decay Study, North Hudson Sewerage Authority, Hoboken, NJ: Conducted a study to develop the basis for relaxation of CPO limits for the Authority’s wastewater treatment plant. The relaxation is based on the immediate CPO demand in the receiving water (Hudson River). Additionally, the developed CPO demand profile in Hudson River water could be utilized for developing appropriate future CPO permit limits for combined sewer overflow (CSO) discharges. The project involved Hudson River sampling, laboratory experimental tests and modeling.

Combined Sewer Overflow (CSO) Demonstration Project, Bayonne Municipal Utilities Authority, Hudson County, NJ: Served on the Technical Advisory Committee and co-authored the project report for a large-scale CSO demonstration/pilot project. During the demonstration program, several existing manufactured systems for total suspended solids (TSS) removal and disinfection were field tested. The units tested for TSS removal were Storm King, Terre Kleen, and Flex Filter, and for disinfection Trojan UV3000Plus, Aquaionics Inline 250+W UV units and Peracetic Acid. The testing was performed during seven live CSO events and two simulated events. The pilot program was partially funded and supervised by the USEPA and NJDEP, with findings summarized in a peer-reviewed report. Three-log deactivation by UV required 25 mJ/cm2 for low-pressure lamps and 40 mJ/cm2 for medium-pressure lamps. Peracetic Acid (PAA) effectiveness was a function of the dose applied as normalized by COD.

Wastewater Treatment Facility Enhanced Nutrient Removal (ENR) Upgrade, Maryland Correctional Institution (MCI), Hagerstown, MD: Provided peer review of the process evaluation for this 1.6 MGD (2.4 MGD peak flow) treatment plant consisting of pre-anoxic zone, oxidation ditch with Simultaneous Nitrification-Denitrification (SNDN), post-anoxic tank, and re-aeration (4-stage Bardenpho configuration). The plant meets its current permit limits of Total Nitrogen of 10 mg/L and Total Phosphorus less than 0.3 mg/L at the flow of 1.25 MGD. The objective of the evaluation was to determine whether the new, more stringent effluent limits for total nitrogen of 4 mg/L could be met without major plant improvements, such as addition of anaerobic zone and/or denitrification filters. Utilized a BioWin simulation software calibrated with plant operational data to evaluate the plant’s performance at the full design flow.

Jurek Patoczka, PhD, PE, BCEE (cont.)

Evaluation of Potential Impacts of Chemical Manufacturer Discharge on an Existing Municipal Wastewater Treatment Plant, Mobile Area Water and Sewer Services, Mobile, AL: A major chemical company desired to discharge a high BOD and TDS wastewater from a new manufacturing facility to the existing municipal plant. Evaluated the potential impact of the proposed discharge on the existing plant operations based on review of the design data, operating records, site inspection, and BioWin modeling. Impacts on oxygen demand, future nitrification, and sludge processing facilities were of particular concern. Identified facilities improvements needed for successful treatment of this new, major wastewater stream.

Wastewater Treatment Plant Upgrades, Caldwell Borough, Essex County, NJ: Provided process design for a major upgrade to the 4.5 MGD advanced wastewater treatment plant. The evaluated major plant improvements included elimination of primary clarifiers and an increase in aeration capacity of the existing oxidation ditch. Alternative processes for achievement of a new Total Nitrogen limit were evaluated and modeled with BioWin. Simultaneous Nitrification-Denitrification (SNDN) process utilizing Symbio process control system was selected for implementation. Dedicated facilities for foam control (directional baffles with hypochlorite spray), filamentous bulking control (hypochlorite addition to RAS stream), polymer addition to final clarifiers for storm flow performance improvement, and alum addition for phosphorous removal were also provided.

Niagara Falls Treatment Plant, Chemically-Enhanced Primary Treatment (CEPT) Evaluation, Niagara Region, Ontario, Canada: The Niagara Falls wastewater treatment plant (peak plow of 136 ML/d) was required to increase the capture of stormwater flows by providing adequate treatment for a peak flow of 205 mL/d. A number of High Rate Treatment (HRT) alternatives were evaluated, including CEPT with the existing clarifiers, additional primary clarifiers, retention treatment basins, and dedicated HRT units (Actiflo, DensaDeg). Based on a detailed evaluation of alternatives, including laboratory tests of CEPT performance, the addition of ferric and polymer to the primary clarifiers was identified as the preferred alternative. In particular, it was demonstrated that polymer addition, as expected, significantly reduces settling time needed to achieve adequate removal efficiency as compared to that achieved with ferric addition only. Construction of the CEPT system and other facilities needed for acceptance of significantly higher flows was completed in 2011.

Mid-Halton Wastewater Treatment Plant Expansion and Modifications, Regional Municipality of Halton, Oakville, Ontario, Canada: Performed process evaluations for a major expansion and upgrade of the 75 ML/d plant to 125 ML/d (20 MGD to 33 MGD). The evaluations included selection of the optimal process configuration for meeting of the future treatment objectives. BioWin simulation software was utilized to model the plant's performance and to determine acceptable levels of MLSS required for adequate nitrification. The aeration system design was based on the plant's oxygen demand profile, generated with the use of the BioWin. A detailed analysis of alkalinity mass balance was performed to address pH concerns. In order to minimize supplemental caustic addition, the expanded plant's treatment trains will include anoxic zones for partial denitrification and alkalinity recovery. Alternative de-ammonification process implementations were evaluated in detail for treatment of side-streams (centrate).

Milissa F. Hirst, PE

Education
BS, Civil Engineering, Bucknell University, 1995

Registrations
Professional Engineer

PA #PE056960E, 2001

NY #100414-1, 2018

DE #22598, 2018

Certified IAM Asset Management #5007675, 2019

Memberships
American Society of Civil Engineers

Pennsylvania Water Environment Association

Ms. Hirst is an accomplished Project Manager, specializing in the planning and design of water and wastewater infrastructure, including water and wastewater treatment facilities, collection and distribution systems, pumping stations, and potable wells, as well as feasibility and capacity studies and capital improvement planning. She has a wide variety of experience with large municipalities and utilities, including the New York City Department of Environmental Protection, Philadelphia Water Department, and the City of Austin, Texas. Her experience also includes the preparation of Chapter 94 Reports, PADEP and Delaware River Basin Commission permit renewals, and grant applications for various municipalities.

Selected projects

Hay Road Wastewater Treatment Plant (WWTP) Modeling, City of Wilmington, DE: Project Manager for the development of a BioWin® model and solids mass balance for the Hay Road WWTP, which has an average flow of 105 MGD and a peak wet weather capacity of 340 MGD.

Fritz Island Wastewater Treatment Plant, City of Reading, Berks County, PA: Performed on-call services, including evaluation of treatment plant equipment, coordination and documentation of the project reviews, and comment resolutions between the plant operations team and the design engineers for a major upgrade design of liquid and solids processes.

Wastewater Treatment Plant Upgrade, Elverson Municipal Authority, Chester County, PA: Designed the ultraviolet (UV) system and tertiary filter upgrades, including hydraulic calculations and analysis, preparation of documents for electronic bidding, procurement of permits, and satisfaction of grant requirements.

Fritz Island Wastewater Treatment Plant Upgrade, City of Reading, Berks County, PA: Lead Engineer for the project management/construction management (PM/CM) team for upgrades to the 21.5 MGD wastewater treatment plant. Coordinated with plant operations staff and documented the project reviews and comment resolutions. Provided assistance and support to the grant writer, the project solicitor and the PM/CM team, and participated in various meetings with the PADEP, and the USEPA and Department of Justice. Lead Engineer for the preparation of a feasibility study, design study, and capital improvements plan that provided a phased approach for the construction of repairs and upgrades to the plant. Managed various disciplines in support of the project.

Tide Gate Replacement, Philadelphia Water Department, Philadelphia, PA: Project Manager for the study and evaluation of existing combined sewer overflow (CSO) regulating chambers, including evaluation of tide gates and chamber condition assessments.

Ruthland Pump Station and Force Main Replacement, Malvern Borough, Chester County, PA: Performed an evaluation of the pumping station and force main to determine the implementation schedule for capital improvements. Project Manager for the design of the associated force main replacement.

Pump Station Upgrades, New York City Department of Environmental Protection (NYCDEP), Port Jervis, NY: Lead Engineer for the design of upgrades to three pumping stations within the collection system, including the preparation of final design plans and specifications to be issued for public bidding. Design included pump and valve replacements, bypass systems, and structural improvements. The pumping unit replacements range from 0.5 MGD constant-speed pumps to 3.0 MGD variable speed pumps, and include new pump control panels, level controls, and electrical services.

Milissa F. Hirst, PE (cont.)

Balligomingo Pump Station Improvements, Upper Merion Township, Montgomery County, PA: Performed design services for improvements to the wastewater pump station's wet well/drywell. Project included surveying, permit application preparation and submission, utility installation, construction document preparation, sediment and erosion control plan and opinion of probable cost preparation, and meeting attendance. Performed bidding and negotiation and construction administration services.

Corrosion Control Chemical Feed and Storage Facilities, Pittsburgh Water and Sewer Authority (PWSA), Pittsburgh, PA: Task Leader for the design of the chemical system for the storage and feeding of corrosion inhibitor to the water distribution system, including PADEP permit application and local permits.

Susquehanna Water Pollution Control Facility Peer Review, Lancaster Area Sewer Authority, Lancaster, PA: Project Manager for the peer review of prior engineering reports related to the expansion of the facility for additional flow and stricter nutrient limits, including the evaluation of alternatives to the recommended improvements.

Porter Water Treatment Plant Clariflocculator Rehabilitation, City of Wilmington, New Castle County, DE: Task Leader for the design of the replacement of the rehabilitation of four 90-foot diameter clarifloccuators, including the replacement of internal mechanical equipment, bridge and walkway, structural repairs, pipe rehabilitation with SIPP, and the preparation of bid drawing and specifications.

Porter Water Treatment Plant Lime System, City of Wilmington, New Castle County, DE: Task Leader for the coordination of the mechanical and electrical engineering teams to support the new lime system.

Porter Water Treatment Plant Sludge Pump Replacement, City of Wilmington, New Castle County, DE: Task Leader for the selection of solids handling centrifugal pumps to replace existing double disc pumps.

Porter Water Treatment Plant Temporary Lime System, City of Wilmington, New Castle County, DE: Task Leader for the selection of components to allow for the temporary feed of lime while a new Lime System is constructed. Equipment selection will include temporary tankage, mixing equipment and pumping units and the modification of existing piping.

Queen Lane and Belmont Water Treatment Plants Improvements, Philadelphia Water Department, Philadelphia, PA: Project Engineer for improvements to the water treatment plants, including raw water basin repairs, evaluation of masonry façade, sulfuric acid chemical feed system, and filter backwash piping.

Grit System Improvements, Philadelphia Water Department, Philadelphia, PA: Project Engineer for the design of improvements to the Southeast Water Pollution Control Plant and Northeast Water Pollution Control Plant grit handling systems, including shiftless screw conveyors and vortex grit removal units.

Croton Water Filtration Plant, New York City Department of Environmental Protection (NYCDEP), New York, NY: Project Engineer responsible for design of the chemical facilities for the 290 MGD water filtration plant, including the production of technical memoranda and calculations detailing feed rates, equipment sizing, chemical room layout, and the preparation of drawings and technical specifications. Assisted with the preparation of front end documents and addenda. Coordinated with structural, electrical, instrumentation and controls (I&C), and HVAC engineers to complete the design.

Matsunk and Trout Run Water Pollution Control Center (WPCC) Corrosion Control Coating, Upper Merion Township, Montgomery County, PA: Prepared project manual, including project specifications, bidding documents, and contract documents for materials determination, painting, and/or recoating requirements to fulfill long-term needs for corrosion control at the 6.88 MGD Matsunk and 2.88 MGD Trout Run water pollution control centers . Evaluated coating systems for each process tank from paint manufacturers.

Matsunk Water Pollution Control Center (WPCC) Rotating Biological Contactor (RBC) Effluent Pump Replacement, Upper Merion Township, PA: Evaluated the energy efficiency of the RBC effluent pumping system at the 6.88 MGD facility. Provided recommendations for pump type, capacity, suction and discharge piping, motor size, and variable speed equipment. Compared current and projected power costs to define utility cost savings, and identified payback period and prepared probable cost estimates for proposed improvements. Prepared project report and attended project progress meetings.

Emily S. Shibata, EIT, ENV SP

Education

BS, Civil Engineering, New Jersey Institute of Technology, 2019

Registrations

Engineer-in-Training NJ #EIT-03897, 2019

Envision Sustainability Professional #29613, 2019

Ms. Shibata is gaining knowledge and experience with wastewater infrastructure projects, including wastewater treatment plant improvements, wastewater pump stations, gravity sanitary sewers, infiltration/inflow (I/I) evaluations, and analyzing sewer systems. Her responsibilities include preparation of plans and specifications, design calculations, field inspections, and communication with contractors and manufacturers.

Selected projects

Sewer System Capacity Analysis, Branchburg Township, Somerset County, NJ: Responsible for the calculations and analysis of the sanitary sewer system. The project included analyzing the existing sewer system's capacity and whether the sewers would handle an increase in flow. Additional parallel sewers were designed, and their capacities were calculated to handle the increase in flow.

Sewer Capacity Assurance Program, Caldwell Borough, Essex County, NJ: Responsible for the infiltration/inflow (I/I) calculations. Facilitated writing the Capacity Assurance Program Report.

Developer Reviews, Morris Township, Morris County, NJ: Responsible for the review and preparation of comments for Developer Review package submittals.

Developer Reviews, Hanover Sewerage Authority, Whippany, NJ: Responsible for the review and preparation of comments for Developer Review package submittals.

Developer Reviews, East Windsor Municipal Utilities Authority, Mercer County, NJ: Responsible for the review and preparation of comments for Developer Review package submittals.

Standard Water Utility Construction Details Update, Hackettstown Municipal Utilities Authority (HMUA), Warren County, NJ: Responsible for updating HMUA's standard water utility construction details in AutoCAD.

2019 Annual Facilities Inspection Report, Hackettstown Municipal Utilities Authority (HMUA), Warren County, NJ: Inspected water and wastewater facilitates to support the preparation of the 2019 Annual Facilities Inspection Report.

Skyline Drive Sanitary Sewer, Morris Township, Morris County, NJ: Provided construction phase office support services. Responsible for quantity calculations for the gravity and low-pressure sewer system as well as completing payment applications.

Boyden Avenue Siphon Replacement , Maplewood Township, Essex County, NJ: Assisted with the design of a new siphon. Coordinated activities with utility companies and manufacturers. Responsible for the preparation of specifications and Treatment Works Approval and Soil Erosion and Sediment Control permits. The project includes the installation of gravity sanitary sewers, new inlet and outlet chambers, and a new siphon using jack and boring technology.

