RESOLUTION DIRECTING WORK TO MICHAEL BAKER INTERNATIONAL TO PROVIDE PROFESSIONAL ENGINEERING SERVICES DURING CONSTRUCTION FOR THE 2019 COLLECTION SYSTEM IMPROVEMENTS

MOTIONED BY: Velazquez
SECONDED BY: Gardiner

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, Michael Baker International has been selected under resolution 19-102 to provide engineering services for various capital projects required throughout its service area that must be performed in order to maximize the performance of its waste water treatment facility, the capacity of its combined sewer system and/or to comply with its New Jersey Pollution Discharge Elimination System (NJPDES) permit; and

WHEREAS, Michael Baker International has submitted a proposal (Exhibit "A") to provide Engineering Services During Construction for the 2019 Collection System Improvements; and

WHEREAS, the Facilities Review Board has considered this request and proposal and recommends the approval of the full Board.

NOW THEREFORE, BE IT RESOLVED that the Authority, as recommended by the Facilities Review Board, directs Michael Baker International to provide professional engineering services during construction for the 2019 Collection System Improvements as outlined in Exhibit "A" and shall be compensated in an amount not to exceed $167,307.00.

DATED: FEBRUARY 20, 2020

RECORD OF COMMISSIONERS' VOTE

	YES	NO	ABSENT
Commissioner Soares	x		
Commissioner Kappock	x		
Commissioner Marotta	x		
Commissioner Gardiner	x		
Commissioner Friedrich	x		
Commissioner Sanchez			x
Commissioner Velazquez	x		
Commissioner Roque	x		
Commissioner White	x		

THIS IS TO CERTIFY THAT THIS RESOLUTION WAS DULY ADOPTED BY THE NORTH HUDSON BOARD OF COMMISSIONERS ON FEBRUARY 20, 2020

Ed Tuell

SECRETARY

FEBRUARY 10, 2020

PROPOSAL TO PROVIDE **ENGINEERING SERVICES FOR 2019 COLLECTION SYSTEM IMPROVEMENTS**

Submitted to:
The North Hudson Sewerage Authority
1600 Adams Street • Hoboken, New Jersey 07030

Submitted by:
Michael Baker International, Inc.
One Gateway Center, Suite 2330 • Newark, New Jersey 07102

Michael Baker INTERNATIONAL

Michael Baker
INTERNATIONAL

80 YEARS Making a Difference

February 10, 2020

Ms. Belissa Vega
Executive Director
North Hudson Sewerage Authority
1600 Adams Street
Hoboken, NJ 07030

RE: Proposal for Professional Services for 2019 Collection System Improvements

Dear Ms. Vega:

Michael Baker International, Inc. (Michael Baker) is pleased to submit our proposal to the North Hudson Sewerage Authority (Authority) to provide professional engineering services during construction of the 2019 Collection System Improvements project. Michael Baker is a leading provider of engineering and consulting services and has been partnering with public clients since 1940 to solve their most complex infrastructure challenges with a legacy of experience, innovation and integrity.

All services requested by the Authority will be managed from our New Jersey offices; located in Newark and Hamilton. Our proposed team has been selected for their specific expertise in the many facets of this project. The Michael Baker team will be led by William McBride, Jr., P.E., as Project Manager. Mr. McBride has led numerous multidisciplinary infrastructure projects throughout the state of New Jersey, including Drainage/Pipe Lining, Roadway and Utility Improvement Projects. Mr. McBride is a proven project manager, delivering projects while effectively managing project schedule, budget and scope. He will be supported by Assistant Project Manager, Martin Portik, P.E. Marty has over 37 years of experience as a construction inspector, resident engineer, and construction manager on a vast array of projects. Michael Baker's regional CM team served as the Construction Manager/Resident Engineer at the NYCDEP Newtown Creek Water Pollution Control Project, a $1.1 Billion multi-contract project that includes complex structural and functional features and part of Marty's team currently oversees the Northwest Resiliency Park Project in Hoboken, NJ He is ready and excited to lend his construction management expertise to this project, including diverse technical knowledge, and overall management skills.

We are excited about this opportunity to provide professional engineering and construction services to the Authority. Please feel free to contact me at 609-807-9528, or our Project Manager William McBride, Jr., P.E. at 609-807-9527, if we may provide any additional information or if you have any questions.

Sincerely,
MICHAEL BAKER INTERNATIONAL, INC.

Magdy M. Hagag, P.E.
Senior Vice President / Principal In Charge

Scope of Work

Introduction

Michael Baker International, Inc. (Michael Baker) is pleased to present this Scope of Work to provide services during the construction of the proposed improvements to the North Hudson Sewerage Authority's (Authority) sewer collection system. The team understands the importance of rehabilitating the Authority's collection system, not only for providing healthy and safe infrastructure for the communities and people it serves, but also in continuing the commitment to long term combined sewer overflow (CSO) control abatement. The proposed improvements consist of inspection, cleaning and CIPP lining of approximately 2,900 linear feet of existing sanitary sewer pipe, 600 linear feet of spot repair via open cut excavation and spot repairs at seven (7) locations, and one (1) manhole replacement within the sewer service area of Hoboken and Union City. The Michael Baker team includes well-qualified individuals capable of providing the necessary bid and construction phase services during the anticipated 180 days of the project. Michael Baker's many years of design and construction management experience will facilitate solid teamwork required to successfully complete the proposed improvements between the Michael Baker Construction Management team, the Contractor, Mott MacDonald (the Engineer of Record), and the Authority.

Project Understanding

The Authority is responsible for maintaining the aging sewer infrastructure in Weehawken, West New York, Hoboken and Union City. Each of these municipalities presents unique challenges due to the age of the infrastructure, population density and the materials used when they were constructed. In recent years the Authority has replaced all of the 200+ year old wooden sewer pipes within the system and a majority of the network is now made up of vitrified clay pipe (VCP). VCP is commonly used in gravity sewer collection mains because of its long life and resistance to most domestic and industrial sewage. However, over time VCP can become compromised due to various outside factors, such as roots and damage from adjacent excavations. The Engineer for this project has identified 37 sections of pipe within the Authority's system that require maintenance which includes; video inspection, cleaning, cast-in-place pipe (CIPP) lining and open cut spot repairs. CIPP liners are utilized due to the relatively low impact on the surrounding area and the projected longevity of the repair. CIPP utilizes a resin-saturated felt tube made of fiberglass cloth that is inserted or pulled into the host pipe. The liner is then cured via steam or water forming a hard shell inside the pipe. In most cases, CIPP liners last 50+ years. In some locations, the pipe is beyond repair and open cut excavation and replacement will be required. In these areas, maintenance and protection of traffic, and pedestrian safety is critical.

Project Safety is first and foremost on every project. This project includes a significant amount of work in heavily populated and heavily travelled sections of Hoboken and Union City. Proper set-up of daily traffic patterns is critical for the safety of both the travelling public, residents and the construction workers. Egress to/from the work areas must be executed without disrupting normal traffic flow. In these areas and throughout the project, the Contractor's project specific Health and Safety Plan (HASP) will need to address working in limited access areas. Michael Baker will monitor the Contractor's compliance with its HASP and contract provisions and recommend corrective action in the event of observed non-compliance.

Equally important to this project is stellar project administration and solid recordkeeping. Michael Baker has systems already in place for logging and tracking submittals, Requests for Information (RFIs), managing correspondence, project costs, and project meeting documentation. These requirements are defined in a project-specific Project Management Plan (PMP), based on established procedures used on all of Michael Baker's Construction Management projects, which will be customized for this project and will contain a Project-Specific Quality Management Plan (PSQMP). The PSQMP is distributed to the entire project team and communicates scope, schedule, budget, communication protocols, quality control procedures, and risk factors. The PMP for this project will also include N.J.A.C 7:22- Financial Assistance Programs for Environmental Infrastructure Facilities.

Scope of Work

Task 1: Bid Phase Services

1.1 Bid Solicitation

Michael Baker will prepare the bid package for advertising and provide support to the Authority throughout the bid solicitation process. Although the Authority will advertise the project, Michael Baker will notify required State agencies at least 30 days prior to the advertisement. The advertisement for bids will include required language to comply with New Jersey Department of Environmental Protection (NJDEP) Socially and Economically Disadvantaged (SED) Individuals participation requirements at N.J.A.C 7:22. The team will coordinate and administer the pre-bid meeting and a site walk through, including such notification to stakeholders, utility companies, Cities of Hoboken and Union City, and affected property owners. The team will assist the Authority by reviewing Requests for Information (RFIs) from prospective bidders and coordinating addendums, clarifications and extensions as required. Two (2) members of the team will be present during the bid opening and will assist the Authority in reviewing the bid packaged submitted. Michael Baker will write a report summarizing a comparison of the packages, contact contractor references, and document the lowest responsible bidder. The bid report will be presented to the Authority at two (2) separate Board meetings. The team will also assist the Authority in preparing the contract award and conditions documents required by NJDEP in accordance with their Authorization to Advertise and SED Individuals utilization requirements. The Michael Baker team has extensive experience in providing full bid services in coordination with permitting agencies to various clients throughout New Jersey including the City of Newark, the South Jersey Transportation Authority, the Delaware River Joint Toll Bridge Commission, NJDOT, NJTA and numerous counties. Close coordination throughout the Bid Phase is critical to getting the construction started on the desired schedule.

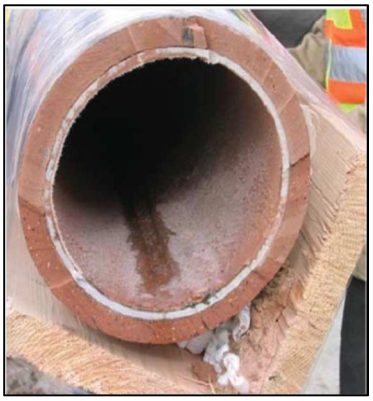
Task 2: Construction Phase Services

Michael Baker's Construction Services team will begin upon Notice to Proceed for the Contractor with mobilization of the project construction team staff, specifically Resident Engineer Travis Slocum, P.E. and Inspector Joseph Cherichello. During this period, the team will prepare for and conduct the preconstruction conference, set up project systems, and in parallel, coordinate with NJDEP, Union City Police, Hoboken Police, affected utilities, and local project stakeholders.

2.1 Contract Administration and Pre-Construction Meeting

Michael Baker will perform the following tasks prior to and during the construction phase:

- ✓ Provide general communication with owner and Contractor throughout the duration of construction regarding such issues as progress, submittal status, construction issues, and their resolution. Procedures for this key component of Construction Management will be outlined in the PMP.
- ✓ Prepare all necessary paperwork and facilitate the execution of the Contract between the Contractor and the Authority. The team will work directly with the Authority to confirm that necessary components of the construction contract are ready for Contractor signature, including preparing the necessary multiple copies of the contract package.