Boyden Avenue Sanitary Sewer Emergency Repair, Maplewood Township, Essex County, NJ: Responsible for AutoCAD design for the Emergency Spot Repair project. Responsible for specifications, bid phase services, and communication with contractors once the project was issued for bid. The project includes the repair of a collapsed gravity sanitary sewer pipe within the roadway.

Boyden Avenue Cured-in-Place Pipe (CIPP) Lining, Maplewood Township, Essex County, NJ: Responsible for the preparation of AutoCAD plans and specifications for the CIPP lining of old sanitary sewer pipe.

Emily S. Shibata, EIT, ENV SP (cont.)

Wastewater Meter Chamber Installations, Passaic Valley Sewerage Commission (PVSC), East Orange, NJ: Assisted with the design of four flow monitoring devices throughout the city. Prepared plan and profile views for the proposed installation of flow monitoring flumes on gravity sanitary sewer pipe.

South Fourth Street Venturi Flow Meter, Passaic Valley Sewerage Commission (PVSC), Harrison, NJ: Responsible for analyzing existing venturi flow meter and other options to measure the flow. Prepared Technical Memorandum, including graphs and data tables, discussing the options to measure the flow. The project includes updating a 100-year-old venturi flow meter with new flow monitoring technology. The flow meter is located before the flow enters a siphon under a river.

Arthur Terrace and College View Water Transmission Main, Hackettstown Municipal Utilities Authority (HMUA), Warren County, NJ: Responsible for preparation of revised plans (AutoCAD drawings) to show water main as-built locations for permit submission.

West South Orange Avenue Culvert Repair, South Orange Village Township, Essex County, NJ: Prepared specifications and assisted with the preparation of AutoCAD plans for the 60% submittal. The project involves the repair of a collapsed stormwater culvert.

Wastewater Treatment Facility Mechanical Bar Screen Replacement, Verona Township, Essex County, NJ: Responsible for construction inspection for the installation of a bypass pump and a new mechanical bar screen.

Spoils Disposal, Hackettstown Municipal Utilities Authority (HMUA), Warren County, NJ: Responsible for the preparation of AutoCAD plans and specifications for the removal an existing spoils pile for disposal off site.

Cassandra L. Ferrara

Education
BS, Civil Engineering, New Jersey Institute of Technology, 2020

Ms. Ferrara provides assistance with various types of design and construction related projects including pump station and sanitary sewer rehabilitation and design. Her responsibilities include preparation of plans and specifications, shop drawing and developer reviews, and preparation of loan application documents.

Selected projects

Sterling Avenue Drainage Improvements, North Hudson Sewerage Authority (NHSA), Hudson County, NJ: Helping perform drainage calculations for drainage improvements along Sterling Avenue in Weehawken, NJ and preparing preliminary plans and specifications for the construction of new inlets and an underground stormwater detention system in the Woodrow Wilson School parking lot.

Green Infrastructure Project – Contracts 1 and 2, North Hudson Sewerage Authority (NHSA), Hudson County, NJ: Helping prepare bid tabulations comparing each bidder's line item costs along with the engineer's estimate for Contracts 1 and 2. Involvement also includes preparing the Authorization to Award package and an executed specifications book for Contract 2, as well as attending and recording minutes for the Preconstruction Meeting.

Phase 1-2 Sewer Rehabilitation, Jersey City Municipal Utilities Authority (JCMUA), Hudson County, NJ: Helping prepare revised plans and connection details for water main relocation and upsizing. Involvement also includes preparing shop drawing reviews and conducting pre- and post-construction CCTV inspections for combined sewer CIPP lining.

Authority Consulting Engineering Services, Kearny Municipal Utilities Authority (KMUA), Hudson County, NJ: Helping to prepare developer reviews as a part of the KMUA's general consulting engineering services. Involvement includes analyzing plans and performing calculations to ensure facility modifications are to code.

Authority Consulting Engineering Services, Vernon Township Municipal Utilities Authority (VTMUA), Sussex County, NJ: Helping to prepare sewer connection reviews for new developments as a part of the general consulting engineering services in Vernon, NJ. Involvement includes analyzing plans and permit documents to ensure connections are to code and the proper EDUs are assigned to the new developments.

Carteret Emergency Repair, Jersey City Municipal Utilities Authority (JCMUA), Hudson County, NJ: Helped prepare an environmental planning document for the New Jersey Infrastructure Bank describing the purpose and impact of the emergency project, which included excavation and replacement of a deformed segment of 96" riveted steel combined sewer overflow pipe. Involvement also included preparing supplemental tables describing the sizes and materials of the existing and new pipes as well as calculating the construction disturbance area.

Madison Street Improvements, North Hudson Sewerage Authority (NHSA), Hudson County, NJ: Helped prepare a response letter to the NJDEP with tables that described the sizes and materials of the existing and proposed pipes. Work also included utilizing the tables to calculate the proposed disturbance area for the construction of approximately 1400 LF of new DIP and CCFRPM gravity sewer.

Hudson Avenue Sewer Extension, North Hudson Sewerage Authority (NHSA), Hudson County, NJ: Helped prepare shop drawing reviews for the pipes, manholes, and road work required for the sanitary sewer extension. Involvement also included compiling an executed specifications book with signed contract documents.

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Section 3
Relevant experience

Relevant experience

Water resource recovery solutions for New Jersey

Meeting the challenge of wastewater management requires a careful balance of capital costs, energy use, operational ease, and maintenance efficiency — while incorporating sustainability, resiliency, and adaptability to climate change. New Jersey's unique blend of urban, suburban, rural, and coastal communities requires specialized attention to regional and local wastewater management needs: historic, current, and future.

For decades, communities and industries discharged wastes directly to receiving waters, impacting drinking water, recreation, and wildlife. The Clean Water Act and the New Jersey Pollutant Discharge Elimination System (NJPDES) rules, enacted in the 1970s, set water quality standards, leading to higher treatment standards and improving water quality throughout the state. Constantly increasing standards and regulatory requirements require innovative approaches, with system operational efficiency, sustainability, resilience, and public health and safety at the forefront of every project solution.

Integrated Watershed Management plans are key to Mott MacDonald's approach to improving wastewater treatment and conveyance systems, with the ultimate goal of improving receiving-water quality and preserving public health. Our wastewater experts have been instrumental in assisting domestic and industrial dischargers improve their wastewater handling facilities. Our involvement in the upgrading of treatment systems across New Jersey over the past 80 years has dramatically improved the quality of discharges to receiving waters statewide.

$500+M

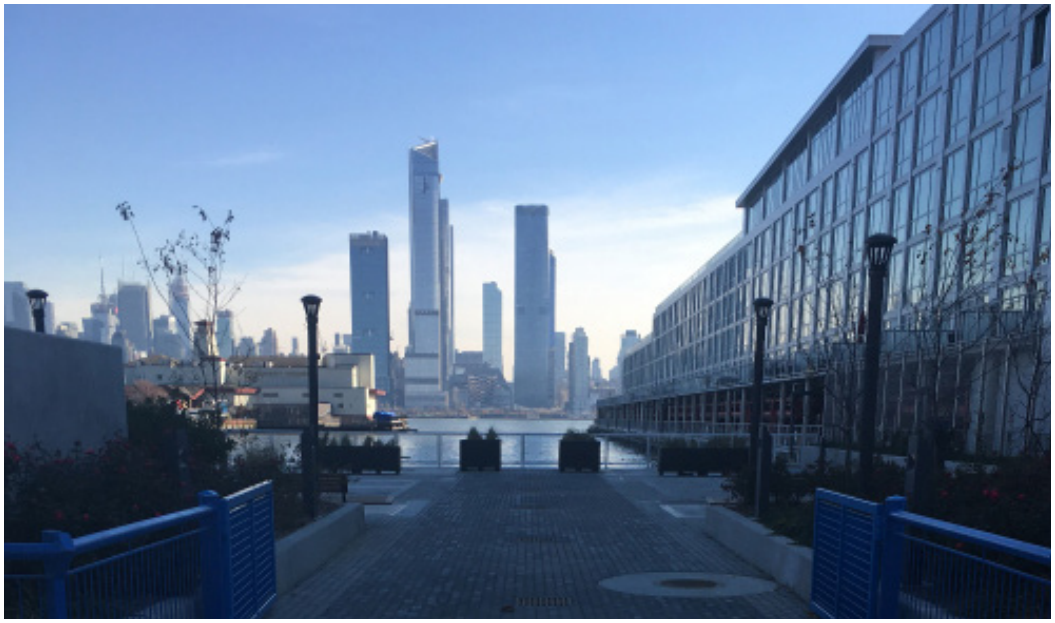
IBank Funding grants obtained since 2000

Successful water quality and wastewater management requires a reliable conveyance network of pumping and piping systems. Increasingly, this involves better wet weather management, reduction of combined sewer overflows (CSOs), elimination of and sanitary sewer overflows (SSOs), and implementation of green and gray infrastructure to alleviate flow burdens on treatment facilities. Communities with seasonal peak flows require flexible system designs to maintain system efficiency. Mott MacDonald's award-winning designs include innovative approaches to system hardening, improving resilience to severe weather events.

Client objectives vary, from immediate and specific — sometimes on an emergency basis — to long-term project-based or annual consulting agreements. Mott MacDonald offers a staff of engineers, planners, modelers, and permitting specialists who collaborate to bring you a full array of wastewater management services, from process evaluation and preliminary and final design of treatment and conveyance systems, to permitting and cost budgeting, to construction management, operations and maintenance, and facility startup and troubleshooting.

The process doesn't end at the treatment plant. Recycling water is a viable method for communities to conserve resources, replenish groundwater or for irrigation uses. Biosolids management can lead to energy reduction or nutrient recovery, but requires careful consideration due to the significant cost of implementation.

Mott MacDonald's approach considers energy use, process complexity, effluent quality, ease of operations, odor control, and biosolids handling with system flexibility to develop solutions that meet constantly changing regulations.



Project
W1234 Solids and Floatables Facility

Client
North Hudson Sewerage Authority

Location
Weehawken, NJ

Improving the water quality of the Hudson River

Trash and other debris are prevented from entering the Hudson River from combined sewer overflows (CSOs) once the W1234 Solids and Floatables Facility is placed into operation.

Opportunity

In order to comply with the requirements of Administrative Consent Order issued by the New Jersey Department of Environmental Protection, the North Hudson Sewerage Authority constructed the W1234 Solids and Floatables (S/F) netting facility. The netting facility was constructed within a new pier structure in the Hudson River and captures debris generated by CSO events from the Authority's newly constructed 96-inch outfall and rehabilitated parallel 72-inch diameter outfall. The pier measures 103-feet long by 72-feet wide and contains six nets for each outfall.

Challenges

When construction on this $14 million project was started in July 2017 it was discovered that a sheeting line on the adjoining pier had displaced by several feet creating a conflict with the south facing wall of the S/F structure. Mott MacDonald recognized the conflict immediately and directed to the Contractor to shift the south wall of the structure. This avoided a significant delay in the construction schedule. However, this revision created the need to redesign other aspects of the project. Mott MacDonald adeptly addressed these changes while working with multiple stakeholders and community members concerned about the impacts of construction.

Also noteworthy to the construction challenges were the extreme discharge flow rates observed at the outfall. The upstream drainage area is approximately 519 acres located along the Palisades ridgeline, approximately sixty-feet above the new S/F Structure. During rainfall events, the resulting surcharge at the S/F structure gave cause for additional hydraulic modeling. Four additional 54-inch outlets and vents which were designed and installed under a contract modification.

Outcome

Since the facility is located adjacent to a high-end residential building and along a waterfront walkway with unobstructed views of the New York City skyline, the top of the netting facility was integrated into the greater Hudson River waterfront linear walkway with a brick laid accessway, landscaping, lighting and bench seating. This solution involved the input and cooperation of the Township of Weehawken and the developer of the building.

The project was completed on schedule and placed into operation in October 2019.

Project
Park Avenue Siphon improvements

Client
North Hudson Sewerage Authority

Location
Park Avenue and 19th Street in Weehawken, NJ

Responding to an emergency

Repairing the Park Avenue Siphon required teamwork and innovation to protect public health and the environment.

Opportunity
The North Hudson Sewerage Authority undertook a capital improvement project to inspection and rehabilitate the existing Park Avenue Siphon. The siphon consisted of parallel 12-inch diameter and 24-diameter ductile iron pipes. When the 12-inch pipe was being lined, it was discovered that the 24-inch pipe had ruptured flooding an access pit. The 24-inch pipe conveys 6 to 9 million gallons of raw sewage to the Adams Street Wastewater Treatment Plant (WWTP), and there was no means to shut the pipe down to repair it. To make matters worse, the siphon extends beneath the embankment of the Hudson/ Bergen Light Rail tracks just before it enters the WWTP which made setting up a bypass pumping system almost impossible.

Solution
The break in the pipe was located as it enters the treatment facility on the south side of the WWTP. Due the pressurized flows the Contractor was unable to pump down the excavation to expose the break in the pipe.

Mott MacDonald collaborated with the Contractor and the WWTP operator to utilize an existing drainage culvert that extended beneath the railroad track embankment. The Contractor installed a line-stop on the north side of the embankment and installed a temporary pipe through culvert to another line stop within the treatment plant property. Temporary pumps were set up and the existing pipe was shut down. The Authority received the permission of New Jersey Transit to utilize the culvert for the temporary by pass.

All of this work was performed under an emergency declaration and Mott MacDonald monitored the Contractor's performance and verified their labor and equipment to protect the Authority's best interest.

Outcome
Once the pipe was shut down, the cause of the failure was found to be a broken which was easily replaced. Flow through the pipe was re-established, and the original scope the project was completed without further issues. A benefit of the emergency repair was that the line stops will act as means to shut down the pipe in the future for maintenance.

Project
Jackson Street and Newark Avenue Combined Sewer Rehabilitation

Client
North Hudson Sewerage Authority (NHSA)

Location
Hoboken, NJ

Cleaning and improving century-old sewers

Working in the dense urban environment of Hoboken, Mott MacDonald helped managed the inspection, documentation, cleaning, and rehabilitation of brick and wooden sewers.

Opportunity

The North Hudson Sewerage Authority services Hoboken, Weehawken, Union City, and West New York. The Hoboken collection system includes a number of brick and several wood sewers constructed in the latter half of the 1800s.

As part of the Authority's ongoing program to maintain its collection system, the wooden box sewers on Jackson Street between Newark and Seventh Streets, and on Newark Street between Madison and Jefferson Streets, were cleaned and rehabilitated. After the sewers were cleaned and inspected, they rehabilitated internally with gunite. Some reaches of the conduit were found to be collapsed and had to be replaced via conventional open cut.

Before the work began, the condition of the wood and brick sewers was unknown. The work had to be conducted within the dense urban setting of Hoboken. Careful traffic control, attention to safety, and coordination with police, property owners, and the Hoboken Parking Authority were needed. Archeological documentation was also required.

Solution

Mott MacDonald was retained as the prime construction management consultant, responsible for overseeing all aspects of the work.

Mott MacDonald provided pre-bid and bid services to the Authority. We reviewed shop drawings and provided field inspection services.

Once the collapsed reaches of the sewers were discovered, Mott MacDonald designed a construction detail to replace the damaged sections with a conventional circular pipe. Mott MacDonald was able to manage the scope of the project so the original contract price was exceeded but this change. Mott MacDonald also coordinated the pipe replacement work with the City of Hoboken's Department of Emergency Management to minimize the impacts to adjacent neighbourhood, especially traffic control.

Mott MacDonald managed the archeologic sub consultant, and coordinated compliance with the requirements of the State Revolving Fund Environmental Infrastructure Trust and programs for socially and economically disadvantaged businesses.

Outcome

In compliance with the New Jersey State Historic Preservation Office, an archeologist was present during the work to document the sewers prior to the lining.

Prior to rehabilitation, the sewers were cleaned and inspected. After cleaning, approximately 3,400 linear feet of combined sewer were structurally reinforced with gunite and steel. The project also included reconstructing deteriorated manholes.

Project
Hydrogritters replacement project

Client
North Hudson Sewerage Authority

Location
Hoboken, NJ

Getting the grit out

In order to maximize efficiency, replacement of obsolete equipment was necessary at the North Hudson Sewerage Authority's Adams Street Wastewater Treatment Plant.

Opportunity
The North Hudson Sewerage Authority needed to replace in kind the hydrogritters at the Adams Road Wastewater Treatment Plant. The hydrogritters remove heavy grit particles from the primary waste stream. The Contract Operator had purchased the equipment and needed to replace the failing equipment immediately.

Solution
Mott MacDonald collaborated with the Contractor to replace one of the hydrogritters immediately by connecting to an existing control panel while the new electrical equipment was being fabricated. This allowed the Contract Operator to run the new equipment continuously and shut down the second failing hydrogritter. The Contractor worked with Mott MacDonald to come up with this solution and execute the field change without additional cost to the project.

Mott MacDonald also prepared the loan applications to fund the project through the New Jersey Environmental Infrastructure Trust to fund the project through a low interest loan.

Outcome
The extra time allotted with the installation of new equipment at the commencement of the project provided all parties time to review and comment on the installation design. The Contract Operator commented and modified shop drawings based on their operational needs. The project closed out in 2016.

Project
2016 River Road Wastewater Treatment Plant improvements

Client
North Hudson Sewerage Authority

Location
Hudson County, NJ

Funded by the NJEIT

Upgrades to equipment at the North Hudson Sewerage Authority's River Road Wastewater Treatment Plant were necessary to improve their capital infrastructure.

Opportunity
The North Hudson Sewerage Authority had a list of needed upgrades to the River Road Wastewater Treatment Plant that included the installation of two Roto-Screens within the Operations Building, replacement of deteriorated grating and hatches on walkways, and replace four failing 7,500-gallon chlorine storage tanks. The Authority wished to upgrade needed equipment and pay for it through the New Jersey Environmental Infrastructure Trust (NJEIT) to fund the project through a low interest loan.

Solution
Mott MacDonald worked with the preliminary design drawings provided to them by the Contract Operator. In order to bid the project, engineering plans and specifications in accordance with NJEIT requirements were prepared and approved by the NJEIT. The existing chlorine tanks were in poor condition and had less than 5 years of service life. Therefore, Mott MacDonald researched and specified new chlorine tanks that would have long-term use for the Authority. This effort is a small example of our commitment to listen to the needs of the Authority and help to improve their capital infrastructure.

Outcome
Mott MacDonald bid this project and successfully completed the construction contract.

Project
18th Street Pump Station

Client
North Hudson Sewerage Authority (NHSA)

Location
Weehawken, NJ

Standing up to the challenge of Hurricane Sandy

The Construction of the new 18th Street Force Main allowed the North Hudson Sewerage Authority to dewater a flooded neighbourhood in Weehawken within 48-hours. This allowed the area to recover and begin reconstruction almost immediately.

Opportunity

The purpose of the project was to replace an aging existing gravity sewer that served as the 18th Street Pumping Station Combined Sewer Overflow conduit and outfall that is undersized to handle the design flow (50MGD) of the pumps at the subject facility.

Specifically, the proposed 48-inch diameter force main will initiate at the 18th Street Pumping Station and was designed to discharge through an existing bulkhead at the Weehawken Cove into the Hudson River. Approximately 282 linear feet of the force main was installed via micro-tunnelling to travel beneath the existing New Jersey Transit right-of-way. This length of the pipe was installed within a 66-inch diameter steel casing pipe at an elevation about 35-feet below existing grade. The remainder of the force main was installed via conventional open cut methods. In addition to the pipe line installation, the project required the construction of a launching shaft and a receiving shaft for micro-tunneling with three manholes with air release valves. The force main discharges into the Weehawken Cove through an outfall. The new outfall structure was installed and fitted with a flexible flap valve at the bulkhead and the old outfall none functions solely as a separate stormwater discharge.

Solution

The Authority retained Mott MacDonald to provide design and permitting services for the construction of the 18th Street Pump Station, a project completed in 2010. Mott MacDonald prepared the permit applications for a NJDEP Waterfront Development, Treatment Works Approval and a Freshwater Tidelands Grant. The alignment of the new outfall required the need for easements from two private entities and New Jersey Transit, which Mott MacDonald negotiated and obtained on the behalf of the Authority.

Mott MacDonald conducted a geotechnical boring program to design the launching/receiving shafts and the casing for the Micro-tunneling reach of the project which extended beneath the Hudson Bergen Light Rail tracks. The information from the borings were also utilized to characterize the excavated soils, so they were disposed of properly in accordance with the State and Federal regulations.

Mott MacDonald also performed a surge analysis to design the air release valves for the project since the profile of the new force main created two high points that created air pockets when the pumps were activated.

The open cut sections of the outfall required extensive utility coordination since the roadways that the outfall crossed contained numerous underground utilities that had to be mapped vertically and horizontally on the contract drawings. These utilities included fiber optics, high voltage electric, water mains and gas mains. Additionally, the new outfall was constructed of ductile iron pipe with restrained joints since thrust blocks could not be used due to the potential for utility conflicts.

Outcome

The project was bid in September of 2010 in the amount of $3.6 million and was successfully constructed and placed in service in spring of 2012. Due to Mott MacDonald's thoroughness during the design and permitting process the project was constructed without delays or significant change orders.

Project
Hoboken Wood Combined Sewer Rehabilitation

Client
North Hudson Sewerage Authority (NHSA)

Location
Hoboken, NJ

Focusing on traffic control and safety within an urban setting

Prior to the work, the conditions of the wood sewers, which were almost completely blocked with debris and grease, were unknown.

Opportunity

The North Hudson Sewerage Authority services Hoboken, Weehawken, Union City, and West New York. The Hoboken collection system included several wood sewers constructed in the latter half of the 1800's. As part of the Authority's ongoing program to maintain its collection system the wood sewers on Grand Street, between Observer Highway and Sixth Street, are being rehabilitated. Approximately 1,500 linear feet of sewer is being cleaned and structurally reinforced with gunite. The project also included removing unneeded manholes to improve the streetscape. The project also included reconstructing deteriorated manholes.

The New Jersey State Historic Preservation Office has required that an archaeologist be present during the work to document the sewers prior to the lining.

Prior to rehabilitation, the combined sewers were cleaned and inspected. In several areas the sewers were almost completely blocked by debris. The sewer's wood construction and frequent timber supports made sewer cleaning challenging. Once cleaned the sewers will be rehabilitated using gunite and reinforcing steel.

Solution

Mott MacDonald was the prime construction management consultant on this project responsible for overseeing all aspects of the work. Mott MacDonald provided pre-bid and bid services to the Authority, reviewed shop drawings, and provided field inspection services. The archaeology sub-consultant was managed by Mott MacDonald who also coordinated compliance with the requirements of the State Revolving Fund Environmental Infrastructure Trust and Socially and Economically Disadvantaged businesses programs.

Project
Hanover Sewerage Authority General Consulting Services

Client
Hanover Sewerage Authority (HSA)

Location
Morris County, NJ

More than half of a decade of service

Mott MacDonald has been providing both consulting services and design / construction services to the Hanover Sewerage Authority for over 55 years.

Opportunity

As Design Engineer, Mott MacDonald designed the original trickling filter plant and sanitary sewer collection system which began operation in 1961 and continues to design subsequent plant upgrades and expansions, with the Contract 22 plant expansion completed in 1992, at a construction cost of approximately $18 million. The Digester Improvements, Contract 37, is nearing completion at a construction cost of approximately $3.1 million.

Solution

As Authority Engineer, Mott MacDonald attends the Authority's monthly meetings when requested, provides telephone consultations, process support, and construction inspection. We review developers' site plan drawings and provides inspection of sanitary sewer construction for such residential and commercial subdivisions.

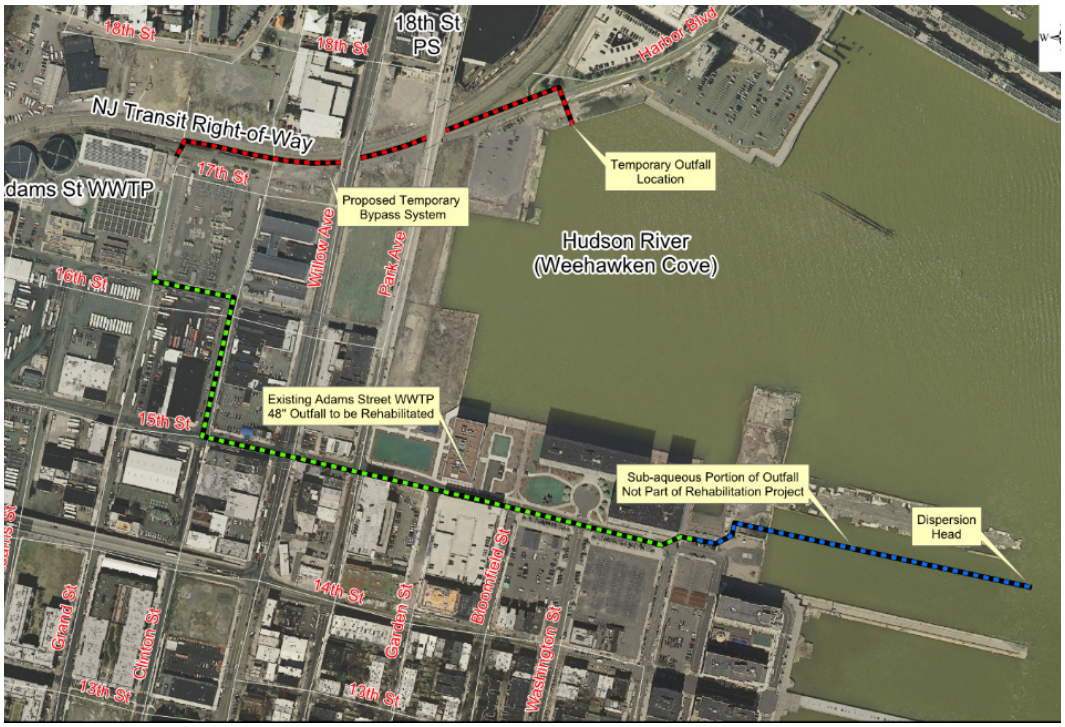
Mott MacDonald is currently designing and providing construction observation services for the latest treatment plant upgrades, including the Primary Digester No. 2 System and the Rehabilitation of Equalization Pond No. 2.

The firm has provided design and construction observation services for the most recent sewer line extensions, including a 12-inch gravity sewer line constructed to eliminate the only pumping station in the system and a sewer line in Whippany Road to provide sewer service to one of the few remaining unsewered areas in the Township. In addition, we are assisting the Authority in their on-going TV inspection and repair of the collection system.

Mott MacDonald continually updates the Authority's sanitary sewer and treatment plant Record Plans; in addition, we developed and maintains a GIS mapping and facilities data base for the Authority. This system, which has also been installed on the Authority's computer server, includes not only an up to date mapping of the Record Plans of all sewer lines, manholes, and building connection sketches, as well as hot links to the Authority's maintenance and repair records. Mott MacDonald also assists the Authority in administering its Industrial Pretreatment Program by providing sampling and related support services.

Mott MacDonald prepares monthly reports on engineering actvities, review of developer plans and TWA applications. We also review plant operational reports, collection system reports and IPP reports. We assist in IPP monitoring and prepare updates to the Rules and Regulations. We have prepared annual inspection reports required by bond issues.

Most recently, we have assisted with IBank Financing for capital projects. We have reviewed and negotiated NJPDES permits and provide expert testimony on behalf of the Hanover Sewerage Authority.



Project
Adams Street WWTP Outfall Rehabilitation

Client
North Hudson Sewerage Authority (NHSA)

Location
Hoboken, NJ

Handling the pressure

When the North Hudson Sewerage Authority brought an effluent pumping station online, its existing outfall began to feel the strain. A complex rehabilitation project helped the outfall meet the challenge.

Opportunity

The Adams Street Wastewater Treatment Plant has an average dry weather flow of 14 million gallons per day (MGD). Treated effluent from the facility flows to the Hudson through a reinforced concrete pipe outfall 3,800 feet long and 48 inches in diameter. The outfall was constructed in the mid-1950s to convey plant flows by gravity.

In the early 1990s, an effluent pumping station was added to the plant, increasing the wet weather flow capacity to 48 MGD and pressurizing the existing outfall. The existing outfall experienced several joint failures that required emergency repairs to both the pipe and the roadway.

Solution

The Authority retained Mott MacDonald to provide a range of services for the rehabilitation of the outfall, including these:

- Detailed site and utility surveys to provide base mapping of the existing outfall alignment
- Evaluation of rehabilitation alternatives including cured-in-place pipe linings, liner plates, structural and non-structural coatings
- Preliminary and final design
- Permitting, including a waterfront development application for the temporary bypass system outfall
- Financing through New Jersey Environmental Infrastructure Trust (NJEIT)
- Public bidding assistance
- Construction administration
- Full- and part-time construction observation

Outcome

Mott MacDonald introduced the project and successfully undertook extensive coordination with third parties, including Hudson County, the City of Hoboken, utility companies, and the Hoboken Waterfront Walkway restoration contractors.