- ✓ Establish the agenda and conduct a pre-construction meeting with the Authority, Contractor, NJDEP, and key stakeholders, and issue a Notice to Proceed to the Contractor. Resident Engineer Travis Slocum will lead the preconstruction conference, which will serve notice to the Contractor and all stakeholders as to administrative requirements of the contract, procedures for submittals, RFIs, pay quantity and pay estimate requirements as well as to serve as formal introduction of the project stakeholders to one another. Michael Baker will prepare and distribute minutes of the meeting including sign in sheet with attendees contact information within five days of the meeting

- ✓ Provide communication/correspondence with NJDEP and maintain project files for their periodic inspection. NJDEP is an important stakeholder and requires due diligence by the Michael Baker team in maintaining a line of communication with them along with concise and complete project records, including providing regular monthly reporting. As with all project communication, the PMP will contain detailed procedures for this important task.
- ✓ The Progress Schedule, Schedule of Submittals, Schedule of Values required to be submitted by the Contractor will be reviewed and approved by the RE. In the event of unforeseen delays, Michael Baker will evaluate possible time saving options and make appropriate recommendations to the Authority.
- ✓ Review shop drawings and other submittals as required to evaluate that the proposed materials and equipment conform to the Contract Documents. The Michael Baker team has both design and construction experience in pipe lining with various materials from numerous vendors and is aware of the importance of conforming to the project and industry standard specifications for the product and installation. The team will also work closely with the Authority and the Engineer of Record to perform timely reviews of product submittals, shop drawings, RFIs, traffic control plans and other important project submittals, including laboratory reports, shop and mill test reports. A thorough but efficient review is required to keep the project on schedule and budget.
- ✓ The establishment of a baseline and benchmarks are not anticipated as the location of the proposed pipe replacement will be located by information obtained by the existing videos and marked up in the field prior to excavation.
- ✓ Prepare monthly progress reports. A concise and complete monthly progress report will be provided with monthly invoices, including summary of construction activities for the period, project meetings, planned work, and other details of construction management services for the period.

- ✓ Prepare Record Drawings at the completion of the project. Michael Baker will maintain a red-line set of construction drawings in the field that can be transferred to the CADD files upon receipt from the Engineer of Record. This work will take place in the Hamilton NJ office.
- ✓ Assist in negotiating final payment for construction and submit a final letter report upon which final settlement and termination of the Construction Contract can be based. Document proceedings of all final settlement negotiations and record basis for final payment. Negotiations will be fair but firm with the Contractor as part of the project closeout process, including securing applicable warranties, spare materials if required, maintenance and service information, and other administrative requirements of the construction contract. The team will confirm that there are no outstanding claims or liens by obtaining the Contractor's Release of Liens document. As part of the Construction Management closeout, the project records will be transferred into an electronic format acceptable to the Authority and box up hard copy documents, red-line drawings, and other deliverables for delivery to the Authority.

2.2 Construction Inspection/Observation Services

Michael Baker's Inspection Team, consisting of Travis Slocum P.E. as the Resident Engineer and Joseph Cherichello as Inspector, have a strong background of performing onsite construction inspections, handling daily construction issues, coordinating contractor operations, maintenance and protection of traffic, and daily record keeping. The team will provide the following services:

- ✓ Full time construction inspection/observation services during periods when the contractor is on site to monitor the contractor's progress and compliance with the contract drawings and specifications, including the contractor's environmental protection and restoration measures. The onsite inspector will prepare daily inspection reports in a format acceptable to the Authority and NJDEP. Michael Baker has a local field office in Hoboken in which the team can utilize as "home base."
- ✓ Conduct a weekly construction meeting with the Contractor and the Authority to discuss scheduled activities. Michael Baker will request that the contractor provide a 2 week look-ahead schedule at each of these weekly meetings to aid short term coordination and planning. All project related meetings can be held at Michael Baker's field office in Hoboken.
- ✓ Review monthly payment requests including the final payment request. All payments will be reviewed for accuracy and adherence to the terms of the New Jersey Water Bank (NJWB) Loan.
- ✓ Participate in the review evaluation and resolution of potential change orders, including detailed review of cost proposals. Michael Baker, with support from the home office Task Management team, will develop an independent cost estimate to analyze additional costs submitted by the contractor to confirm that the Authority is getting fair value.
- ✓ Participate in the resolution of issues involving unforeseen field conditions. The team firmly believes in resolving field issues at the lowest level possible. Should unforeseen conditions arise, Inspector Joe Cherichello will consult with Resident Engineer Travis Slocum on the issue at hand and work with the Contractor to resolve. Michael Baker will include the Engineer of Record in the discussion if the condition warrants potential design revisions or other considerations. The Authority will be kept informed of the condition and the proposed resolution throughout the project.

- ✓ Prepare a punch list of remaining work items. Each individual work area will be reviewed once the contract work has been completed and the punch list will be issued to the Contractor.
- ✓ Evaluate substantial and final completion and issue certificates of substantial or final completion as appropriate.
- ✓ Respond to public complaints, including contacting complainants, determining solutions; prepare letters, etc. in accordance with the Authority's policies, which requires timely action by the Consultant. Michael Baker will work with Mott MacDonald on all matters involving community outreach and will communicate closely during construction to assist in making sure the work is progressing smoothly and on schedule.

3.0 Authority's Agent During Construction- New Jersey Department of Environmental Protection (NJDEP) Socially and Economically Disadvantaged (SED) Individuals

Since the project is State funded through The New Jersey Water Bank - NJWB (formerly New Jersey Environmental Infrastructure Financing Program – NJEIFP), the procedures for providing opportunities for SED contractors and vendors to supply services must be followed in accordance with N.J.A.C 7:22. Michael Baker will act as the project compliance officer on behalf of the Authority and coordinate all SED compliance efforts. Monthly progress reports (OEO-003 Form) will be submitted to the NJDEP Office of Equal Opportunity and Public Contract Assistance (OEP) until all SED contractors have been obtained. Thereafter, the team will submit quarterly construction reports (OEO-002 Form) and assist the Authority with efforts required to publicize the SED utilization plan. All records and documentation relating to SED participation will be tracked, including but not limited to, advertisements, solicitation of bids, records of telephone quotations, copies of requests for proposals, proof of assistance from State agencies was requested, such as NJDEP OEP and the New Jersey Commerce and Economic Growth Commission Division for the Development of Small Businesses, Women Businesses and Minority Businesses, and certified payroll records obtained from the Contractor. Additionally, Michael Baker will generate and manage the Initial Project Workforce Report and Monthly Manning Reports during the construction period. Two (2) additional paper copies of the Contractor's complete monthly payment application, as well as Michael Baker's monthly invoice for construction services will be submitted to the Authority or it's designated representative.

Cost Proposal

LEVEL OF EFFORT - North Hudson Sewerage Authority Collection System Improvements

MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker INTERNATIONAL

ACTIVITY WORK TASK	PROJ. MGR	PROJ. ENG.	CIVIL ENG.	ENV.	TECH IV	CAD	INSPECTION	TOTAL
Task 1- Bid Solicitation	6	8	24		32			70
Task 2- Construction Phase Services	3	2	184		16	40	1,200	1,445
Task 3- Authority's Agent During Construction	4	4	8	24				40
TOTAL HOURS THIS TASK =	**13**	**14**	**216**	**24**	**48**	**40**	**1,200**	**1,555**

LEVEL OF EFFORT - North Hudson Sewerage Authority Collection System Improvements

MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker INTERNATIONAL

Task 1
Bid Soliciation

ACTIVITY WORK TASK	PROJ. MGR	PROJ. ENG.	CIVIL ENG.	ENV.	TECH IV	CAD	INSPECTION	TOTAL
Bid Documents	1	2	4		8			15
Addenda	1	2	4		8			15
Bid Opening and Meetings	2		8					10
Report	1	2	4		8			15
Bid Award Certificaiton and documentations	1	2	4		8			15
TOTAL HOURS THIS TASK	**6**	**8**	**24**	**0**	**32**			**70**

LEVEL OF EFFORT - North Hudson Sewerage Authority Collection System Improvements
MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker INTERNATIONAL

Task 2
Construction Phase Services

ACTIVITY WORK TASK	PROJ. MGR	PROJ. ENG.	CIVIL ENG.	ENV.	TECH IV	CAD	INSPECTION	TOTAL
Resident Engineer and Inspector			180				1,200	1,380
Shop Drawing Reviews and Coordination (Up to 10 RFI's and Shop Draw	1	2	4		16			23
Completed Drawings	2					40		42
TOTAL HOURS THIS TASK =	**3**	**2**	**184**	**0**	**16**	**40**	**1,200**	**1,445**

LEVEL OF EFFORT - North Hudson Sewerage Authority Collection System Improvements

MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker INTERNATIONAL

Task 3
Authority's Agent During Construction

ACTIVITY WORK TASK	PROJ. MGR	PROJ. ENG.	CIVIL ENG.	ENV.	TECH IV	CAD	Inspection	TOTAL
Agency Coordination throughout	2	2	4	24				32
Administraton and Invoicing	2	2	4					8
TOTAL HOURS THIS TASK =	**4**	**4**	**8**	**24**				**40**

LEVEL OF EFFORT - North Hudson Sewerage Authority Collection System Improvements

MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker Loaded Labor		$155,307.00
TOTAL BAKER COST		$155,307.00
Mott MacDonald	$	12,000.00
TOTAL COST	**$**	**167,307.00**

LEVEL OF EFFORT - North Hudson Sewerage Authority Collection System Improvements
MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker INTERNATIONAL

NAME	TITLE	PROJECT SUPPORT	CURRENT RATE (NOT LOADED)	HOURS	TOTAL
William McBride	Project Manager	Project Manager	$86.00	13	$1,118.00
Travis Slocum	Resident Engineer	Resident Engineer	$68.55	180	$12,339.00
Joe Cherichello	Inspector	Inspector	$35.00	1,200	$42,000.00
Tom Carl	Draftsman/CAD	CAD-As-builts	$38.00	40	$1,520.00
Eric Martinelli	Civil Engineer	Bid Support -RFIs	$42.00	20	$840.00
Lori Wade	Project Engineer	Bid Support -RFIs	$70.00	16	$1,120.00
Elizabeth Calt	Civil Associate/Technician	Bid Support -RFIs	$35.00	48	$1,680.00
Anne Napolitano	Environmental Specialist	Funding/Agency Coordinat	$50.00	24	$1,200.00
Mike Yaffe	Senior Planner	Funding/Agency Coordinat	$50.00	14	$700.00
				1,555	**$61,399.00**