Mott MacDonald developed an innovative temporary bypass plan to remove the outfall from service while it was being inspected and rehabilitated. Making use of public right-of-way's and municipal properties, a route was selected that would not disrupt public streets or place noisy pumps in residential areas.

Project
Sewer Survey and GIS Update

Client
New Jersey American Water

Location
Lakewood and Howell, NJ

Utilizing technology to maintain a GIS asset management system

New Jersey American Water (NJAW) owns and operates sanitary sewer assets within portions of Lakewood and Howell Townships. NJAW maintains an extensive enterprise asset management system that includes a robust GIS data model.

Opportunity
NJAW maintains an existing GIS database developed from small scale system mapping based primarily on developer design plans. Consequently, there was a low degree of confidence in the existing GIS database. NJAW wishes to update the asset registry to reflect as built conditions and to develop a hydraulic model for planning, regulatory, and operational activities.

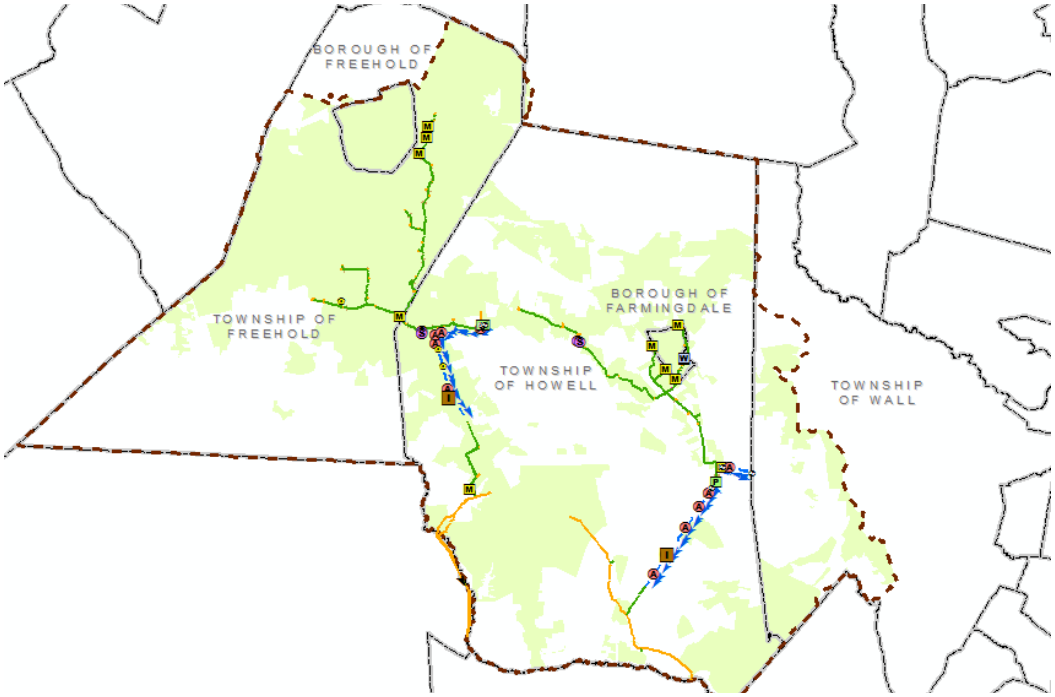
Solution
Mott MacDonald conducted a Real Time Kinematic (RTK) survey and conducted top-side manhole inspections to obtain pipe diameter, material, invert, and condition information of the approximate 4,000 manholes. Survey and inspection information was used to update the GIS database.

Outcome
Mott MacDonald delivered the updated GIS database within a 10-month time frame and is currently developing a hydraulic model. The updated GIS database included attachments to the field photos and inspection form.

Project
Sanitary Sewer GIS

Client
Manasquan River Regional Sewerage Authority

Location
Howell, NJ



Performing data modeling to continue serving five municipalities

The Manasquan River Regional Sewerage Authority (MRRSA) operates a regional sewer conveyance system that serves portions of five municipalities encompassing 100 square miles in Monmouth County. The system is comprised of 22 miles of gravity sewer, 4 pump stations and 6.5 miles of force mains ranging in size from 8 to 42 inches in diameter.

Opportunity
Mott MacDonald was selected to perform data modeling and data conversion services to develop an enterprise GIS database to support asset management and planning activities.

Solution
Leveraging an existing inventory of contract record drawings the GIS database was populated with asset information contained on the as built plan and profile drawings. The data source of each asset is tracked within the database and attachments to the record drawing are retrievable from within the GIS framework. A Real Time Kinematic (RTK) GPS survey was conducted for Authority owned manholes and the GIS was updated accordingly.

Outcome
The GIS database was setup on Authority computers and is utilized in daily decision making and responses to developer data requests. One huge benefit realized by the Authority is a 90% reduction in the number of markout requests generated by the One Call System. A 250' alert buffer was established around the Authority's assets. Previously the entire service area was in the alert buffer. The Authority is currently leveraging the GIS project to develop a hydraulic model.

Project
Hay Road WWTP Process Modelling and Planning

Client
City of Wilimington

Location
Wilmington, DE

Using WWTP process model to provide a business case for long-term capital expenditures

The City of Wilmington (City) Hay Road Wastewater Treatment Plant (WWTP) has provided consistent and reliable service to the City's residents and the surrounding communities since the 1950's. Mott MacDonald was retained to produce a process model for the WWTP which is focused on the existing, secondary biological treatment process using the BioWin simulation software. The purpose of the model is to simulate the existing plant operation as close as possible by replicating the solids mass balance and the influent and effluent quality.

Opportunity

Prior to undertaking a (major) reinvestment project for the WWTP, the City determined the need for a process evaluation and development of a comprehensive, computer-based process model to identify opportunities to optimize the WWTP facilities as part of the anticipated future reinvestment project(s). The Hay Road WWTP is designed to treat an average daily flow of 134 million gallons per day (MGD) and has a peak wet weather capacity of 340 MGD. The process evaluation will also serve to ascertain that any equipment upgrades and replacements are consistent with future operations and treatment requirements.

Solution

Mott MacDonald was retained to produce a process evaluation and develop a comprehensive, computer-based process model to identify opportunities to optimize the WWTP facilities as part of the anticipated future reinvestment project(s). Once the plant simulation model was developed and calibrated, the existing secondary system's ability to meet more stringent nitrogen limits at various wastewater flow levels was evaluated. Process optimization alternatives were evaluated included recuperative thickening, anaerobic co-digestion of fats, oil, and greases, membrane bioreactor/integrated fixed film process, chemically enhanced primary treatment, and aeration blower and diffuser replacement.

Additionally, the feasibility of implementing partial denitrification was evaluated for the existing tankage with and without conversion to MBR process.

Outcome

Mott MacDonald developed a functional process simulator and to document the existing flow and loading conditions as well as the future flow and potential permit limits, which may be used for the detailed evaluation of the selected alternatives and provide a basis for the business cases. The model included predictive features for operation costs (OPEX). By combining the OPEX with capital costs (CAPEX) developed for the altlernatives, the City can is able to evaluate the net present cost for each option.

Project
Rehabilitation of Kearny Point and Harrison Avenue Pumping Stations

Client
Kearny Municipal Utilities Authority (KMUA)

Location
Kearny, NJ

Recovering from Superstorm Sandy

When storm surge from a historic hurricane damaged two wastewater pumping stations, a coordinated rehabilitation effort made them better and more resilient than ever.

Opportunity

On October 29, 2012, Superstorm Sandy brought devastation to the East Coast. Two of the Kearny Municipal Utilities Authority's wastewater pumping stations, at Kearny Point and Harrison Avenue, were flooded by the storm surge. The stations had peak pumping capacities of 17.5 million gallons per day (MGD) and 3.0 MGD respectively.

Solution

After initial emergency repairs were done, Mott MacDonald conducted visual inspections of both pump stations and prepared a report to summarize the damage and estimate the cost of rehabilitation.

The Authority reviewed the damage due to Sandy and existing rehabilitation needs at both facilities that were identified previously. It was determined that all rehabilitation of both facilities could be performed under one contract.

At the Kearny Point Pumping Station, which serves all of South Kearny, rehabilitation required replacing the dry well submerged pumps and all associated valves and piping. The task required a line stop to be installed on the force main to construct the necessary repairs.

The main design concern at the Harrison Avenue Pumping Station was hazard mitigation for future events. Three options were reviewed to increase resilience:

1. Construction of flood wall around the property
2. Raising of all electrical equipment including the generator above 500-year flood elevation
3. Construction of a floor barrier against the building

Outcome

Effective communication between the owner, its operators and engineers, and regulatory and funding agencies staff was paramount to the successful completion of the recovery efforts in a timely manner. Resilience design options were evaluated carefully with the owner so they would fit both the needs of the facility and work within the operational goals of the organization.

Several measures will increase resilience at the Kearny Point Pumping Station. The existing generator will be replaced and a new above-grade fuel storage tank will provide minimum 3-day fuel storage. A bi-fuel generator was selected to extend fuel life.

Of the three resilience options considered for the Harrison Avenue Pumping Station, the flood barrier was found to be the most feasible, with the fewest operational constraints. In addition, the mechanical bar screen at the Harrison Avenue station was replaced with a new headworks screen.

Table 1: Annual services summary

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Atlantic County 1333 Atlantic Avenue, Atlantic City, NJ 08401	Mark V. Shourds, PE, County Engineer 609.645.5898 Gina Gribbin, Chief Inspector 609.343.2229	Consulting Engineer for County which is comprised of 23 Municipalities with a total area of 671.83 square miles, of which 555.70 square miles (82.7%) was land and 116.12 square miles of it (17.3%) was water with a population of 274,549	• Design Engineering • Construction Inspection Services	Consulting Engineer 20+ years
Avalon Borough (Cape May County) 3100 Dune Drive, Avalon, NJ 08202	Scott Wahl, Administrator 609.967.8200	Engineer of record for municipality with a seasonal population of 32,000, approximately 40 miles of road, stormwater and wastewater collection systems of 49 miles and 37 miles of water main	• Subdivision/Development plan review • Engineering services for reconstruction of over 50 roads • Stormwater design • Traffic plans • Utility alignment • Soil and erosion plans and permits • Construction management services • Tax map maintenance • Recreational facilities • Coastal engineering & design of shore protection structures • Water system consulting/well design/ electrical support • Business district enhancement & streetscape • Wastewater collection system design/ consulting • FEMA response	Municipal Engineer since 1990
Bergen County Utilities Authority (Bergen County) Foot of Mehrhof Road, PO Box 9, Little Ferry, NJ 07643	Dominic DiSalvo, Director of Engineering 201.807.8664	• 80 MGD sewage treatment plant • 100 miles interceptor • Pumping station • Solid waste disposal	• Sewer system design • Construction services • Infiltration/Inflow reduction • Black Start cogeneration electrical design • CSO consulting services • 84" interceptor design and construction services	Wastewater Consultant since 1997
Bernards Township (Somerset County) 227 South Maple Avenue, Basking Ridge, NJ 07920	Cyndi Kiefer, Land Use Board Administrator 908.204.3026 Thomas Timko, Township Engineer 908.204.3017	Municipality with an approximate population of 26,600 and approximately 24.06 square miles in size	• Subdivision site plan review • Survey services on an as-needed basis • Tax Map updates	Land Use Board Engineer since 2018 / Survey Consultant since 2011

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Bernards Township Sewerage Authority (Somerset County) 277 South Maple Ave, Basking Ridge, NJ 07920	Thomas Timko, Authority Director 908.204.3017	• 2.5 MGD Level 4 activated sludge wastewater treatment plant • 11 major pumping stations • In excess of 100 miles of collection and interceptor sewers	• Planning, design and construction services for 2.5 MGD – Harrison Brook wastewater treatment plant • Design and Construction Services for septage receiving facilities, metering, oxidation ditches, grit facilities • General engineering services • Infiltration/Inflow Reduction Program • Sewerage pump station design • Electrical design and support • SCADA and security • Surveying	Authority Engineer since formation of the BTSA in 1956
Cape May County Administration Building, 4 Moore Road, Cape May Courthouse, NJ 08210	Dale Foster, PE, County Engineer 609.465.1035	Professional general engineering services and project management support on an as-needed basis	• Environmental Services • Roadway Reconstruction • Survey Services • Wetlands Delineation	General Engineer 20+ years
Cape May County Municipal Utilities Authority (Cape May County) P.O. Box 610, Cape May Courthouse, NJ 08210	Tom LaRocco, PE, Chief Engineer 609.465.9026 Joseph Rizzuto, Executive Director 609.465.9026	• 4 Wastewater Treatment Plants with a combined capacity of 31.1 MGD • County wide Regional Conveyance System with 31 sewage pumping stations • Sludge Composting Facility permitted to process 140 dry tons per week • A 454-acre Sanitary Landfill Site • An intermediate process facility sorting 58,500 tons of recyclables per year • Solid Waste Transfer Station	• General consulting engineering services • Design of solid waste facility improvements • Construction phase services for landfill cell closure • General surveying services • Wastewater conveyance • Force main and outfall replacement • Landfill leachate force main routing	Wastewater Consultant since 1990
Carteret Borough (Middlesex County) Memorial Municipal Building, 61 Cooke Ave., Carteret, NJ 07008	Daniel J. Reiman, Mayor 732.541.3801 John Dupont, PE, CME, PP, Director of Engineering 732.541.3847	Consulting Engineer for a municipality with a population of more than 20,000 with heavy industrial and commercial operations and over 100 miles of sanitary and storm sewer	• Roadway inspection and improvement program • Sanitary sewer system rehabilitation program • Pump station replacement/upgrades/ electrical improvements • Storm sewer system rehabilitation program • Grant and permit applications • Municipal Engineering budgeting • General design and construction inspection services • Emergency force main failure response • FEMA response	Municipal Engineer 1997-2001 / Sewer Consultant since 2003
Chatham Township (Morris County) 58 Meyersville Road, Chatham, NJ 07928	Robert Hoffman Administrator 973.635.4600	Engineer of record for municipality with a population of more than 10,000	• Subdivision/development plan review • Roadway inspection program • Reconstruction design of municipal roads • Traffic plans • Soil and erosion plans and permits • Construction management services • Stormwater management • Grant application/monitoring	Municipal, Planning Board and Zoning Board Engineer since 1994; Board of Health Engineer since 2014

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Clinton Township (Hunterdon County) 1225 Route 31 South Suite D, Lebanon, NJ 08833	Vita Mekovetz, Administrator Denise Filardo, Planning Brd. Secretary 908.735.8800	Engineer of Record for a municipality in Hunterdon County with a population of more than 13,500 with approximately 89 miles of public roads	• Roadway inspection and improvement program • Grant and permit applications • Municipal engineering budgeting • General design and construction inspection services • General municipal and planning board services • Wastewater management plan • COAH III analysis • Highlands regional master plan Compliance	Municipal, Planning Board and Zoning Board Engineer since 2006
Clinton Township Sewerage Authority (Hunterdon County) 79 Beaver Ave, Suite 5, Clinton, NJ 08809	Steve Krommenhoef, Authority Chairman 908.735.5026	• 14 pumping stations and 5 metering stations • Collection sewer system	• General Consulting Engineering Services • Planning, design, permitting, and construction services sewage pumping station replacements • Assisted in securing wastewater treatment trust funding • Underground storage tank removal services, dicar preparation	Authority Engineer since 1990
Denville Township (Morris County) 1 St. Mary's Place, Denville, NJ 07834	Steven Ward, Administrator 973.625.8300	Engineer of record for municipality of approximately 14,000, approximately 90 miles of municipal roadway, stormwater systems and municipal recreation facilities	• Reconstruction design of municipal roads • Recreational facilities • Drainage improvements • General wastewater and water supply system consulting • Grant application/monitoring • General civil engineering	Wastewater & Water System Consultant since 2005; Municipal Planning & Zoning Board Engineer since 2010
East Windsor Municipal Utilities Authority (Mercer County) 7 Wilshire Drive, East Windsor, NJ	Richard Brand, Executive Director Clark Wolverton, WWTP Superintendent 609.443.6000	• 3.3 MGD advanced wastewater treatment plant • Pumping stations • sample collection system	• Wastewater treatment plan upgrade • Pump station upgrade • Construction management • Wastewater management planning development reviews • Electrical design services	Authority Engineer since 2000
Elizabeth, City of (Union County) 50 Winfield Scott Plaza, Elizabeth, NJ 07201	John F. Papetti, Jr., Director of Public Works 908.820.4101	• Combined sewer system serving an estimated population of 110,000 • 168.5 miles of service • 1 large (36 MGD) and 3 smaller pumping stations • 34 CSOs	• Infiltration Detection • Sewer cleaning and internal TV inspection • Design of solids/floatable control facilities • Design of sewer system rehabilitation including: slip lining, pipe bursting, and fold and form lining • Annual inspection for DPDES permit reporting • CSO consulting • Flood protection • General electrical design • FEMA response	Sewer Consultant since 1996
Essex County Hall of Records 465 Dr. Martin Luther King Boulevard, Newark, NJ 07107	Joseph DiVincenzo, Jr., County Executive 973.621.4400	The County is located in Central New Jersey. Its 22 municipalities encompass 127 square miles, and have 1,673 miles of roads. The 2016 population was estimated at 796,914 residents.	• Civil Engineering Consultant • Environmental Consultant • Park and Recreational Complex Design • Bridge Consultant	Engineering Consultant 25+ Years

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Florham Park Borough (Morris County) 111 Ridgedale Avenue, Florham Park, NJ 07932-1799	Michael Sgaramella, PE, Borough Engineer 973.410.5473	Consulting Engineer for municipality with a population of approximately 9,000	• Water Treatment Plant Design • Water Allocation Permit Renewals • Water Distribution System Improvements • Well Supply Improvements Design • Water Storage Tank Improvements Design • General Water System Consulting • Environmental Permitting • General electrical consulting	Water system consultant since 1978 / Wastewater consultant since 2013
Freehold Township (Monmouth County) Municipal Plaza, Schanck Road, Freehold, NJ 07728	Peter R. Valesi, PE, Township Administrator 732.294.2001	Water system with approximately 10 MGD peak capacity, including three groundwater supply and treatment plants and an additional water supply source through an existing contract/ purchase agreement, pumping, distribution and storage. Wastewater collection system that includes well over 100 miles of sewer pipe constructed of a combination of asbestos-cement, cast iron, ductile iron and PVC.	• Planning, design and construction for projects ranging in value to simple Certificate of Occupancy inspections to multi-million dollar construction projects such as their newer 4 MGD and water treatment plant • Reviews and inspection of site and subdivision plans • Plant operations • Regulatory compliance • Water quality • Consumer confidence reports • Interconnection testing • Hydraulic analysis • Miscellaneous small designs • Connection fee computations and rate studies • Provision of storm water design compliance reviews • Water system modeling and testing • Public Works Projects • DPW Fueling System Upgrades • Landfill Closure • Environmental Remediation • Roadway Improvements • Bridge/Culvert Replacement • GIS • General electrical and controls engineering • Wastewater collection system improvements • Sewage pump stations • I/I program	Water/Sewer Consultant since 1972
Gordons Corner Water Company (Monmouth County, NJ) 27 Vanderburg Road, Marlboro, NJ 07746	David G. Ern, Vice President and General Manager 732.946.9333	Consulting Engineer for water system including 7 production wells with treatment and storage tanks	• Water system infrastructure design & construction engineering services • Regulatory compliance consulting • General water consulting • Consumer Confidence Report	Water Consultant 20+ years

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Hackettstown Municipal Utilities Authority (Warren County) Administration Building, 424 Hurley Drive, Hackettstown, NJ 07840	Kathleen Corcoran, PE, PP, Executive Director 908.852.3622	• 3.3 MGD advanced wastewater treatment plant • Wastewater pump stations • Potable wells • Collection and interceptor sewer system • Water distribution system • Water storage tanks • Water booster pump stations	• Planning, design and construction for water filtration plant, 2.4 MGD water storage tank, water wells and transmission mains • Planning, design and construction services for wastewater treatment plant expansion/upgrading • Permitting assistance • Assistance in obtaining project financing • General electrical engineering design services at wastewater treatment plant and pump stations	Authority Engineer since 1960's
Hamburg Borough (Sussex County) 16 Wallkill Ave., Hamburg, NJ 07419	Paul Marino, Mayor 973.827.9230	Engineer of record for municipality with a population of 3,000 and approximately 10 miles of road	• Subdivision/Development plain review • Roadway inspection program • Reconstruction design of municipal roads • Traffic plans • Soil and erosion plans and permits • Construction management services • Stormwater management • Grant application/monitoring	Municipal and Land Use Board Engineer since 1993
Hanover Sewerage Authority (Morris County) P.O. Box 250, 1000 Route 10, Whippany, NJ 07981	Michael C. Wynne, PE, Executive Director 973.428.2478	• Level 4 advanced wastewater treatment plant with a capacity of 4.61 MGD • Associated collection system serving Hanover Township and parts of 3 other municipalities	• Planning, design, permitting and construction services for expansion and upgrading of wastewater treatment plant completed in 1992 • Assistance in securing wastewater treatment plant trust funding • Planning, design and construction services for sanitary sewer collection system and interceptor system (pipe size up to 36 in.) • Underground storage tank replacement, removal and upgrading • Industrial pretreatment program sampling and laboratory analysis • Subdivision/redevelopment plan review and construction observation • General electrical design services • General SCADA and controls services	Authority Engineer since formation of the HSA in 1958
Hopatcong Borough (Sussex County) 111 River Styx Road, Hopatcong, NJ 07843	Micheal Frances, Mayor 973.770.1200	Engineer of record for municipality with a population of 15,147, 12.2 square miles	• Reconstruction design of municipal roads • Recreational facilities • Drainage improvements • Wastewater system design • Grant application/monitoring • General civil engineering	Municipal, Land use Board, Utility, Quarry and Landfill Engineer since 2000. Municipal Planner since 2016.
Jefferson Township (Morris County) 1033 Weldon Road, Lake Hopatcong, NJ 07849	Debra Millikin Administrator 973.208.6103	Consulting Engineer for a municipality with a population of 23,000, approximately 212 miles of road, stormwater and wastewater collection systems of 131 miles. In addition: 130,000 GPD RBC Plant, 70,000 GPD Advanced WWTP with groundwater treatment, Collection system, 4 wastewater pumping stations	• Planning and design of STP upgrades • Inspection of STP construction • Design of pumping station and pressure sewers • Inspection of developer construction • Subdivision/Development plan review • Roadway inspection program • Reconstruction design of municipal roads • Stormwater management • General civil engineering	Consulting, Planning and Zoning Board since 1995

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Jackson Township Municipal Utilities Authority (Ocean County) 135 Manhattan Drive, Jackson, NJ 08527	David Harpell, Executive Director 732.928.2222	Water and sewer infrastructure	• Planning, budgeting, design, permitting, bidding and construction services for municipal water and sewer improvement projects	Water/Sewer Consultant since 2001
Jersey City Municipal Utilities Authority (Hudson County) 555 Route 440, Jersey City, NJ 07305	Richard Haytas Chief Engineer 201-954-8463	Water and wastewater consulting for Authority with surface water treatment plant, transmission/distribution system, CSO collection system and wastewater pumping facilities	• Water distribution system planning/ design • Water treatment plant design/ construction • Energy efficiency improvements • Disaster recovery assistance • Wastewater pump station upgrades • Brick sewer replacement program • FEMA support	Consulting Engineering services
Kearny Municipal Utilities Authority (Hudson County) 36 Central Ave., Kearny, NJ 07032	Paul Pidgeon, Executive Director 973.465.5367	• 4 Pumping Stations • Grit & Screening Facilities • Collection System	• General Engineering Services • Pump station upgrades including electrical design support • FEMA support	Authority Engineer since 2004
Keyport Borough (Monmouth County) 70 West Front Street, Keyport, NJ 07735	Tom Fallon, CFO 732.739.3900	Municipality with population of approximately 7,240 and a total area of 1.469 square miles of which 1.395 square miles of it is land and 0.074 square miles is water	• Water and Sewer Consulting • General Consulting Services • Waterfront/Coastal Engineering	Consulting Engineer since 2005
Lakewood Township Municipal Utilities Authority (Ocean County) 390 New Hampshire Ave, Lakewood, NJ 08701	Justin Flancbaum, Executive Director 732.363.4422	• Municipal water/sewer infrastructure • 2 Water Treatment Plants (3 MGD & 2 MGD) • >100 miles of water main • 2 sewage pumping stations • >75 miles of sewers	• General engineering services • Planning, budgeting, design, permitting, bidding and construction services for municipal water improvement projects • Planning, budgeting, design, permitting, bidding and construction services for municipal sewer improvement projects • Regulatory compliance assistance • Water treatment plant design including electrical and SCADA design	Water Consultant since 1972
The Landis Sewerage Authority (Cumberland County) 1776 South Mill Road, Vineland, NJ 08360	Dennis Palmer, PE, Executive Director/ Chief Engineer 609.691.0551	• 1 Wastewater treatment plant of 12.2 MGD capacity • 18 pumping stations • Collection and interceptor sender system	• Sewer rate study • Engineering study in collection and pump station system design of: – Internal investigations of 3 major interceptor sewers – Collection system rehabilitation – Collection sewer extension projects – Pump station upgrades with generators at 4 stations – Community installation at 3 pump stations – Interceptor sewer replacement • Major collection system with pump station • Emergency generator and electrical design • Replacement/upgrade of 5 pump stations	Wastewater Consultant since 1992

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Lower Township (Cape May County) 2600 Bayshore Road, Villas, NJ 08251	Michael Laffey Township Manager 609.886.2005	Engineer of record for municipality with approximate year-round resident population of 23,000 and approximate seasonal population of 99,000 residents with approximately 134 miles of roadway	• Subdivision/Division plan review • Engineering services for reconstruction of various roadways • Stormwater designs • Beach maintenance plans • Traffic Engineering • Soil and erosion plans and permits • Construction management services • Recreational facilities	Municipal, Planning Board and Zoning Board Engineer since 2009
Manasquan River Regional Sewerage Authority (Monmouth County) Havens Bridge Road P.O. Box 646, Farmingdale, NJ 07727	Brian J. Brach, Executive Director 732.431.8185	• Service to 5 municipalities with population of 100,000 • Regional interceptor system consisting of 27 miles of gravity sewers and force mains • 3 pumping stations and 2 hydrogen peroxide feed stations	• Planning, design and construction services for regional conveyance system with interceptor sewers ranging in size up to 42 in. • Planning, design, and construction services for 3 pumping stations and 2 hydrogen peroxide feed stations • General engineering services • GIS • Electrical design support • Sewer system model • FEMA response	Authority Engineer since 1972
Mantoloking Borough (Ocean County) 340 Drum Point Road, Brick, NJ 08723	Honorable Lance White, Mayor Mr. Scott Hulse, DPW Superintendent 732.475.6983	Engineer of record for community located on Barnegat Peninsula with a population of 450	• Municipal Engineer • Planning Board Engineer • Zoning Officer • Coastal Engineering Services • Recovery and rebuilding from Superstorm Sandy • FEMA response	Municipal, Planning Board Engineer & Zoning Officer since 1989
Middlesex County Administration Building 75 Bayard Street, New Brunswick, NJ 08901	Ronald Sendner, Acting County Engineer 732.745.3248	Engineering Consultant	• Roadway reconstruction • Guide rail upgrades • Culvert rehabilitation • Traffic studies • Bridge design and construction	25+ years
Middlesex County Utilities Authority (Middlesex County) P.O. Box 159, 2571 Main Street Extension, Sayreville, NJ 08871	Joseph Cryan, Executive Director 732.721.3800 ext. 576	138 MGD wastewater treatment plant serving 53 towns and over 800,000 people	• Planning, design and construction services for regional pump station and force main • Upgrades at 138 MGD WWTP • Electrical system upgrades • Cogeneration power control • Wastewater reuse • Coastal resilience	Wastewater Consultant since 2004