LEVEL OF EFFORT - North Hudson Sewerage Authority Collection System Improvement

MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker INTERNATIONAL

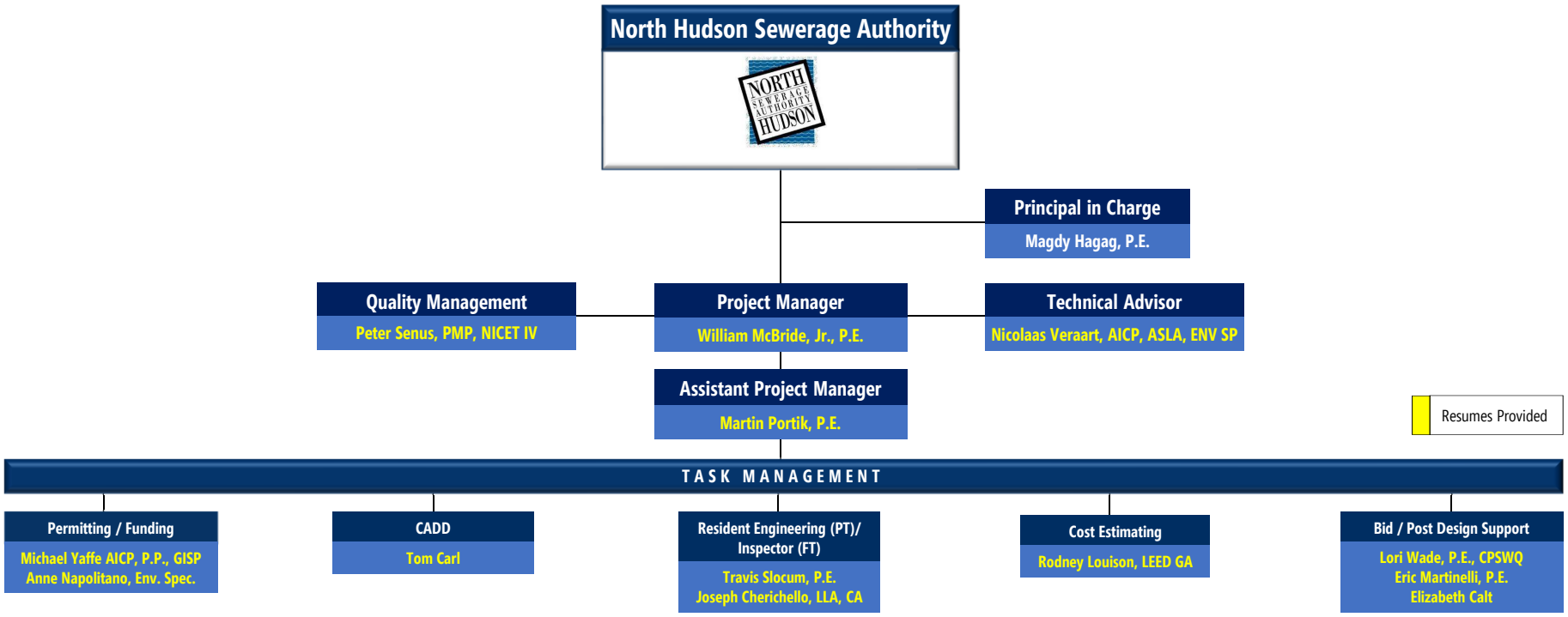
TITLE	LOADED RATE	HOURS	TOTAL
Project Manager	$209.00	13	$2,717.00
Project Engineer/Architect	$197.00	14	$2,758.00
Civil Engineer/Resident En	$165.00	216	$35,640.00
Environmental Specialist	$194.00	24	$4,656.00
Technician IV	$132.00	48	$6,336.00
Construction Inspection	$83.00	1,200	$99,600.00
CAD	$90.00	40	$3,600.00
	TOTAL	**1,555**	**$155,307.00**

***Loaded Rates include Overhead, fee and ODCs**

Project Personnel

Project Organization Chart

Michael Baker INTERNATIONAL



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William McBride, Jr., P.E.

Project Manager

General Qualifications

Bill McBride, Jr. brings 31 years of experience in roadway and utilities design to the team. He is skilled in roadway geometry and in developing complete contract documents for multi-disciplined transportation projects. His experience includes overseeing all roadway design tasks including survey and mapping, Maintenance of Traffic (MOT, geometry design, roadside safety, parking lot layout and design, right-of-way (ROW) and jurisdictional plans and agreement, and utilities engineering.

Years of Experience: 31

Degrees

B.S., 1989, Structures, College of Engineering, Rutgers University

Licenses/Certifications

Professional Engineer, New Jersey, 1995, #24GE03922800

Professional Engineer, Pennsylvania, 2000

Professional Engineer, South Dakota, 2005

Relevant Experience

Delancy Street Roadway Improvements, Newark, New Jersey. *City of Newark, New Jersey.* Civil Engineer. Responsible for technical requirements of the project. Additional responsibilities include managing task managers and providing assistance to project manager. Michael Baker provided engineering and environmental services for comprehensive improvements to Delancy Street, a two-lane arterial roadway located in the southeastern section of the Ironbound neighborhood. Due to a lack of proper maintenance, extensive use by trucks, and apparent deficiencies and geometric constraints, Delancy Street was operating at an unacceptable level of service. Michael Baker completed plans for horizontal and vertical alignment; signage upgrades; pavement marking and striping; maintenance and protection of traffic; right-of-way; utilities; sidewalk improvements, including high visibility crosswalks to meet Americans with Disabilities Act (ADA) requirements; specifications; cost estimates; construction schedule; environmental permitting; and hazardous waste management.

Roadway Engineering Services for Roadway and Drainage Engineering Services of Operations Support 2014MES965B, 2016MES094B and 2019MES223C. *New Jersey Department of Transportation.* Project Manager (2016 and 2019) Lead Engineer (2014). Michael Baker has been contracted to provide design services for the NJDOT Maintenance and Operations Department for three, three-year term agreements. The project includes providing design services for multiple milling and paving contracts for FY '15 through '20. The design services include field data collection, generation of typical sections, use of GIS Tools for data collection and analysis (ArcCollector and Survey 123) and review of existing curb ramps, drainage, stormwater and design the required improvement to become ADA compliance. The agreements also include multiple immediate response tasks orders (over 70) to evaluation various issues including drainage design for flooding, pipe bursts/inspections, Best Management Practices failures, slope failure, pavement coring, curb ramp evaluation and design, roadside safety evaluation and design, and environmental permitting are required. Bill also manages each task's scope, budget and schedule along with the project design, plan preparation and quality control between multiple disciplines including traffic signage and striping, drainage and stormwater management and environmental permitting.

Route 1&9/Haynes Avenue Operational Improvements, Newark, New Jersey. *New Jersey Department of Transportation.* Assistant Project Manager/Roadway Task Lead. Michael Baker's Hamilton, NJ office designed the $15M Rt. 1&9/ Haynes Avenue Operational Improvements in Newark, NJ. This project was to improve the traffic circulation and roadway flooding on the Rt. 1&9 corridor by eliminating deficiencies of the existing substandard interchange design. The project consisted of the integration of two projects that were intended to improve the traffic circulation on the Rt. 1&9 corridor in the project area, as well as eliminate substandard geometric and structural deficiencies on Haynes Avenue. Bill was responsible for designing multiple interchange alternatives to meet the client's requirements. This included design of complex MPT schemes, drainage, utility and combined sewer system

evaluation, and construction staging for the reconfiguration of the interchange of Haynes Avenue at Rt. 1&9 Southbound, and associated ramp structures. The project presented several MPT challenges. Numerous businesses have direct access to Rt. 1&9 Southbound within the project corridor. Extensive coordination with the NJDOT and the local businesses was performed to develop a MPT solution that maintains access to these businesses during construction. A roundabout is proposed to improve traffic operations at the existing intersection as well as a traffic calming measure. The project also involved the development of separate detour plans for truck and passenger vehicle traffic during the temporary closure of the Haynes Avenue Bridge.

Route 22 Bloy Street to Liberty Avenue Improvements, Newark, New Jersey. *New Jersey Department of Transportation.* Assistant Project Manager and Project Roadway Engineer. Michael Baker has been contracted to provide preliminary and final design for the Rt. 22 Bloy Street project. The project includes improvements to the structure and urban local roadways to address the deficiencies, to meet standards, and to improve safety, performance and reliability. Roadway elements includes design improvements to the right turn radii at all four corners of the North/South Bloy Street "T" intersections, providing an extension of the Rt. 22 eastbound auxiliary climbing lane from South Bloy Street intersection as a continuation of the current Liberty Street project; improving the intersection at South Bloy Street and Yale Avenue replacing the existing five point intersection with a four point intersection and cul de sac; and right-of-way acquisitions. Structural elements include the replacement of the existing structure carrying Bloy Street over Rt. 22, providing a 16.5-foot vertical underclearance along with operational improvements to the roadway. Bill's responsibility includes geometric design, design exception for FHWA and NJDOT approval, typical section, roadside safety improvements including guide rail/end treatment/ crash cushion design, curb ramp design to meet ADA compliance, MPT for project staging, and generation of contract plans, specification and estimate. Bill also managed the project design and plan preparation between multiple disciplines including structures, traffic signage and striping, drainage and stormwater management, right-of-way, lighting, utility relocation, pedestrian improvements, and environmental permitting, generation of construction specifications, and quality control. The project has been awarded for construction with construction starting in the spring of 2020. Bill will be the Project Manager for the Construction Services supporting the NJDOT during construction.