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Monmouth County Hall of Records Annex, One East Main Street, Freehold, NJ 07728	Joseph M. Ettore, PE, County Engineer 732.431.7760	Engineering Consultant	• Roadway reconstruction • Dam inspection/Evaluation • Environmental services • Survey services • Bridge design and construction • Buildings • Site/Civil	Engineering Consultant & Environmental Consultant 50+years
Monroe Township Utility Department (Middlesex County) 143 Union Valley Road, Monroe, NJ 08831	Michael Barnes, Director 732.521.1700	• 4.2 MGD water supply system • 5 storage tanks • 4 production, 2 irrigation wells • Radium treatment facilities • 226 miles of 4" to 20" mains	• Interim utility engineer • Annual water system consulting • Facility design and construction engineering for well systems, water treatment and storage tanks • Water system master plan preparation and updates	Water Consultant since 2004
Morris County Department of Planning and Public Works, Division of Engineering & Transportation 10 Court Street, Morristown, NJ 07960	Christopher Vitz, PE, County Engineer 973.285.6750 Roslyn Kurdan, PE, Assistant County Engineer 973.829.8616	Engineering design services for road and bridge transportation projects, including concept development, preliminary and final design, and construction support services	• Roadway design • Bridge and culvert design • Traffic engineering • Survey, mapping, and ROW engineering • Permitting	Road and design consultant since 1990's
Morris Township (Morris County) 50 Woodland Ave., P.O. Box 7603, Convent Station, NJ 07961	James R. Slate, PE, Township Engineer 973.326.7440	• 3.30 MGD advanced treatment wastewater treatment plant • 2.0 MGD advanced treatment wastewater treatment plant • Collection and interceptor sewer station • Pumping stations	• Planning, design and construction services for 2 wastewater treatment plants: Butterworth (3.30 MGD) and Woodland Plant (2.0 MGD) • Planning, design and construction services for collection and interceptor sewer and pumping stations Industrial pre-treatment program • Wastewater management planning • Review of development plan • General engineering services • General electrical consulting	Wastewater Facilities Engineer since 1966
New Brunswick City (Middlesex County) 78 Bayard Street, New Brunswick, NJ 08903	Alexi Walus, Director of Water Utility 732.745.5052	• 20 MGD water supply system • 2 major raw water pumping stations • 20 MGD surface water treatment plant	• Miscellaneous engineering services • C4 licensed operator services • AutoCAD services • Environmental Services • Structural and traffic engineering services • Hydraulic and water engineering • Industrial wastewater and I/I services • Electrical consulting	Water Consultant since 1942 / Miscellaneous Engineering Consultant since 2013
Newark City (Essex County) 920 Broad Street, Newark, NJ 07102	Kareem Adeem, Director, Newark Department of Water and Sewer Utilities 973.733.6303	Consulting Engineer for 23.81 square mile municipality with a population of approximately 277,140	• General consulting engineering services • Comprehensive water system engineering services including: rehabilitation of Pequannock aqueducts; Water system master planning, sewer system rehabilitations, reservoir rehabilitation • Comprehensive parks & recreation engineering/architectural services: Nat Turner Park, Jesse Allen Park, Mt. Vernon School Playground & Riverfront Park	Water/Sewer/ Stormwater Consultant; General Civil Engineering Consultant

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
North Hudson Sewerage Authority (Hudson County) 1600 Adams Street, Hoboken, NJ 07030	Fredrick J. Pocci, PE, Authority Engineer 201.963.6043	On-call engineering services and general consulting engineer for authority with 2 wastewater treatment plants, CSO system and pump stations	• CSO Rehabilitation • Pump station upgrades • Wastewater treatment plant improvements • Design, construction, advisory services • FEMA disaster relief assistance • Electrical design • Annual consulting engineer	Consulting Engineering services
North Plainfield Borough (Somerset County) 263 Somerset Street, North Plainfield, NJ 07060	Mr. David Hollod, PE, Business Administrator 908.769.2915	Municipality with a population of approximately 22,056 and a total land area of 2.807 square miles.The Borough's population base is serviced entirely by approximately 40.3 miles of 18-24"diameter gravity sewer main.	• Sewer Consultant • Consulting Engineer • Sewer rehabilitation	Sewer Consultant since 2003
Ocean County 101 Hooper Avenue, Toms River, NJ 08754 **Ocean County Planning Board** (Ocean County) 129 Hooper Avenue, Toms River, NJ 08754	County of Ocean Mr. John Ernst, PE, County Engineer 732.929.2130 Ocean County Planning Board Anthony M. Agliata, Director 732.929.2054	Engineering Consultant for the County which is comprised of 33 Municipalities with a total area of 915.40 square miles, the second-largest county in New Jersey, of which 628.78 square miles (68.7%) is land and 286.62 square miles (31.31%) is water with a population of 583,414.	• Civil Engineering Consultant • Environmental Consultant • Solid Waste Consultant • Coastal Consultant	Engineering Consultant 30+ Years
Passaic County Department of Public Works 401 Grand Street, Paterson, NJ 07505	Jonathan Pera, County Engineer 973.881.4450 Aura Mayer, Principal Bridge Engineer 973.881.4447	Engineering design services for road and bridge transportation projects, including concept development, preliminary and final design, and construction support services.	• Roadway design • Bridge and culvert design • Traffic engineering • Survey, mapping, and ROW engineering • Permitting	Road and design consultant since 1980's
Passaic Valley Sewerage Commission (Passaic County) 600 Wilson Avenue, Newark, NJ 07105	John Rotolo, PE, Chief Engineer 973.817.5962	Special engineering consultant 400 MGD wastewater treatment plant	• Sewerage treatment plant modifications and upgrades • Site plans and permitting for marine facilities • Sanitary sewer improvements • Grants and permit applications • Inflow & Infiltration studies • Wastewater treatment plant flood wall improvements	Wastewater Consultant since 1980
Pequannock, Lincoln Park and Fairfield (Two Bridges) Sewerage Authority (Morris County) P.O. Box 188, Lincoln Park, NJ 07035	Robert N. Bongiovanni, PE, Executive Director 973.696.4464	• 7.5 MGD 2 stage activated sludge plant with pressure filters • 5 major pumping stations • 14 miles of interceptor • 2 sludge incinerators	• General consulting engineering service • Design and permitting for UV disinfection facilities • Design of electrical rehabilitation • Design and permitting of pumping stations and rehabilitation • Discharge permitting assistance • Electrical engineering design and consulting	Authority Engineer since 1994

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Perth Amboy, City of (Middlesex County) 260 High Street, Perth Amboy, NJ 08861	Helmin J. Caba, Mayor 732.826.7121	General Consulting Engineering Services as requested for an urban coastal community with a population of 51,744	• General consulting engineering services • Coastal Consultant • Recreation Consultant • Emergency Response Services • FEMA Damage Assessment (PDA) Representative	Consulting Engineer since 1991
Raritan Township Municipal Utilities Authority (Hunterdon County) 365 Old York Road, Flemington, NJ 08822	Regina Nicaretta Executive Secretary 908.782.7453	• 3.8 MGD activated sludge STP • Associated collection system • 3.15 MGD stormwater treatment facility • Several pumping stations	• Planning and design of pumping station reconstruction • Technical assistance during permit renewal • Review of development plans • Inspection of authority and developer construction projects • Report on treatment plant and sewer capacity • Electrical design/SCADA	Authority Engineer since 1995
Rockaway Valley Regional Sewerage Authority (Morris County) RD#1, 99 Green Bank Road, Boonton, NJ 07005	Joann Mondsini Executive Director 973.263.1555	• 12 MGD oxidation ditch wastewater treatment plant • 13 miles gravity interceptor system providing service to nine municipalities	• Planning, design and construction services for 13 mile gravity interceptor system • Planning, design and construction services for 12 MGD wastewater treatment plant • Industrial pretreatment program • Permitting issues • General engineering services • FEMA response • Pump station design	Authority Engineer since formation of RVRSA in 1971
Sea Girt Borough (Monmouth County) 321 Baltimore & 4th Avenues, Sea Girt, NJ	Mr. Donald Fetzer Councilman, President 609.987.2323 ext. 111 Lorraine Carafa, Borough Administrator 732.449.9433	Municipality with a population of approximately 1,805 and a total area of 1.450 square miles, of which, 1.057 square miles of it is land and 0.393 square miles of it (27.11%) is water. The Borough has a 1.4 mgd Water Treatment Plant which was recently upgraded in 2012, treating groundwater for Iron removal and VOC air stripping, and a 300,000 gallon Elevated Water Storage Tank.	• General water engineering services • General environmental consulting engineering services	Consulting Engineer since 2007
Sussex County Municipal Utilities Authority (Sussex County) 34 South Route 24, Lafayette, NJ 07848	Thomas Varro, PE Executive Director/ Chief Engineer 973.576.6998 ext. 114	• 3 wastewater treatment plants with a combined capacity of 3.1 MGD • 6 pumping stations • Interceptor and force main sewers	• Special wastewater engineering services for NJPDES compliance • Permitting assistance • Conceptual design for biological nutrient removal • Cost estimating • Leachate force main design	Consultant since 2012

Table 1: Annual services summary (cont.)

Client name	Client contact	Size/type of services	Representative services rendered	Years of service
Scotch Plains (Union County) 430 Park Avenue, Scotch Plains, NJ 07076	Alexander Mirabella, Township Manager 908.322.6700 Ext 313	A residential township in Union County with a population of 23,510, encompasses just over 9 square miles	• Reconstruction design and improvement of roads • Recreational facilities • Drainage improvements • C-3 Operation • Grant application/monitoring • General civil engineering • Environmental remediation • Wastewater pump station • Wastewater rate study	Consultant since the 1960s Municipal Engineer for 15+ years
Somerset County 20 Grove Street, P.O. Box 3000, Somerville, NJ 08876	Michael J. Amorosa, PE, County Administrator 908.231.7040	The County is located in Central New Jersey. Its 21 municipalities encompass 305 square miles, contain a diversity of landscape, population, and development that reflects the varied lifestyles of its estimated 333,654 residents.	• Civil Engineering Consultant • Environmental Consultant • Solid Waste Consultant • Park and Athletic Field Design • Bridge Consultant	Engineering Consultant 30+ Years
Toms River Township (Ocean County) 33 Washington Street, Toms River, NJ 08753	Mr. Robert Chankalian, PE, Township Engineer 732.341.1000 ext. 8335	• Coastal Municipality with an approximate population of 51,983 and a total area of 52.884 square miles, of which 40.488 square miles of it is land and 12.396 square miles of it is water • 453.89 miles of roadways	• Capital Improvement Engineering Consultant • General Inspection and Engineering Consultant	Consulting Engineer
Vernon Township Municipal Utilities Authority (Sussex County) 21 Church Street, Vernon, NJ 07462	Donelle Bright CFO/Administrator 973.764.4055	• 46,000 cf gravity sewer • 17,000 ft force main • 3 pumping stations	• General consulting services • Engineering and design • Surveying services	Authority Engineering since formation in 2012
West Orange Township (Essex County) 25 Lakeside Avenue, West Orange, NJ 07052	Leonard R. Lepore, PE, Director of Public Works 973.325.4160	• Over 100 miles of sanitary sewers • 8 pumping stations	• Engineering and design • Construction services for sanitary and storm sewer system • General engineering services • Environmental engineering services • Surveying services • Road and drainage improvements	Consultant since 1970
Wildwood Crest Borough (Cape May County) 6101 Pacific Avenue, Wildwood Crest, NJ 08260	Constance A. Mahon, Business Administrator 609.729.8041	Coastal engineer for barrier island municipality with 4 miles of oceanfront and bayfront coastlines	• Coastal engineering and design • Coastal planning services • General engineering services with coastal facilities • Environmental engineering services • Surveying services	Coastal Engineer since 2013
Wildwood Crest Borough (Cape May County) 6101 Pacific Avenue, Wildwood Crest, NJ 08260	Constance A. Mahon, Business Administrator 609.729.8041	Coastal engineer for barrier island municipality with 4 miles of oceanfront and bayfront coastlines	• Coastal engineering and design • Coastal planning services • General engineering services with coastal facilities • Environmental engineering services • Surveying services	Coastal Engineer since 2013

Table 2: Experience in CSO projects

	Planning												Green opportunities					Underground solutions								
Client	CSO System Flow/Quality Monitoring	Modeling / Water Quality Monitoring	Public Participation / Coordination	Real Time Controls (RTC)	GIS Mapping/Data Management	Establishment of Control Goals & Approach Method	Development & Screening of Control Alternatives	Facility Siting & Routing Evaluations	Performance/Cost Evaluation of Alternatives	Environmental Impact Assessments/NEPA	Financial Capability/Funding Assessments	Integrated Watershed Management	Green OpportunitiesInfiltration/Inflow Reduction	Stormwater Infiltration Trenches/Boxes	Green Roofs/Gardens	Bioretention Areas	Constructed Wetlands	Conveyance Improvements/Flow Maximization	Regulator and Control Structure Design/Rehabilitation	Solids/Floatables Control	CSO Pump Station Design/Rehabilitation	Off-line Storage Tanks / Tunnels	CSO Storage System/Operations and Maintenance	High Rate Treatment (several different technologies)	Disinfection
City of Atlanta, GA																		●			●	●			
City of Paterson, NJ	●		●		●	●	●	●	●	●								●		●					
East Newark, NJ	●		●		●	●	●											●		●					
Passaic Valley Sewerage Commission, NJ	●	●	●		●	●	●	●	●	●	●	●						●							
Ridgefield Park, NJ	●	●	●		●	●	●	●	●	●	●							●	●	●					
City of Orange, NJ	●																	●							
City of Elizabeth, NJ	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●		●	●	●					
Jersey City MUA, NJ																		●	●	●					
Bayonne MUA, NJ	●	●	●		●	●	●	●	●	●	●	●	●	●				●	●	●	●			●	●
North Bergen MUA, NJ	●	●	●		●	●	●	●	●										●	●					
City of New Brunswick, NJ																		●		●					
New York City DEP, NY													●	●		●		●				●			
Northeast Ohio Regional Sewer District, OH								●	●									●	●	●	●	●			
Philadelphia Water Department, PA								●					●	●		●									
King County Wastewater Treatment Division, WA																			●						
North Hudson Sewerage Authority, NJ			●										●	●	●			●	●		●				
Town of Harrison, NJ	●		●			●	●		●									●		●					
Town of Kearny, NJ	●		●			●	●		●									●		●					
Bergen County Utilities Authority, NJ		●	●		●	●	●	●	●	●	●							●	●						
Pittsburgh Water & Sewer Authority, PA			●		●	●			●		●	●	●	●	●	●	●	●							
Municipal Sanitary Authority of New Kensington, PA	●	●	●	●	●	●	●	●	●		●	●	●			●		●	●	●	●	●	●	●	●
Hamilton County, OH	●	●	●	●		●	●	●	●		●	●	●	●	●	●	●	●				●	●	●	●
Kentucky SD-1, KY		●	●		●	●		●	●			●	●				●	●							
DC Water, DC						●	●	●	●				●	●				●	●	●	●	●	●	●	
City of Akron, OH	●	●	●		●		●	●	●			●	●					●	●			●		●	
Massachusetts Water Resources Authority, MA																		●			●	●			
Hartford MSD, CT						●		●	●								●								
City of Hamilton, ON, Canada	●	●	●	●		●	●	●	●	●								●	●	●	●	●	●	●	
Regional Municipality of Niagara, ON, Canada		●	●		●	●	●	●	●	●											●	●		●	
Alcosan, Pittsburgh, PA	●				●																				
City of Newark, NJ	●	●			●	●	●	●	●	●	●												●		

Table 3: Municipal wastewater management
Representative projects - Wastewater treatment plants