Interstate Reconstruction Project along both Express and Local Lanes of Route I-78, Contract B and Contract C. *New Jersey Department of Transportation.* Assistant Project Manager and Roadway Design Team Lead for this $72M interstate reconstruction project along 3.75 miles consisting of both express (2 lanes) and local (3 lanes) of I-78 roadway. The project separated into two construction contracts (Contract B &C) included reconstruction and rehabilitation of concrete pavement, bridge deck repairs on 16 bridges, replacement of 4 bridge-mounted sign structure and one overhead sign structure, flooding improvements, pipe replacement, roadway lighting, placement of Intelligent Transportation Systems (ITS) facilities, and roadside safety improvements. Where the extensive efforts to eliminate substandard design features could not be achieved, a design exception report with over 100 substandard controlling design elements was prepared and approved by the FHWA. Innovative maintenance of traffic control (MPT) plans were developed to reduce the construction duration of the project and to minimize impacts to the motorist. Bill's responsibilities included oversight of Design Exception Report, safety improvements evaluation and design, traffic signage and striping plans, drainage, MPT plans, public official meeting presentation, engineer's estimate utilizing Trans-port, construction plans, specifications, and design documents/study reports and managed the project design and plan preparation between multiple disciplines including drainage design, structures, ITS, highway lighting, construction schedule, and construction support to resolve construction issues through RFIs and shop drawings reviews, construction schedule review, preparation of change of plans, and attend monthly construction meetings. Both Contracts has been completed. Bill also assisted with the Project Manager responsibilities from design through completion of construction including the projects scope, schedule, budget, and quality control. The construction is complete.

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Martin Portik, P.E.

Assistant Project Manager

General Qualifications

Marty Portik has 38 years of experience in construction management and inspection on major transit, highway, bridge, design/build and public works projects. He has extensive construction management and design coordination experience on multi-million-dollar transportation projects, as well as in facilities rehabilitations, including building exteriors, interior renovations, MEP systems, utility construction, and temporary facilities. Mr. Portik has evaluated constructability issues, developed value engineering options, and coordinated with project stakeholders including rail agencies, the NJDOT, local municipalities and police, and rail agencies. He has experience in all construction management operations, including participation in design review workshops and constructability reviews as well as oversight of actual construction activities, contract administration, staff supervision, and managerial and administrative functions including change order management, claims avoidance, claims mitigation, and CPM schedule analysis.

Years of Experience: 38

Degrees

B.S., 2002, Civil Engineering, Drexel University

B.S., 1982, Geology, The Pennsylvania State University

Licenses/Certifications

Professional Engineer, New York, 2013

Professional Engineer, Pennsylvania, 2003

Professional Engineer, Delaware, 2008

Amtrak Railroad Safety Training, 2016

Maritime Port Manager, International Association of Maritime and Port Executives, 2017

Relevant Experience

Northwest Resiliency Park, Hoboken, New Jersey. *City of Hoboken.* Resident Engineer. Michael Baker is providing full-time construction management for the construction of a 5.4-acre interactive urban park in the city of Hoboken, which incorporates sustainable design, extensive stormwater management features, including collection and storage of all storm runoff into an underground one-million-gallon stormwater storage tank. As part of the project, Michael Baker will oversee extensive soil sampling and testing of this former industrial site, coordinate with local sewer authority for pump station construction, and manage construction of numerous park features, including play equipment, building structures, athletic facilities and other interactive features. Michael Baker will perform utility coordination, supervise the construction of the extensive stormwater sewer system, and manage the construction of a park building and community room. Additionally, it will oversee attainment of SITES v2 sustainability certification, conduct public engagement, including updating the project website, and complete and submit all close-out documents.

OPS No. A3458 Replacement of District 6 Maintenance Facility and Three State Police Stations in Newark, Moorestown, and Galloway, New Jersey. *New Jersey Turnpike Authority.* Resident Engineer. Responsible for oversight/construction management for construction of a new police station on the New Jersey Turnpike. Responsibilities include oversight of site CM/CI staff, managing day-to-day construction operations, facilitating all project meetings, submittal coordination, change order management, and general record keeping of the project via NJTA's CapEx system. Michael Baker provided supervision of construction services for replacement of the maintenance building at Turnpike District 6 Yard and construction of Troop "D" Newark, Moorestown, and Galloway State Police Stations. The State Police Stations were brought up to contemporary law enforcement agency standards to meet today's requirements and future needs. Construction of sanitary sewer, force mains, water, gas, storm drainage, and underground telephone, fiber optic, electric, and cable television service.

OPS Nos. A3587, A3588, A3589 On-Call Building and Mechanical Engineering Services. *New Jersey Turnpike Authority.* Staff Manager for Task Order Construction Services for four separate construction contracts to install

HVAC Upgrades at five NJ Turnpike Interchange toll facilities, emergency generator systems at four other Interchange toll facilities, and upgrade/replacement of highway lighting at multiple locations on the NJ Turnpike. Responsibilities included coordination and administration of Construction Management Teams providing Resident Engineering and Inspection services as part of three separate an On-Call contracts for general engineering services to the New Jersey Turnpike Authority. Construction services scope of work included conducting and documenting project meetings, utility coordination, pay estimate and change order management, site inspections, NJDCA coordination for TCO/CO, and project closeout.

Route 29 Tunnel Construction Management, Engineering, and Environmental Services, Trenton, New Jersey. *NJDOT.* Assistant Resident Engineer. Responsible for managing field inspection staff for construction of new cut-and-cover tunnel in Trenton, NJ, as part of overall construction management of a modified design-build project. Coordinated field activities related to construction in terms of traffic interference, utility involvement, community relations, and local government agencies. Participated in change order preparation and negotiation with contractor and supervised daily inspection and reporting of all project field activities. Specific responsibilities included coordination of all project activities with state and local authorities, including coordination of NJDCA inspections and obtaining Certificate of Occupancy for the tunnel control building housing ventilation, lighting and fire/smoke detection equipment, community relations and coordination, utility coordination, reviewing for environmental commitment and permit compliance. Project scope consisted of pile construction, post-tensioned concrete roadway slab, tunnel walls and roof structure, drainage construction, shoreline mitigation, construction of one mile of new multilane roadway, contaminated soil handling.

Route 29 South Riverwalk Park, Trenton, New Jersey. *New Jersey Department of Transportation.* Resident Engineer. Managed all construction and administrative activities related to construction of an urban-setting landscaped and hardscaped park on top of the Route 29 cut-and-cover tunnel. Responsibilities include overall project supervision, coordination of all project activities with state and local authorities, community relations and coordination, utility coordination, and resolution of design issues with Design Engineer. Initiated all project correspondence on behalf of the client, reviewed all project documentation, and led negotiations for change orders. *2005 FHWA Environmental Excellence Award Recipient.*

Route 29 Open Water Mitigation, Trenton, New Jersey. *New Jersey Department of Transportation.* Resident Engineer. Managed all construction and administrative activities related to construction of a two-acre shallow water habitat mitigation project along the Delaware River as part of the overall Route 29 Tunnel project. Initiated all correspondence on behalf of the client, reviewed all project documentation, and led negotiations for change orders and claim resolution. Communicated with State and Federal regulatory agencies on all relevant environmental and permit issues. Managed all project closeout activities.

NYC Rapid Repairs Program, Residential Damage Assessments, New York, New York. *City of New York Department of Environmental Protection.* Senior Staff Member. Scheduled and conducted inspections of private homes in Staten Island, NY damaged by SuperStorm Sandy. Responsible for calling Rapid Repairs applicants based on daily updated database information provided by NYCDEP to set up, inspect, report and conduct follow up inspections of storm-damaged homes for Sandy victims. Duties included determination of eligibility and scope of repairs of heating and electrical systems on several hundred homes on Staten Island, preparation and review of reports daily. The project was established by NYCDEP as a 7-day per week fast-track system to provide timely relief to storm victims to enable them to regain basic utility functions pending federal relief. As part of a consultant team, Michael Baker scheduled and conducted more than 2,000 Staten Island residential home damage assessments and developed respective work orders as part of the NYC Rapid Repairs Program implemented by the NYC Mayor's Office in response to Superstorm Sandy.

Michael Baker
INTERNATIONAL

We Make a Difference

Peter Senus, PMP, NICET IV

Quality Management

General Qualifications

Pete Senus has over 28 years of experience in the construction management, transportation and site development industry. He has extensive experience with construction management and field inspection, federal funding (HUD, FEMA, etc.), engineering for site development projects for the military and engineering for highway transportation projects. His construction management and inspection experience includes a wide variety of roadway, airport and vertical construction projects. His engineering experience includes preliminary and final design contract document preparation for a large variety of projects, right-of-way engineering, environmental/ cultural screening and permitting, anti-terrorism standards for buildings (ATFP), utility infrastructure coordination, public outreach, Design/Build RFP document preparation, cost estimation, project scheduling, budget analysis, and sub consultant management.

Years of Experience: 28

Degrees

B.S., 1991, Civil Engineering, Norwich University

Licenses/Certifications

Project Management Professional (PMP), 2013

NICET IV Transportation-Highway Construction, New Jersey, 2017

ACI Concrete Construction Technology Course, 2013

NJ Society of Asphalt Technicians Certifications 2014

OSHA 10 Hour

Relevant Experience

Construction Management for Flood Hazard Risk Reduction and Resiliency Grant Program, Work Order #3, CMF-003. *New Jersey Division of Property Management & Construction*. Construction Program Manager responsible for the overall management of eight construction projects associated with Hurricane Sandy grant relief funds. Responsibilities included: scheduling and coordinating progress meetings, monitoring local government contractor project progress, maintaining a master CPM schedule, preparing independent cost estimates, reviewing local government contractor invoices, HUD compliance and monitoring and construction labor compliance with federal and state regulations.

Grant Monitoring Assistance. *New Jersey Department of Environmental Protection (DEP).* Construction Program Manager responsible for the overall management of eight construction projects associated with Hurricane Sandy HUD grant relief funds. Projects included new outfall structures, pump stations with generators, tide gate upgrades, local road stormwater upgrades and dredge operations. Responsibilities included: scheduling and coordinating progress meetings with local municipalities and engineers, conducting regular site reviews and general construction inspections, monitoring local government contractor project progress, maintaining a master program schedule, preparing independent cost estimates for change orders, reviewing local government contractor pay applications, HUD labor monitoring, Section 3 compliance and federal competitive bidding practice reviews.

9th Street Drainage Improvements, Ocean City, New Jersey. *City of Ocean City, New Jersey.* Task Manager. Responsible for the development of Preliminary Design documents. Michael Baker developed feasibility assessment plans; National Environmental Policy Act (NEPA) categorical exclusion documentation; preliminary design; and final plans, specifications, and estimates (PS&E) for drainage improvements along 9th Street. The project involved raising the profile of the 9th Street roadway by approximately 18 inches and reconstruction of the drainage system which, included a 60-inch reinforced concrete culvert pipe (RCCP) drainage trunk line and the tide flex valve to reduce the flooding during high tide events.

2013 & 2015 Airport Engineering Consultant Atlantic City International Airport (ACY), Atlantic City, New Jersey. *South Jersey Transportation Authority.* Construction Manager. Responsible for overall construction management and inspection, reviewing monthly schedule updates, reviewing extra work items, preparing change orders and independent cost estimates (ICE), reviewing submittals, responding to Request for Information (RFIs), as-built plan preparation, final quantities and approving Contractor monthly pay applications with certified payrolls (Davis Bacon and Relate Acts). Task orders on the 2015 agreement consist of the Runway 4-22 Blast Pad Reconstruction Design and Construction Management, the Parking Attendant Structure Design, the AOA Gate 11 and Fence Categorical Exclusion Document and Design, and Baggage Handling System Survey and Design. Task orders on the 2013 agreement consist of the Taxiway Kilo Design and Construction Management, Runway 13 Rehabilitation, Amelia Earhart Boulevard Widening Preliminary Engineering, Egg Harbor Toll Plaza Roof Design and Construction Management, and Inner Perimeter Fence Construction Management.

I-95 Scudder Falls - Advanced Noise Wall Contract. *Delaware Valley Joint Toll Bridge Commission.* Construction Specialist responsible for construction support services for noise wall construction in advance of the I-95 Scudder Falls bridge replacement project. The noise walls were pre-cast concrete units with decorative finish. Primary responsibilities included attendance of bi-weekly contractor coordination meetings, provided responses to Request for Information (RFIs) and submittal reviews. Other duties included providing field guidance to the Resident Engineer for constructability issues as well as quality control construction inspection reviews.

Route 280/21 Interchange Improvements Post Design Services Contract. *New Jersey Department of Transportation.* Construction Specialist responsible for construction support services for the Route 280 & NJ Route 21 Interchange in the City of Newark, Essex County, New Jersey. This project will involve rehabilitation and replacement of six (6) deficient ramp and mainline structures within the project area while correcting geometric deficiencies, improving safety, completing missing moves, and optimizing traffic flow. Primary responsibilities included attendance of bi-weekly contractor coordination meetings, provided responses to Request for Information (RFIs) and submittal reviews. Other duties included providing field guidance to the Resident Engineer for constructability issues as well as quality control construction inspection reviews.

Galloway Troop D State Police Barracks (Replacement of the Turnpike's District 6 Maintenance Facility and State Police Stations). *New Jersey Turnpike Authority.* Assistant Resident Engineer & Lead Inspector responsible for overall inspection team daily activities. The purpose of this project is to build a new State Police Barracks to match contemporary law enforcement agency standards and meet today's requirements and future needs. In addition, site upgrades included expansion of parking, new underground motor fuel tanks, new utility services and an emergency generator. Responsible for reviewing daily inspection reports in CapEx from team members, monthly schedule update reviews, reviewing extra work items, preparing change orders and independent cost estimates (ICE), reviewing submittals and Request for Information (RFIs) in Project Mates, managing project costs and reviewing monthly pay applications including certified payrolls for the Galloway State Police Station.

Route 52 Causeway Replacement Post Design Services Contract. *New Jersey Department of Transportation.* Project Engineer responsible for construction support services for the Route 52 Causeway Replacement project that is approximately 2.8 miles long from Route 9, in Somers Point, Atlantic County, to West Avenue in Ocean City, Cape May County. This project entailed the replacement of two movable bridges over Great Egg Harbor Bay with two fixed structures extending from Somers Point to Ocean City. Construction support services were for approximately five years. Primary responsibilities included attendance of weekly contractor coordination meetings, provided responses to Request for Information (RFIs) and submittal reviews. Other duties included providing field guidance to the Resident Engineer for constructability issues as well as quality control construction inspection reviews.

Michael Baker INTERNATIONAL

We Make a Difference

Nicolaas Veraart, AICP, ASLA, ENV SP

Technical Advisor

Years of Experience: 30

Degrees

Ingenieur, 1988, MSc. Engineering, Planning and Landscape Architecture, Wageningen University

B.S., 1986, Engineering, Planning and Landscape Architecture, Wageningen University

Licenses/Certifications

American Institute of Certified Planners, 1993, 010410

Envision Sustainability Professional, 2016

American Society of Landscape Architects (ASLA), 586935

General Qualifications

Mr. Veraart is senior vice president with Michael Baker International and National Practice Lead for Planning. He has over 30 years of experience in planning and securing regulatory approvals for complex infrastructure projects, including water, and wastewater infrastructure. He has led integrated planning and resilience services, including for the HUD CDBGDR funded post-9/11 redevelopment of Lower Manhattan and resilience planning related to Superstorm Sandy and other disasters. He also led sustainability projects under a HUD Sustainable Communities Grant such as the award-winning Hoboken Green Infrastructure Strategic Plan and supported the North Hudson Sewerage Authority with the development of communication and engagement for Green Infrastructure initiatives. Mr. Veraart led the development of a Green Infrastructure Toolkit and a Regional Resilience Decision Support System for NJDEP as part of its HUD-funded National Disaster Resilience Competition grant. Throughout his career Mr. Veraart has led extensive engagement and stakeholder meetings and workshops; most recently with over 150 experts across environmental, economic and community workshops for the State of New Jersey in support of development of a Coastal Resilience Plan. Mr. Veraart served as Project Manager to NJDEP on the New Jersey Fostering Regional Adaptation through Municipal Economic Scenarios (NJ FRAMES) project, developing resilience plans for 15 communities in Monmouth County, New Jersey.

Relevant Experience

Green Infrastructure Engagement Services. *North Hudson Sewerage Authority.* Project Director. Mr. Veraart supported NHSA with the development of outreach materials and engagement with communities in the NHSA service area to implement Green Infrastructure and research various funding options. Communities and stakeholders included the City of Weehawken and Union City.

Hoboken Green Infrastructure Strategic Plan, Hoboken, New Jersey. *HUD/NJ Transit.* Project Director. The strategic plan identified place-based sustainable stormwater management and flood control strategies for Hoboken on a sewershed basis. The award-winning plan included cost-effective, long-term green and grey solutions to update the aging system and integrate source controls into the design and construction of capital improvement and private development projects.

New Jersey A·I·M·S4 Advanced and Integrated Menu of Strategies for Sustainable Sewer and Stormwater Systems, statewide, New Jersey. *New Jersey Future.* Project Director. Mr. Veraart directed the development of a resource gateway with a menu of strategies, actions and methods that New Jersey municipalities and utilities can employ to better manage sewer and stormwater infrastructure in the face of critical urban water management issues and climate change impacts.

Rebuild by Design Hudson River Project CMF Consultant, Hoboken New Jersey. *New Jersey Division of Property Management and Construction (NJDPMC)/NJDEP.* EIS and Feasibility Review Task Leader. Responsibilities included review of analyses and EIS methodologies and deliverables from the EIS consultant as well as coordination with local, state and federal agencies and development of Best Practices/Lessons Learned documentation.

Hoboken North End Redevelopment Plan, Hoboken, New Jersey. *City of Hoboken.* Project Manager. Mr. Veraart led professional planning services to the City of Hoboken for the preparation of a redevelopment plan for the North End, a 30-acre area located in Hoboken along the Hudson River, comprised of largely post-industrial properties,

major bus transportation assets and wastewater treatment infrastructure. Building upon previous work as part of the Hoboken Green Infrastructure Strategic Plan, led the development of a sustainable stormwater / green building development framework to reduce CSO events and mitigate localized flooding. The work was coordinated with ongoing resiliency efforts such as the HUD CDBG-DR funded Rebuild by Design project to develop innovative solutions to urban stormwater management.

Suffolk Sewers Project, Suffolk County, New York. *New York State Governor's Office of Storm Recovery / Housing Trust Fund Corporation*. Project Manager. Leading expedited environmental combined FEMA/HUD CDBG-DR NEPA environmental review for $383 million in resiliency and water quality projects to extend sewer infrastructure and establish new sewer districts in four areas of the county to increase coastal resilience through reduction in nitrification of vulnerable coastal ecosystems.

NY Prize Stage I - Staten Island East Shore Community/Healthcare Microgrid. *New York State Energy Research and Development Authority (NYSERDA).* Project Manager for the design of a microgrid on the east shore of Staten Island centered on the Staten Island University Hospital and the South Beach Psychiatric Center and serving critical facilities, including housing, pump stations, rail station, low income housing, schools, fire stations and police stations, and main street businesses.

Multiple Resiliency Services. *New York State Governor's Office of Storm Recovery/Housing Trust Fund Corporation.* Engagement Partner. Led the development of New York Rising Community Reconstruction Plans in Staten Island, Brooklyn, Queens, New York and Nassau County. Services included Green infrastructure planning including the award-winning Green infrastructure Plan for South Valley Stream.

Coastal Resilience Plan Framework and Decision Support Tool. *New Jersey Department of Environmental Protection.* Project Manager. Led the development of a framework for the State of New Jersey for coastal resilience and a prioritization tool for state and federally funded coastal resilience and environmental restoration projects.

Kensico Reservoir Water Pollution Control Program SEQRA FEIS, Westchester County, New York. *New York City Department of Environmental Protection.* Project Director. Directed the preparation of a Draft and Final Environmental Impact Statement for the implementation of watershed protection measures by the NYCDEP. The DEIS and FEIS focused heavily on impacts to natural resources (wetlands) and water quality. The DEIS made included the enhancement of an existing GIS and populating the GIS with environmental data, including hazardous waste sites, slopes, watershed streams, land uses, vegetation types and other elements. The EIS then evaluated the beneficial effects on water quality resulting from several alternative measures, including the development of Best Management Practices (BMPs), such as wetland basins, streambank stabilization and waterfowl management. Pollutant reductions were subsequently modeled through TR-22 and other models for each of the streams and subwatershed discharging into the Kensico Reservoir. Transport of contributing pollutants within the reservoir and to the water intakes were then modeled using sophisticated 3-D modeling. In addition to the evaluation of the effectiveness of various program alternatives, their impact on the environment was assessed, including socioeconomic and ecological impacts. The FEIS was completed and approved in record time after the publication of the DEIS and prerequisite public hearings and public comment period.

Breezy Point Stormwater Management Plan. *Dormitory Authority of the State of New York / New York State Governor's Office of Storm Recovery/Housing Trust Fund Corporation.* QA/QC. Overseeing services for stormwater drainage improvement project. The project includes an analysis of flooding conditions to determine final acreage impacted by flooding as well as specific locations of greatest flooding in each designated area by way of topographical survey and contour map development at appropriate increments. This analysis was followed by design of a storm drain system designed to collect and pump out stormwater in a section prone to flooding and susceptible to holding stormwater following severe weather events as well as green infrastructure including redesigned parking areas including options for ball field re-location if appropriate; design of permeable paving, new stormwater collection and pumping system and grading of a ball field area in order to reduce excessive stormwater pooling during flood events and provide for controlled stormwater run-off. The project design is being coordinated with the numerous dry wells installed in this area and in close coordination with City and State and federal agencies.