Client Name	Design Flow MGD	Primary Elements	Cost ($000)	Advanced Waste Treatment Type	Planning/ Permitting	Construction Services	O & M Manual	Plant Start-Up	Location	Date	Design Fee
Passaic Valley Sewerage Commissioners	330	Facility Upgrade	138,000E	*	●	●	●	●	NJ	1979	
Passaic Valley Sewerage Commissioners	330	Final Clarifier Upgrades	20,000	1	●				NJ	2010	
Middlesex County Utilities Authority	140	Grit Facilities	14,000	1, 10	●	●	●	●	NJ	2012	
Middlesex County Utilities Authority	140	Channel Aeration Blowers	3,000	1		●	●	●	NJ	2014	
Joint Meeting of Essex and Union Counties	75	Add Secondary Treatment	50,883	1, 11, 13		●	●	●	NJ		
Rahway Valley Sewerage Authority	35	New Secondary Facilities	14,729	1		●	●	●	NJ		
Ocean County Utility Authority NWPCF	32	Aeration Blowers & Piping	7,974	1		●			NJ	2017	$249,000
Ocean County Utility Authority CWPCF	32	Grit Facilities, Infl. PS, FOG Receiving	35,400E	1, 14		●			NJ	2019	
North Hudson Sewerage Authority - Adams Street WWTP	20.8	Grit Facility Improvements	533	1		●	●	●	NJ	2015	$35,900
Bayshore Regional Sewerage Authority	16	Facility Expansion	46,000	1, 13	●	●	●	●	NJ	1990	
Rockaway Valley Regional Sewerage Authority	12	New WWTF	32,300	2, 7, 9	●	●	●	●	NJ	1981	
Rockaway Valley Regional Sewerage Authority	12	Sludge Thickening Facilities	6,200	13	●	●	●	●	NJ	2010	
Rockaway Valley Regional Sewerage Authority	12	Tertiary Filtration Facilities	10,000E	5	●	●			NJ	2020	$508,000
North Hudson Sewerage Authority - River Road WWTP	10	Plant Improvements	659	1		●	●	●	NJ	2017	
South Monmouth Regional Sewerage Authority	9.1	Increase Capacity	15,836	1, 9		●		●	NJ		
Neptune Sewerage Authority	8.5		15,000	1, 9	●	●	●	●	NJ		
Two Bridges Sewerage Authority	7.5	UV Disinfection Facilities	6,400	8,9	●	●	●	●	NJ	2008	
Two Bridges Sewerage Authority	7.5	Headworks & Electrical Upgrades	18,153	10	●	●	●	●	NJ	2014	$562,160
Long Branch Sewerage Authority	5.4		8,800	1		●	●	●	NJ		
Livingston Township (upgrade)	4.62	Phosphorus Removal	846	2,5,7,9	●	●		●	NJ	2001	
Caldwell Borough	4.5	Facility Upgrade and Expansion	19,600	2, 5, 7, 9	●				NJ	1987	
Caldwell Borough (upgrade)	4.5	Denitrification, UV Disinfection	11,600	3,4,8, 13	●	●	●	●	NJ	2008	
East Windsor Upper Millstone WPCF	4.5	Facility Upgrade and Expansion	14,309	2, 4, 5, 8, 10, 13	●	●	●	●	NJ	2008	
Western Monmouth Utilities Authority	4.4		13,247	5, 4		●	●	●	NJ		

Key

* Sludge Treatment Facilities Only
1 Secondary Treatment
2 Nitrification
3 Nitrification/Denitrification
E Engineer's Construction Cost
4 Phosphorus Removal
5 Tertiary Filtration
6 Tertiary Stabilization Pond
7 Chlorination/Dechlorination Disinfection
8 Ultraviolet Disinfection
9 Post Aeration
10 Preliminary/Primary Treatment
11 Anaerobic Digestion
12 Aerobic Digestion
13 Biosolids Thickening/Dewatering
14 Septage/FOG Receiving

Table 3: Municipal wastewater management
Representative projects - Wastewater treatment plants (cont.)

Client Name	Design Flow MGD	Primary Elements	Cost ($000)	Advanced Waste Treatment Type	Planning/ Permitting	Construction Services	O & M Manual	Plant Start-Up	Location	Date	Design Fee
Livingston Township	4.2	Facility Upgrade and Expansion	16,725	2, 5, 7, 9	●	●			NJ	1987	
Raritan Township MUA Wet Weather Treatment Plant	3.85	Filtration Facilities	1,000	4, 5, 7, 10	●	●	●	●	NJ	2010	
Raritan Township MUA Main Treatment Plant	3.8	Facility Upgrades	8,000	2, 13, 14	●	●	●	●	NJ	2017	
Hanover Sewerage Authority	3.75	Facility Upgrade and Expansion	14,776	2, 5, 9, 13	●	●	●	●	NJ	1989	
Hanover Sewerage Authority (Upgrade)	3.75	Digester Upgrades & Improvements	9,788	11	●	●	●	●	NJ	2013	
Hanover Sewerage Authority (Upgrade)	3.75	Aeration Upgrades & Denitrification	3,250	3	●	●	●	●	NJ	2019	
Madison-Chatham Joint Meeting	3.5	Facility Upgrade and Expansion	16,130	2, 7, 9, 13	●	●	●	●	NJ	1988	
Hackettstown Municipal Utilities Authority	3.3	Facility Upgrade and Expansion	10,000E	2, 4, 6, 8, 9	●	●			NJ	1992	
Morris Township - Butterworth Treatment Plant	3.3	Facility Upgrade and Expansion	15,622	1, 2, 4, 5, 8, 9	●	●	●	●	NJ	1989	
Berkeley Heights Township	3.1	Facility Upgrade and Expansion	11,600	2, 5, 7, 9	●		●	●	NJ	1987	
Berkeley Heights Township (upgrade)	3.1	Conversion to MLE Process	5,600	3, 11	●				NJ	2008	
Verona Township	3	Facility Upgrade and Expansion	16,648	2, 7, 8, 9	●	●	●	●	NJ	1988	
Sussex County MUA - Upper Wallkill WPCF	3	Tertiary Filter	743	5	●	●	●	●	NJ	2016	$63,000
Bernards Township Sewerage Authority	2.5	New WWTF	10,700	2, 6, 7, 9	●	●	●	●	NJ	1984	
Bernards Township Sewerage Authority	2.5	Phosphorus Removal	310	4, 13	●	●	●	●	NJ	2013	
Morris Township - Woodland Treatment Plant (Upgrade)	2	Headworks and Denitrification	3,500	1,3,10	●	●	●	●	NJ	2015	
Morris Township - Woodland Treatment Plant	2	Facility Upgrade and Expansion	15,000	1,2,4,5,8,9	●	●	●	●	NJ	1990	
Roxbury Township Ajax Terrace Water Pollution Control Plant	2	Headworks, RBCs	3,805	1,10		●	●	●	NJ	2017	$427,500
Warren Township Sewerage Authority (Stage 4)	0.8		4,898	2,5,6,8,9		●	●	●	NJ		
Warren Township Sewerage Authority (Stage 1&2)	0.47		1,600	2,5,8,9	●	●	●	●	NJ		
Woodstown Borough	0.4		5,300	1,2,5,8		●	●	●	NJ		
Warren Township Sewerage Authority (Stage 5)	0.38		700 E	2,5,8,9		●	●	●	NJ		
Pollution Controlled Financing Authority of Warren County	0.05	New MBR	4,700	1,2,5		●		●	NJ		

Key

* Sludge Treatment Facilities Only
1 Secondary Treatment
2 Nitrification
3 Nitrification/Denitrification
E Engineer's Construction Cost
4 Phosphorus Removal
5 Tertiary Filtration
6 Tertiary Stabilization Pond
7 Chlorination/Dechlorination Disinfection
8 Ultraviolet Disinfection
9 Post Aeration
10 Preliminary/Primary Treatment
11 Anaerobic Digestion
12 Aerobic Digestion
13 Biosolids Thickening/Dewatering
14 Septage/FOG Receiving

Table 4: Permitting, operational, troubleshooting and treatability experience in wastewater treatment

		NPDES Permit Assistance, Limits Development and Compliance								Water Quality Studies			Operational Evaluations and Troubleshooting Assistance						Full Scale Demonstration Tests				Pilot and Lab Treatability Studies				
Client	Permitted Flow, MGD	Permit Renewal Application	Permit Comments/ Hearings	Whole Effluent Toxicity	Heavy Metals	Nitrogen Species	Phosphorus	TDS	Other	Ammonia Toxicity	Hardness or Translator	Water Effect Ratio	Sludge Bulking or Foaming	Nitrification or Denitrification Upset	Disinfection Problem	Odor Problem	Short Circuting/ Tracer Tests	Other	Clarifier Stress Test	Phosphorus Removal	Nitrification Capacity	Denitrification	Phosphorus Removal	Heavy Metals Removal	Toxicity Reduction	Other Treatability Testing	Process Modelling with BioWin
Allentown Borough, NJ	0.235	x							x					x				x									
Annapolis WTP, MD	13																										x
ArcelorMittal Coke Plant, OH	0.2												x	x				x			x					x	
Bayshore Regional SA, NJ	12		x						x				x		x	x										x	
Bergen County UA, NJ	80								x				x						x							x	
Berkely Heights Township, NJ	3.1		x		x			x	x		x			x								x					x
Bernards Township SA, NJ	2.5	x	x	x	x	x	x		x	x	x	x	x	x						x			x	x	x		x
Caldwell Township, NJ	4.5	x	x	x	x	x			x		x	x	x	x								x					x
Chatham Township (2 plants), NJ	-	x	x	x	x	x	x	x		x	x												x			x	x
Colgate Palmolive, NJ	< 0.1	x			x				x									x								x	
Confidential Pharma Client, CA	< 0.1													x				x			x					x	
Delco Remy	<0.1																							x			
East Windsor MUA, NJ	4.5	x	x	x	x		x	x		x	x	x								x		x	x				x
Emerald Coast UA, FL	12												x	x			x	x									
Gibbson Tube, NJ	<0.1				x																			x			
Hackettstown MUA, NJ	3.4	x	x	x		x	x	x	x					x				x					x			x	x
Hannover SA, NJ	5	x	x	x	x	x	x		x	x	x		x		x			x		x			x	x			x
Jefferson TBOE (3 plants), NJ	-		x		x		x		x			x		x		x		x		x			x	x			
Jefferson Town. MU (2 plants), NJ	-				x						x	x		x		x		x									
Kinnelon Township BOE, NJ	< 0.1		x		x		x		x																		
Linden-Roselle SA, NJ	17												x					x									
Livingston Township, NJ	4.62	x	x	x	x	x	x		x	x	x	x		x				x	x	x	x	x	x				x
Long Hill Township, NJ	0.9	x							x				x					x				x					
Mack-Cali Holmdel, NJ	< 0.1				x		x		x		x	x						x									
Madison Chatham JM, NJ	3.5		x	x	x	x	x		x	x	x		x	x	x			x				x	x				x
Mid Halton (Toronto), ONT	33																	x				x					x
Mobile, AL	28													x				x									x
Monmouth County BOA, NJ	22.5		x												x												
Morris Township, Butterworth, NJ	3	x	x	x	x	x	x		x	x	x		x	x				x		x							x
Morris Township, Woodland, NJ	2	x	x	x	x	x	x	x	x	x	x		x	x				x		x			x				x

Table 4: Permitting, operational, troubleshooting and treatability experience in wastewater treatment (cont.)

		NPDES Permit Assistance, Limits Development and Compliance								Water Quality Studies			Operational Evaluations and Troubleshooting Assistance							Full Scale Demonstration Tests				Pilot and Lab Treatability Studies				
Client	Permitted Flow, MGD	Permit Renewal Application	Permit Comments/ Hearings	Whole Effluent Toxicity	Heavy Metals	Nitrogen Species	Phosphorus	TDS	Other	Ammonia Toxicity	Hardness or Translator	Water Effect Ratio	Sludge Bulking or Foaming	Nitrification or Denitrification Upset	Disinfection Problem	Odor Problem	Short Circuting/ Tracer Tests	Other	Clarifier Stress Test	Phosphorus Removal	Nitrification Capacity	Denitrification	Phosphorus Removal	Heavy Metals Removal	Toxicity Reduction	Other Treatability Testing	Process Modelling with BioWin
Naval Support Activity, MD	0.7	x		x																								
Neptune Township, NJ	8.5			x		x			x						x		x	x							x			
New Jersey Transit Authority, NJ	<0.1				x																			x		x		
New Kensington (MSANK), PA	6												x	x												x	x	
New Providence Borough, NJ	-					x			x	x											x							
Niagara Region, Ontario	54																									x		
Nyacol Industries, MA	< 0.1								x																	x		
Ocean City (CMCMUA), NJ	8.24																	x										
Passaic Valley SC, NJ	300								x				x															
Phillipsburg Township, NJ	3			x		x			x	x																		
Piscataway (WSSC), MD	30												x						x								x	
Pompton Lakes Borough, NJ	1.2					x			x	x																		
Ponte Vedra, FL	2.4																										x	
Quest Industries, NJ	< 0.1																									x		
Raritan Township MUA, NJ	3.8	x	x	x		x	x		x	x			x	x	x						x					x	x	
River Road, NHSA, NJ	10			x					x																x			
RTMUA - Flemington WWF, NJ	3.2	x	x	x	x				x									x								x		
Rockaway Valley RSA, NJ	12		x	x	x	x			x	x			x					x	x							x		
Roxbury Township, NJ	2	x	x		x		x		x		x																	
Schering - Plough (2 plants)	-		x				x	x						x	x		x	x		x	x	x	x			x		
Superfund Site, NY	<0.1																	x						x		x		
Sutton, ONT	2																										x	
Two Bridges SA, NJ	9.6		x	x	x	x	x		x	x			x	x	x					x	x		x	x		x	x	
Verona Township, NJ	3	x	x	x	x	x	x		x	x	x		x										x				x	
Warren Township SA (3 plants), NJ	-	x	x	x	x	x	x		x	x	x	x						x		x			x				x	
Landfill Leachate (PCFAWC), NJ	0.05		x					x					x	x				x									x	x	
Washington Borough, NJ	1.16	x	x	x		x				x											x				x	x		
Woodstown SA, NJ	2			x									x					x								x		
Lancaster Area SA, PA	15												x	x			x										x	
Wilmington, Hay Road Plant, DE	136													x									x			x	x	

Table 5: Experience with wastewater funding and grant programs

Client	Project title	Estimating funding
Allentown Borough, NJ	Wastewater Treatment Plant	
Benton Borough, PA	Sanitary Sewer System	
Big Bend Water Authority (FL)	Steinhatchee Water Treatment Plant	$3,000,000
City of Bonifay, FL	Water Treatment Facility Improvements	$1,800,000
Downe Township, NJ	Sanitary Sewer System and Wastewater Treatment Plant	$15,000,000
Town of Esto, FL	Water System	$20,000
Farmingdale Borough, NJ	Water System Improvements	$2,500,000
	Water System Improvements	$2,500,000
Borough of Franklin, NJ	Water System Improvements	
Town of Grand Ridge, FL	Water Tank	$20,000
Hackettstown MUA, NJ	Water System Integration	
Keyport Borough, NJ	Sanitary Sewer Rehabilitation and Inflow & Infiltration Reduction Program	$3,500,000
	Perry Street Water Treatment Plant	$5,450,000
	Water and Sewer Improvements - Phase 2	$4,070,000
City of Marianna, FL	Wastewater Treatment Plant Improvements	$2,000,000
Middle Township, NJ	Shellbay/Shunpike/ Goshen/Crest Haven	$38,000,000 (combined funding)
	Whitesboro Phase 2	
	Easy Street	
	Whitesboro Phase 1	
	Green Creek	
	Court House North Phase 2	
	Court House North Phase 1	
	Cape May Court House - Central	
	Cape May Court House - Central	
	Court House Central	
	Cape May Court House - South	
	Stone Harbor Manor & Boulevard	
	Rio Grande West	
	Del Haven	
	Rio Grande East Water	
	Rio Grande East Sewer	
Middlesex County Utilities Authority	Edison Pump Station & Force Main	$79,000,000
Middlesex County Utilities Authority	Generators & Main Electrical Switch Gear	$12,500,000
Middlesex County Utilities Authority	Main Flow Meter/Primary Tank Influent Line	$7,200,000

Table 5: Experience with wastewater funding and grant programs (cont.)