Michael Baker
INTERNATIONAL

We Make a Difference

Michael Yaffe, AICP, P.P., GISP

Funding

General Qualifications

Michael Yaffe is an accomplished Community Planner and GIS Professional. As a planner and GIS professional, he believes in purpose driven environmentally sensitive design to create places that engage people, nurture community, and enhance urban life. Currently, his focus is on resiliency planning, risk and vulnerability assessment, and hazard mitigation planning to assist in funding large scale infrastructure improvements. His work as a senior fellow at Rutgers University was featured on NPR and NBC News and focused on teaching an urban design studio on resilient design and rebuilding after Hurricane Sandy. In his capacity as a regional planner, he has performed spatial analysis and modeling on more than 1 million contiguous acres to determine land use, economic, and environmental impacts of land use policies within our Nation's first Federal Reserve to protect the resources of a 17 trillion-gallon aquifer.

Years of Experience: 12

Degrees

M.C.R.P., 2013, City and Regional Planning, Rutgers University

B.S., 2007, Environmental Planning and GIS, Rutgers University

Licenses/Certifications

American Institute of Certified Planners, 2016, 029192

Certified GIS Professional, 2012, 17910

Professional Planner, New Jersey, 2018, 33LI00638100

Relevant Experience

INFRA & TIGER Grant Application. *New Jersey Department of Transportation.* Senior Planner. Performed a Benefit Cost Analysis to support a TIGER grant application for replacement of Rt 3 Bridge over Northern Secondary & Ramp A in Bergen County, New Jersey. TIGER grant was awarded, and the project received an $18M federal grant.

FEMA Hazard Mitigation Assistance (HMA) Grant Application. *New Jersey Turnpike Authority.* Senior Planner. Developed an Advanced Assistance application that was seeking to provide a phased mitigation strategy to elevate a portion of the Garden State Parkway (GSP) in proximity to the Cheesequake State Park to mitigate losses from flood-related hazards. Applicant will use the Advanced Assistance to obtain data to prioritize, select, and develop the most cost-effective mitigation strategy.

Hazard Mitigation Plan Update for Bergen County, New Jersey. *Bergen County, NJ.* Project Manager. Michael Baker provided a broad range of professional consulting services to develop an update to a FEMA approved comprehensive hazard mitigation plan for the county. The plan reflects the county's unique risks and vulnerabilities, including coastal and riverine flood risk, wildfire hazards, nuclear vulnerabilities, and potential terrorist threats. Michael Baker's tasks included identifying and mapping hazards, analyzing risks and hazard mitigation policies and procedures for hazard-prone areas, defining community roles, and formulating mitigation strategies to reduce future risks. At the end of the project Michael Baker will present the county with a Benefit-Cost Analysis for up to 5 projects for funding.

Hazard Mitigation Plan Update for Monmouth County, New Jersey. *Monmouth County, NJ.* Project Manager. Michael Baker provided a broad range of professional consulting services to develop an update to a FEMA approved comprehensive hazard mitigation plan for the county. The plan reflects the county's unique risks and vulnerabilities, including coastal and riverine flood risk, wildfire hazards, nuclear vulnerabilities, and potential terrorist threats. Michael Baker's tasks included identifying and mapping hazards, analyzing risks and hazard mitigation policies and procedures for hazard-prone areas, defining community roles, and formulating mitigation strategies to reduce future risks. At the end of the project Michael Baker will present the county with a Benefit-Cost Analysis for up to 5 projects for funding.

Hazard Mitigation Plan Update for Ocean County, New Jersey. *Ocean County, NJ.* Senior Planner. Provided project administration, research, GIS and planning analysis and community engagement required to update a Multi-Jurisdictional All Hazards Mitigation Plan for Ocean County, New Jersey. The plan reflects the county's unique risks and vulnerabilities, including coastal and riverine flood risk, wildfire hazards, nuclear vulnerabilities, and potential terrorist threats.

New Jersey State Hazard Mitigation Plan. *State of New Jersey Office of Emergency Management.* Deputy Project Manager. Provided project administration, research, and GIS and planning analysis required to update the State All-Hazard Mitigation Plan (SHMP). The SHMP outlines a strategy to reduce risks from hazards and serves as the basis for prioritizing future project funding for mitigation projects across the state of NJ. Created a GIS database model to organize and analyze demographic, hydrological, transportation, environmental, cultural, geological, and administrative information throughout the state of NJ.This database model was then used to model risk, vulnerability and potential losses of a geocoded relational database of state-owned critical facilities and infrastructure.

Resilient NJ Planning Grants Program. *New Jersey Department of Environmental Protection.* Project Manager. Internal grant management for project entirety. Tasks include community outreach assistance; analysis of riverine vulnerability by modeling future conditions; developing a standardized risk assessment methodology to assist local resiliency planning; developing a standard cost benefit analysis methodology that will be applied across program regions; internal and external program team coordination; and, other areas of grant management including program materials organization and administrative services.

Benefit-Cost Analysis (BCA) for Moreno Valley. *City of Moreno Valley.* Senior Planner. Performed a Benefit-Cost Analysis (BCA) using federal BUILD grant guidance support to the City of Moreno Valley plans to construct a $6 million-dollar bridge to span the Perris Valley Storm Channel Lateral A at Indian Street. Proposed bridge is intended to improve emergency response times in the surrounding area and close a critical gap in connectivity for traffic near the City's industrial area. Bridge alternatives were identified, and a BCA was developed for each bridge alternative.

Pinelands Management Area Revisions – Pinelands Commission, New Jersey. *Pinelands Commission.* Analyzed and revised the boundaries of the Pinelands Management Areas; which, through a rule-making process aimed to preserve about 45,000 acres of high ecological-integrity forest and open for development about 8,000 acres of low ecological-integrity land. Revisions base on an ecological integrity assessment that used a raster moving-window analysis of landscape-, aquatic-, wetland-drainage, and ecological-integrity geospatial layers. Created over 400 unique cartographic maps to facilitate public participation. Graphics featured on NJN news and graphics published in Press of Atlantic City.

Annual Long-term Economic Monitoring Report, Pinelands Commission, New Jersey. *Pinelands Commission.* As a regional planner, produced an annual Long-term Economic Monitoring (LTEM) Report and Municipal Fact Book that analyzed the trends of 19 variables in the areas of population, real estate, economic growth, and municipal finance across eight (8) counties and 155 municipalities in the Pinelands Federal Reserve. The fundamental goal of the Long-Term Economic Monitoring Program was to continually evaluate the health of the economy of the Pinelands region in an objective and reliable way.

Bloomfield Avenue Complete Corridor Plan, Bloomfield Township, Borough of Glen Ridge, Montclair Township, Verona Township, New Jersey. *Together North Jersey.* Served as a Project Planner on a team working in a collaborative effort to pursue the creation of design standards and recommendations for a nearly 4-mile-long, multi-modal transportation corridor in Essex County. Worked with stakeholders and the public to identify locations along the Bloomfield Avenue corridor that have pedestrian, bike, transit and auto-oriented circulation/mobility challenges. Created graphic illustrations to convey recommendations for Complete Streets improvements along the Corridor and a planning implantation agenda to partner the community with possible funding sources for the recommended improvements.

Anne Napolitano

Permitting

Years of Experience: 25

Degrees

B.S., 1994, Environmental Biology, Georgian Court University

General Qualifications

Anne Napolitano is an Environmental Specialist with over 25 years of experience preparing local, State and Federal permit applications and environmental technical studies. Anne has successfully strategized and executed the environmental process from project development through construction for both public and private development projects. Anne is an environmental task leader responsible for preparing various environmental permitting and project impact assessments, site mitigation planning and environmental design services including wastewater, potable water, stormwater & watershed, land use and zoning, and renewable energy projects. Anne has also prepared environmental studies, conducted NEPA documentation, and provided agency, engineering design team coordination and consultation on impact avoidance, limitations and construction techniques from conceptual to final engineering design. Through this experience, she has a thorough understanding of resolving complex environmental permitting and regulatory compliance issues for different types of projects.

Relevant Experience

South Street and Adams Street Drainage Improvements, Newark, New Jersey. *City of Newark.* Environmental Specialist. Michael Baker provided a comprehensive drainage study and design for the combined sewer overflow community of Ironbound surrounding the South and Adams corridor. The area suffers from frequent flooding that is stifling business growth, creating toxic environments from combined sewers, and causing property and personal damage. Michael Baker studied the roadway drainage and overall drainage patterns of the network of ditches draining to Newark Bay. Following the study, alternatives were developed to separate the sewers in the most critical downstream areas and install green infrastructure to retain rainfall. Michael Baker also assisted the client with long-term prioritization for future separation of sewers. The designs were coordinated with the Ironbound Community Corporation and incorporated the Green Streets Initiative as well as the Passaic Valley Sewerage Commission.

Route 47/347 and Route 49/50 Corridor Enhancements ITS and Operational Improvements. *New Jersey Department of Transportation*. Environmental Permitting Lead for the installation and upgrade of Intelligent Transportation System (ITS) facilities along Routes 47/347, Route 49/50 and Route 147. The project includes improvements to traffic signal systems at 5 intersections, installation of 3 closed circuit TVs, and 10 new Dynamic Message System (DSM) signs. Responsibilities include preparation and oversight of the environmental permitting effort for the entire project which includes overseeing field visits at each location to identify sensitive environmental areas, assessing proposed activities on regulated resources, determining permit needs, and preparing documentation to obtain the require approvals. Portions of the project are also located within the NJ Pinelands. Anne is responsible for overseeing and assisting with the preparation of separate NJDEP FWW permits for the three DMS signs and fiber optic run, developing NJ Pinelands Public Development Permit Applications for 6 additional sites as well as a Coastal Wetlands Permit for Site 4. Coordination with the NJ State Historic Preservation Office has also been required for fiber optic within historic districts sensitive for archaeology.

Rio Grande Avenue (CR 661) Entrance Improvements. *Cape May County.* Environmental lead for the improvements to Rio Grande Avenue that consist of the widening of the roadway to provide two-way left turn lanes, pedestrian and bicycle safety features and drainage enhancements, streetscaping and signing. Responsibilities included performing an environmental screening, identification of permit requirements, coordination to avoid and minimize permitting, a Categorical Exclusion Document (CED), and preparation of permit applications including NJDEP Freshwater Wetlands (FWW) Individual Permit, NJDEP Waterfront Development (WFD) and CAFRA Permit, United States Army Corps of Engineers Jurisdictional Determination and Nationwide Permit, and Soil Erosion and

Sediment Control (SESC) Certification. Additionally, performed oversight of the wetlands delineation completed for the project and coordination of cultural resource studies.

I-280 over 1st Street. *New Jersey Department of Transportation*. Environmental Specialist. Responsible for preparation of environmental plan. Preliminary and Final Design Engineering activities for the Route 280 WB Ramp Over First & Orange Streets, Newark Subway, NJ Transit project in the City of Newark. The scope of work includes bridge structure and roadway improvements to approximately 1/2-mile of westbound Route 280 and ancillary improvements to the city street network. As part of the on-going Preliminary Engineering process, it was determined that the long-term closure of the Clifton Avenue entrance ramp to westbound Route 280 would be required to maintain two mainline travel lanes at all times. Responsibilities include oversight of design and traffic analysis for a long-term detour that would re-route traffic to the 1st Street/2nd Street entrance ramp via the city street network.

Route 130 Westfield Avenue (MP 67.8) to Main Street (MP 72.8) Pavement Reconstruction Project. *New Jersey Department of Transportation.* Environmental Permitting lead for the milling and resurfacing of pavement, curb ramp improvements, improvement to geometric deficiencies, and installation of an underground ITS fiber optic communications trunk line along the Route 130 corridor. Responsibilities included identification of permit requirements, coordination to avoid and minimize permitting, and preparation of permit applications including NJDEP Freshwater Wetlands (FWW) General Permits, NJDEP Flood Hazard Area Individual Permit, Delaware & Raritan Canal Commission (DRCC) Approval, and Soil Erosion and Sediment Control (SESC) Certification.

Smart Moves 2016 Design Services South. *New Jersey Department of Transportation*. Environmental Permitting Lead. Responsible for performing an environmental screening to support the installation of DMS signs and CCTV cameras to augment the NJDOT's existing statewide ITS infrastructure. As part of the screening, the presence or absence of environmentally sensitive resources including sensitive receptors to air quality/noise, wetlands, floodplains, protected species, water, hazardous material, socioeconomics, environmental justice communities, cultural resources, and parkland were identified.

Ellis Island Bridge Rehabilitation. *National Park Service.* Environmental lead for repair and replacement of the steel at bents, installation a concrete jacket on a sister pile, resetting the truss and cotter pins, replacing the steel deck system as well as the repairing and painting of the steel superstructure. Responsibilities included identification of permit requirements, coordination to avoid and minimize permitting, and preparation of permit applications including NJDEP Federal Consistency Determination and Water Quality Certificate, and United States Coast Guard Bridge Permit.

Replacement of Nacote Creek Bridge (PR-07). *Atlantic County.* Environmental lead for the **i**mprovement of the structurally deficient and functionally obsolete condition of the Atlantic County Nacote Creek Bridge (PR-07) carrying Old New York Road (CR 610) over the Nacote Creek. Responsibilities included oversight of wetland delineation and ecological studies, identification of permit requirements, coordination to avoid and minimize permitting, and preparation of permit applications including NJDEP Freshwater Wetlands (FWW) General Permits, NJDEP Waterfront Development (WFD) and CAFRA Individual Permit, United States Army Corps of Engineers Jurisdictional Determination and Nationwide Permit, NJDEP SHPO Project Authorization and Soil Erosion and Sediment Control (SESC) Certification. Additionally, performed oversight of the wetlands delineation completed for the project.

2015 Local Preliminary Engineering Assistance, Newark and Plainfield, New Jersey. *North Jersey Transportation Planning Authority.* Environmental Specialist. Michael Baker assisted the Cities of Newark and Jersey City, and the County of Union (City of Plainfield) via Local Safety Program (LSP) to design various safety improvements through preliminary engineering and final design. The goal was to prepare construction documents to support the implementation of safety improvements in an expeditious and efficient manner. The improvement projects are planned to improve the guidance and control of pedestrian movements that interface with automobile traffic, thereby raising motorists' awareness of pedestrians and bicyclists traversing the project locations.

Tom Carl

CADD Technician

Years of Experience: 15

Degrees

A.A.S., 2017, Civil Engineering Technology, Mercer County Community College

Certificate, 2017, Computer Aided Design, Mercer County Community College

General Qualifications

Tom Carl has 15 years of progressive experience in developing construction contract deliverables, permit plans, and CADD documentation and procedures. He has extensive knowledge of plan presentation for various clients and agencies using Bentley MicroStation/InRoads, as well as the AutoCAD suite of programs. He is skilled in data collection and inventory of features using state-of-the-art video technology and GPS. Mr. Carl has experience developing plans and details for numerous projects that include drainage, stormwater management features, right-of-way, and grading. He is familiar with developing and implementing CADD design manuals and understands the importance of providing a consistent and concise set of plans to the contractor. Mr. Carl's experience is specialized in projects involving small improvements at multiple locations. Through this, he has an aptitude for streamlining drafting to efficiently produce plans.

Relevant Experience

Pequannock Watershed Dams and Reservoirs Security Improvements, Passaic County, New Jersey. *City of Newark, New Jersey.* CADD Technician. Responsible for CADD work. Michael Baker is upgrading security at various reservoirs and dams to meet the latest New Jersey Safe Dam Act, the National Dam Safety Program Act, and Department of Homeland Security requirements. Michael Baker is performing an identification of site-related vulnerabilities, emergency response and prevention, and providing conceptual, preliminary design, and final design services for the complete security system for 13 dams and reservoirs facilities.

South Street and Adams Street Drainage Improvements, Newark, New Jersey. *City of Newark, New Jersey.* CADD Technician. Responsible for creating a project CADD environment that would follow the client's CADD standards. Michael Baker provided a comprehensive drainage study and design for the combined sewer overflow community of Ironbound surrounding the South and Adams Street corridor. The area suffers from frequent flooding that is stifling business growth, creating toxic environments from combined sewers, and causing property and personal damage. Michael Baker studied the roadway drainage and overall drainage patterns of the network of ditches draining to Newark Bay. Following the study, alternatives were developed to separate the sewers in the most critical downstream areas and install green infrastructure to retain rainfall. Michael Baker also assisted the client with long-term prioritization for future separation of sewers. The designs were coordinated with the Ironbound Community Corporation and incorporated the Green Streets Initiative as well as the Passaic Valley Sewerage Commission.

Delancy Street Roadway Improvements, Newark, New Jersey. *City of Newark, New Jersey.* CADD Technician. Responsible for creating a project CADD environment that would follow the client's CADD standards. Some tasks involved maintaining the standards, drafting and creating CADD files, and communicating CADD updates to the rest of the team. Michael Baker provided engineering and environmental services for comprehensive improvements to Delancy Street, a two-lane arterial roadway located in the southeastern section of the Ironbound neighborhood. Due to a lack of proper maintenance, extensive use by trucks, and apparent deficiencies and geometric constraints, Delancy Street was operating at an unacceptable level of service. Michael Baker completed plans for horizontal and vertical alignment; signage upgrades; pavement marking and striping; maintenance and protection of traffic; right-of-way; utilities; sidewalk improvements, including high visibility crosswalks to meet Americans with Disabilities Act (ADA) requirements; specifications; cost estimates; construction schedule; environmental permitting; and hazardous waste management.

Replacement of District 6 Maintenance Facility and Three State Police Stations, New Jersey. *New Jersey Turnpike Authority.* CADD Technician. Responsible for providing minor support for this project. Michael Baker provided supervision of construction services for replacement of the maintenance building at Turnpike District 6 Yard and

construction of Troop "D" Newark, Moorestown, and Galloway State Police Stations. The State Police Stations were brought up to contemporary law enforcement agency standards to meet today's requirements and future needs, including the addition of fitness room and locker room facilities for female troopers. The new District 6 Maintenance Yard provides updated equipment, expanded capabilities, and contemporary amenities for Turnpike Maintenance personnel to replace the overcrowded and obsolete facility. Michael Baker provided inspection staff, daily coordination, and negotiations with contractors; electronic document control; change order review and analysis; safety and incident management; meetings facilitation; and claims avoidance/resolution.

Climate Change Impacts Assessment for New York City Area Airports, New York, New York, Newark, New Jersey, and, Bergen County, New Jersey. *Port Authority of New York and New Jersey.* CADD Technician. Responsible for providing minor support for this project. Michael Baker performed a comprehensive assessment of the impacts of climate change on four airports; John F. Kennedy International Airport (JFK) and LaGuardia Airport (LGA) in New York, and Newark Liberty International Airport (EWR) and Teterboro Airport (TEB) in New Jersey. Michael Baker's services included a flood hazard analysis, development of a critical infrastructure inventory, preparation of guidance on use of climate change projections, a climate change vulnerability assessment, a statistical evaluation of airport shutdown potential, and development of a climate adaptation strategy.

Statewide Roadway Engineering Services, Statewide, New Jersey. *New Jersey Department of Transportation.* CADD Technician. Responsible for creating a project CADD environment that would follow the client's CADD standards. Daily tasks involved maintaining the standards, drafting and creating CADD files, and communicating CADD updates to the rest of the team. Michael Baker is performing roadway engineering and design services on a three-year contract for the New Jersey Department of Transportation's Maintenance and Operations Department. The projects include design services for multiple milling and paving contracts for 2015 and 2016, which entail field data collection, generation of typical sections, review of curb ramps and the design of more than 220 new curb ramps, LiDAR, drainage and stormwater improvements, and the implementation of ADA upgrades. The agreements also include more than 30 on-call immediate-response tasks orders to evaluate various issues. The task orders include drainage design, Best Management Practices for flooding, basin review and design, slope failure, outlet repair or replacement, pavement coring, curb ramp evaluation and design, roadside safety evaluation and design, and environmental permitting as required. Deliverables for the projects have included proposed design plans, details, hydrologic and hydraulic report backup, specifications, and quantities and cost estimates.

Basin and Outfall Inventorying, Statewide, New Jersey. *New Jersey Department of Transportation.* CADD Manager. Maintain and manage project CADD standards for the project. Assisted with the drafting and creating plan sheets. Michael Baker was selected by NJDOT Bureau of Environmental Program Resources to inventory stormwater basins and outfalls for assessment purposes. The primary goal of the project is to obtain and compile assessments to identify maintenance requirements and remedial actions to address issues including erosion and sedimentation, which may affect downstream surface water quality. Michael Baker is also responsible for compiling additional information for Region Central NJDOT Maintenance Facilities.