Client	Project title	Estimating funding
Morris Township	Butterworth Sewage Treatment Plant	$14,703,510
Morris Township	Woodland Sewage Treatment Plant	$16,169,120
Morris Township	Sewer Contract 37B	$2,271,911
Morris Township	Sewer Contract 37A	$1,588,112
City of Newark	Sanitary Sewer Rehabilitation	$33,028,422
New Providence Borough	Wastewater Treatment Facility	$6,454,481
Passaic Valley Sewerage Commissioners	Final Clarifiers Phase IV Improvements	$7,028,732
North Hudson Sewerage Authority	2019 Procurement of Truck Mounted CCTV Inspection Equipment (In progress)	$311,578
North Hudson Sewerage Authority	2019 Procurement of Combination Sewer Cleaner Truck (in progress)	$416,166
North Hudson Sewerage Authority	2018 Collection System Improvements	$708,530
Passaic Valley Sewerage Commissioners	Final Clarifiers Phase IV Improvements	$22,050,000
Passaic Valley Sewerage Commissioners	Wet Weather Improvements	$3,750,000
Passaic Valley Sewerage Commissioners	Passaic River/Newark Bay River Restoration Project	$16,670,000
Passaic Valley Sewerage Commissioners	WPCF Wet Weather Improvements	$2,200,000 $12,978,000
City of Paterson	CSO Solids/Floatables Control Facilities	"$489,396 $2,771,994"
Raritan Township Municipal Utilities Authority	Robin Mill Pump Station Rehabilitation	S7,169,120
	SCADA Phase 2	
	New Operations Building	
	Woodside Farms Pump Station Rehabilitation	
	Main Treatment Plant Motor Control Center Replacement	
Village of Ridgefield Park	CSO Solids/Floatables Control Facilities	$432,200 $346,000
Two Bridges Sewerage Authority	Pump Station Upgrades	$6,070,000
Two Bridges Sewerage Authority	UV Disinfection Facilities	$9,362,080
Two Bridges Sewerage Authority	WWTP Headworks Facilities	$25,930,000
Two Bridges Sewerage Authority	Pump Station Resiliency Projects	$5,410,000
Verona Township	Wastewater Treatment Facility	$18,968,426
Village of Ridgefield Park	CSO Solids/Floatables Control Facilities	$2,127,600
Warren Township Sewerage Authority	Wastewater Treatment Plant	$5,100,866
Washington Township Municipal Utilities Authority	Long Valley Sewer Program	$5,490,000
Woodstown Sewerage Authority	Wastewater Treatment Facility	$5,238,167
Roxbury Township	Wastewater Treatment System Upgrades and Improvements	$6,098,986

Section 4
Cost details

Cost details

Proposal Cost

Figure 4.1

Consulting Engineer Proposed Cost of Services

1.	Construction coordination, administration of IBank, regulatory assistance, permit compliance	$100,000
2.	Meeting Attendance	$25,000
3.	Review of Capital Budgets	$12,000
4.	Preparation of the Annual Reports	$7,000
5.	Program Management/Operational Oversight	$20,000
6.	Assistance with NHSA Program Initiatives, including Leak Detection Program, Sewer Connection Program	$11,000
	Total Budget	**$175,000**

MOTT MACDONALD

2022 Hourly Rate Table

Principals / Principal Project Managers / Principal Engineers	$195.00 to $285.00
Sr. Project Engineer / Sr. Project Manager / Sr. Project Geologist / Sr. Project Scientist	$155.00 to $245.00
Sr. Specialist V / Sr. Designer V	$135.00 to $190.00
Sr. Inspector IV/V / Sr. Surveyor IV/V	$120.00 to $195.00
Project Engineer / Engineer IV / Project Architect / Architect IV / Project Manager	$135.00 to $215.00
Project Geologist / Geologist IV / Project Scientist / Scientist IV.	$ 110.00 to $172.00
Engineer II/III / Architect II/III	$105.00 to $175.00
Specialist III/IV / Designer III/IV.	$ 85.00 to $152.00
Scientist II/III / Geologist II/III.	$ 77.00 to $125.00
Engineer I / Architect I	$ 80.00 to $120.00
Scientist I / Geologist I.	$ 70.00 to $ 92.00
Inspector III / Surveyor III / Specialist I/II	$ 75.00 to $119.00
Assistant Surveyor I/II / Assistant Inspector I/II	$ 80.00 to $ 92.00
Technicians	$ 64.00 to $ 88.00
Administration / Project Support	$ 66.00 to $122.00

*** Hourly rates for special consultations and services in conjunction with litigation are available on request.**

EXPENSES

Personal Auto / Company Auto	$0.56[1] / mile
Company Vans / Company Pick-Up	$0.56[1] / mile
Photocopies & Offset Reproduction	Variable
UPS / Federal Express /Postage /Messenger Service	Variable
Subcontractors (including Contract Laboratory)	Direct + 15%
Mobile Devices	Variable
Field Equipment	Variable
Travel / Lodging Per Diem	As Incurred

[1]per IRS standard mileage rate (rate as of January 1, 2021 is shown – subject to change)

Invoices are payable within 30 days of invoice date.
Delinquent bills are subject to finance charges of 1.5% per month.
The client shall pay attorney fees, court costs, and related expenses incurred in the collection of delinquent accounts.

Section 5
Required froms

NORTH HUDSON SEWERAGE AUTHORITY

CHECKLIST

PROFESSIONAL SERVICE TITLE:

SUBMISSION DATE: 11:00 A.M., WEDNESDAY, DECEMBER 15, 2021

The following items, as indicated below (X), shall be provided with the receipt of sealed submissions:

1. Non-Collusion Affidavit..... X
2. Disclosure of Ownership Form..... X
3. Insurance Requirement Acknowledgment Form..... X
4. Mandatory Equal Employment Opportunity Notice Acknowledgment..... X
5. Copy of your **Business Registration Certificate** as issued by the State of New Jersey, Department of Treasury, Division of Revenue..... X
6. Professional Service Entity Information Form..... X
7. Qualifications Submission..... X
8. Acknowledgment of Corrections, Additions or Deletions Form... X

NORTH HUDSON SEWERAGE AUTHORITY

NON-COLLUSION AFFIDAVIT

STATE OF NEW JERSEY :
: SS.
COUNTY OF :

I, David Thomas, CEng of the Township of Woodbridge (Iselin), in the County of Middlesex and the State of New Jersey, of full age, being duly sworn according to law on my oath depose and say that:

I am Senior Vice President

of the firm of Mott MacDonald, LLC

the Professional Service Entity making the submission for the above named Service, and that I executed the said submission with full authority to do so; that the Professional Service Entity has not, directly or indirectly, entered into any agreements, participated in any collusion, or otherwise taken any action in restraint of fair and open competition in connection with the above named Service; and that all statements contained in said submission and in this affidavit are true and correct, and made with full knowledge that the North Hudson Sewerage Authority relies upon the truth of the statements contained in said submission and in the statements contained in this affidavit in awarding the contract for said Service.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee.

Subscribed and sworn to before me
this 14th day of December, 2020
2021

Karen Marcotullio
Notary Public
State of
My Commission Expires

KAREN MARCOTULLIO
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Oct. 24, 2025

Thomas.
(Signature of Professional)

David Thomas, CEng, Senior Vice President
(Type or print name of Affiant and Title under signature)

NORTH HUDSON SEWERAGE AUTHORITY

STATEMENT OF OWNERSHIP DISCLOSURE

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name of Organization: Mott MacDonald, LLC

Organization Address: 111 Wood Avenue South, Iselin, NJ 08830

Part I Check the box that represents the type of business organization:

☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)

☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)

☐ For-Profit Corporation (any type) ☒ Limited Liability Company (LLC)

☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership (LLP)

☐ Other (be specific): _____

Part II

☒ The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. (**COMPLETE THE LIST BELOW IN THIS SECTION**)

OR

☐ No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. (**SKIP TO PART IV**)

SEE ATTACHED OWNERSHIP DISCLOSURE STATEMENT

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Home Address (for Individuals) or Business Address

Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed**.

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above**. The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Home Address (for Individuals) or Business Address

Part IV Certification

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the ***<name of contracting unit>*** is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with ***<type of contracting unit>*** to notify the ***<type of contracting unit>*** in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the ***<type of contracting unit>*** to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):	David Thomas, CEng	Title:	Senior Vice President
Signature:		Date:	December 14, 2021

NORTH HUDSON SEWERAGE AUTHORITY

INSURANCE REQUIREMENTS AND ACKNOWLEDGMENT FORM

Certificate(s) of Insurance shall be filed with the Executive Director's Office upon award of contract by the North Hudson Sewerage Authority.

The minimum amount of insurance to be carried by the Professional Service Entity shall be as follows:

PROFESSIONAL LIABILITY INSURANCE

Limits shall be a minimum of $10,000,000.00 for each claim and $10,000,000.00 aggregate each policy period.

Acknowledgment of Insurance Requirement:

_____ December 14, 2021

(Signature) (Date)

David Thomas, CEng, Senior Vice President

(Printed Name and Title)

NORTH HUDSON SEWERAGE AUTHORITY

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY NOTICE
(N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 et seq.)

GOODS, PROFESSIONAL SERVICES AND GENERAL SERVICE CONTRACTS

This form is a summary of the successful professional service entity's requirement to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 et seq.

The successful professional service entity shall submit to the North Hudson Sewerage Authority, after notification of award but prior to execution of this contract, one of the following three documents as forms of evidence:

(a) A photocopy of a valid letter that the vendor is operating under an existing Federally approved or sanctioned affirmative action program (good for one year from the date of the letter):

OR

(b) A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-1.1 et seq.;

OR

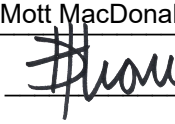
(c) A photocopy of an Employee Information Report (Form AA302) provided by the Division of Contract Compliance and distributed to the North Hudson Sewerage Authority to be completed by the vendor in accordance with N.J.A.C. 17:27-1.1 et seq.

The successful professional service entity may obtain the Employee Information Report (AA302) from the North Hudson Sewerage Authority during normal business hours.

The undersigned professional service entity certifies that he/she is aware of the commitment to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 et seq. and agrees to furnish the required forms of evidence.

The undersigned professional service entity further understands that his/her submission shall be rejected as non-responsive if said professional service entity fails to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27 et seq.

COMPANY: Mott MacDonald, LLC

SIGNATURE:  PRINT NAME: David Thomas, CEng

TITLE: Senior Vice President DATE: December 14, 2021

STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE

Taxpayer Name:	MOTT MACDONALD LLC
Trade Name:	
Address:	111 WOOD AVENUE SOUTH ISELIN, NJ 08830-4112
Certificate Number:	1169109
Effective Date:	August 01, 2005
Date of Issuance:	July 25, 2016

For Office Use Only:

20160725083242072

NORTH HUDSON SEWERAGE AUTHORITY

PROFESSIONAL SERVICE ENTITY INFORMATION FORM

If the Professional Service Entity is an **INDIVIDUAL**, sign name and give the following information:

Name:_____

Address: _____

Telephone No.: _____ Social Security No.: _____

Fax No.: _____ E-Mail:_____

If individual has a TRADE NAME, give such trade name:

Trading As: _____ Telephone No.: _____

****

If the Professional Service Entity is a **PARTNERSHIP**, give the following information:

Name of Partners: _____

Firm Name: _____

Address: _____

Telephone No.: _____ Federal I.D. No.: _____

Fax No.: _____ E-Mail:_____

Social Security No.: _____

Signature of authorized agent: _____

****

If the Professional Service Entity is **INCORPORATED**, give the following information:

State under whose laws incorporated: Delaware

Location of principal office: 111 Wood Avenue South, Iselin, NJ 08830

Telephone No.: 973.379.3400 Federal I.D. No.: 16-1006700

Fax No.: 973.376.1072 E-Mail: mark.oconnor@mottmac.com

Name of agent in charge of said office upon whom notice may be legally served:

Mark O'Connor

Telephone No.: 973.912.2422 Name of Corporation: Mott MacDonald, LLC

Signature: _____ By: Mark O'Connor, Esq

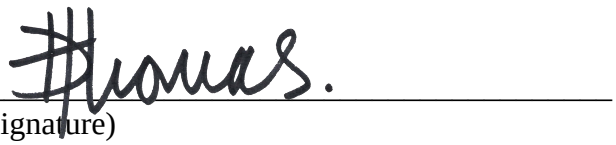
Title: Assistant Secretary Address: 111 Wood Avenue South, Iselin, NJ 08830

ACKNOWLEDGMENT OF CORRECTIONS, ADDITIONS AND DELETIONS FORM

I, David Thomas, CEng, Senior Vice President

of the firm Mott MacDonald, LLC

hereby acknowledge that any corrections, additions and/or deletions have been initialed and dated in this Submission Package.



(Signature)

David Thomas, CEng, Senior Vice President

(Type or print name of Affined and Title, under signature)

December 14 , 2021

(Date)

END OF SUBMISSION PACKAGE

for more information,
mottmac.com