North End Pump Station and Flood Reduction Project, Ocean City, New Jersey. *City of Ocean City, New Jersey.* CADD Technician. Responsible for creating a project CADD environment that would follow the client's CADD standards. Some tasks involved maintaining the standards, drafting and creating CADD files, and communicating CADD updates to the rest of the team. Drafting work involved cutting sheets, creating the reference files and creating details. Michael Baker provided assistance to redesign another consultant's work and "right-size" a project to reduce flooding in a 300-acre section of the City's North End neighborhood, which has suffered from regular tidal and nuisance flooding. Michael Baker was tasked to update and improve the design and prepare construction documents and to bring it into compliance with Federal Emergency Management Agency (FEMA) funding requirements to secure the City's $5.5 million grant award. The multiphase project includes analysis of the existing North End stormwater management system, identification of drainage issues, and design of proposed improvements. The project includes development of a DHI MIKE FLOOD urban stormwater collection network model coupled with a 2-dimensional flexible mesh solver that accounts for surcharges and bypass flows.

Michael Baker INTERNATIONAL

We Make a Difference

Travis Slocum, P.E.

Resident Engineer

General Qualifications

Travis Slocum has 15 years of experience on projects throughout New Jersey and Pennsylvania. His responsibilities on these projects have included resident engineer, office engineer, and supervision and construction inspection of new bridge construction and rehabilitation work, pavement restoration, milling, resurfacing, earthwork, barrier placement, drainage, electrical lighting, erosion and sedimentation control, maintenance and protection of traffic, roadside safety features, facilities, HVAC, electrical upgrades, and utility relocations. Travis is a responsive RE as demonstrated in his response to the unanticipated flooding at Interchange 11 where he worked with the New Jersey Turnpike Authority to restore temporary power to the building and all ancillary systems by coordinating with the on-call electrical contractor, site contractor, and PSE&G, and worked with the designer to identify a permanent solution to the flooding problem. Travis has developed a discerning ability for identifying constructability issues as well as on-the-spot problem solving skills.

Relevant Experience

Replacement of District 6 Maintenance Facility and Three State Police Stations, New Jersey. *New Jersey Turnpike Authority.* Resident Engineer. Performed office engineering, submittal management, and site/building inspection for the Moorestown Trooper Barracks. Responsible for setting up the electronic and paper filing system. Michael Baker provided supervision of construction services for replacement of the maintenance building at Turnpike District 6 Yard and construction of Troop "D" Newark, Moorestown, and Galloway State Police Stations. The State Police Stations were brought up to contemporary law enforcement agency standards to meet today's requirements and future needs, including the addition of fitness room and locker room facilities for female troopers. The new District 6 Maintenance Yard provides updated equipment, expanded capabilities, and contemporary amenities for Turnpike Maintenance personnel to replace the overcrowded and obsolete facility. Michael Baker provided inspection staff, daily coordination, and negotiations with contractors; electronic document control; change order review and analysis; safety and incident management; meetings facilitation; and claims avoidance/resolution.

Years of Experience: 15

Degrees

M.B.A., 2011, Project Management, DeSales University

B.S., 2005, Mechanical Engineering, State University of New York at Binghamton

Licenses/Certifications

Professional Engineer - Civil, New Jersey, 2017, 24GE05322400

Professional Engineer - Civil, New York, 2017, 098349

Professional Engineer - Civil, Delaware, 2014, 18653

ACI Concrete Field Testing Technician - Grade 1, New Jersey, 2011, 01057596

PennDOT Constr Documentation System (CDS) NeXtGen, 2007, 79VPBC

Confined Space Training, New Jersey, 2016, 11099212

NICET III Transportation-Highway Construction, 2009, 117767

Traffic Control Training, New Jersey, 2011

NJ Society of Asphalt Technologists (NJSAT), New Jersey, 2012, 00-1901

OSHA 30-Hour Construction Outreach Training, New Jersey, 2013

OSHA 10-Hour Construction Outreach Training, 2009

ACI Concrete Construction Special Inspector, 2014

On Call Supervision of Construction Services. *New Jersey Turnpike Authority.* Responsible for Resident Engineering and general oversight on multiple NJTA projects throughout the state. This project include HVAC upgrades to multiple NJTA properties, generator replacements at three NJTA toll facilities and installation of automated traffic

control gates at the Interchange 11 on-ramps. This project also included directional boring for fiber optic cable installation and multiple pre-warning lane control signs. Michael Baker served as a sub-constant to Churchill Engineering on this project. Responsibilities include full contract management; pre-construction meeting administration, field office setup, file system creation, bi-weekly progress meetings, daily onsite inspections, change order and payment management, and final closeout.

On-Call Mechanical Engineering Services. *New Jersey Turnpike Authority*. Responsible for Resident Engineering and general oversight of two simultaneous construction contracts T500.437 – Int. 3 & 5 Generator Replacement, and T500.438 – Int. 11 & 16e/18e Generator Replacement. Michael Baker served as a subconsultant to Gannett Fleming on this contract. Responsibilities included coordination and administration of all pre-construction meetings and bi-weekly progress meetings, utility coordination, pay estimate and change order creation, daily site inspections, and project closeout.

Residential Damage Assessments for New York City Rapid Repairs Program, Staten Island, New York. *New York City Department of Environmental Protection.* Team Leader. The NYC Rapid Repairs project consisted of doing assessments on damaged houses. The assessments were done to determine the overall damages to the house and assess the necessary repairs to allow the homeowner to move back in. Once the assessment portion was done, Michael Baker then did follow up inspections on completed work to make sure all repairs were code compliant. As part of a consultant team, Michael Baker scheduled and conducted more than 2,000 Staten Island residential home damage assessments and developed respective work orders as part of the New York City Rapid Repairs Program implemented by the New York City Mayor's Office in response to Superstorm Sandy. A special city task force consisting of New York City Department of Environmental Protection and New York City Department of Design and Construction employees was assembled to solicit and manage six construction contractors to provide free emergency repair assistance to residential property owners who were affected by the massive storm on October 29, 2012. The emergency repairs allowed New York City residents to return to and stay in their homes so that they can then complete more permanent repairs and finishes. Michael Baker's duties included coordinating, scheduling, and leading three-person teams of experienced electrical and mechanical-plumbing assessors in performing visual residential damage assessments; developing respective construction work orders with material quantity estimates for each affected home; reviewing damage assessments and work orders; monitoring the budget; developing invoices and progress reports; and coordinating with contractors.

Garden State Parkway Widening Construction Management and Inspection, Little Egg Harbor Township, New Jersey. *New Jersey Turnpike Authority*. Construction Inspector. Provided inspection for all aspects of construction including piles, embankment, drainage, and drainage swales. Michael Baker is providing resident engineering and inspection services as a member of the construction management/inspection team for a project to widen the Garden State Parkway from Interchange 48 to 63 (Mileposts 52.4 to 57.8). Michael Baker is performing general roadway and bridge construction inspection and documentation covering multiple operations including earthwork, pile driving, sheeting, stormwater basins, drainage, utility relocations, traffic control, highway lighting, slope stabilization, and landscaping construction. Michael Baker will maintain access to the Bass River State Police Barracks and minimize impacts to the New Gretna Toll Plaza.

SR 2009-01S (Hope Road Stockpile), Hope Road, Northampton County, Pennsylvania. *Pennsylvania Department of Transportation, Central Office.* TCIS-1. Responsible for quality control, quantity measurement and documentation, development of biweekly payments to contractor in CDS NeXtGen and primary owner representation during absence of PennDOT Inspector-In-Charge. Michael Baker was responsible for the construction inspection of a new $6 million maintenance facility including seven buildings, site grading, demolition, erosion and sediment pollution control, storm drain, lighting, signing, water and sanitary sewer lines, curbing, and roadway and site paving.

Michael Baker INTERNATIONAL

We Make a Difference

Joseph Cherichello, LLA, CA

Inspector (FT)

Years of Experience: 17

Degrees

M.L.A., Landscape Architecture, Rutgers University

B.S., Environmental Planning and Design, Rutgers University

Licenses/Certifications

Licensed Landscape Architect, New Jersey, 2009

ISA Certified Arborist, 2015

Certified sUAS Remote Pilot, 2018

General Qualifications

Mr. Cherichello is a New Jersey Licensed Landscape Architect, ISA Certified Arborist, and sUAS Remote Pilot. He has over 15 years of experience in the Landscape Architecture field incorporating ecological and urban forestry design principles into park and trail projects, low-impact stormwater management designs, and restoration and resiliency projects. He prepares restoration planting and grading designs and construction drawings for wetland and upland habitats, riparian buffers and stormwater facilities. He regularly performs construction oversight, stormwater inspections, and tree surveys. Most recently, Mr. Cherichello has become part of Michael Baker International's UAS Pilot Team utilizing drone technologies to collect images and videos for highly accurate and measurable mapping and modeling data for site evaluation, construction monitoring and marketing purposes.

Relevant Experience

Woodbridge Waterfront Park Restoration, Woodbridge, New Jersey. *Great Ecology, Kinder Morgan, Inc.* Senior Construction Oversight / Landscape Architect / ISA Certified Arborist. Construction oversight and inspection for a $100 million 90-acre tidal marsh and freshwater wetland ecological and habitat restoration in support of a 185-acre brownfield redevelopment project located in Woodbridge, NJ. Daily on-site collaboration with contractors regarding excavation and grading activities, plant selection and installation monitoring, public access and wildlife habitat construction, and overall design implementation. Collection and analysis of water quality and water level data for planting and water budget requirements. Responsible for the design and construction documentation for public access through upland and wetland habitats, including trail, boardwalk and overlook design development, as well as digital 3-D models and site renderings.

Stapleton Cove Wetland Restoration and Park, Staten Island, New York. *SiteWorks, LLC & New York City Economic Development Corporation*. Construction Oversight / Landscape Inspector / ISA Certified Arborist. Construction oversight and inspection for a $50 million tidal marsh restoration and public access construction project. Daily on-site inspection and oversight of landscape construction from subgrade to plant installations as well as design revisions for change orders working in concert with site contractors, engineers and the New York State Department of Environmental Conservation and the New York City Economic Development Corporation to ensure accuracy to plans and compliance with regulations. Monitored street tree installation in accordance to the NYC Parks Department's specifications.

Basin and Outfall Inventorying, Statewide, New Jersey. *New Jersey Department of Transportation (NJDOT).* Field Supervisor. Landscape Architect / Stormwater Inventory Field Crew Leader responsible for organizing, managing, and training field crews to ensure consistent and concise inventory methods and reporting. Michael Baker was selected by NJDOT Bureau of Environmental Program Resources to inventory stormwater basins and outfalls for assessment purposes. The primary goal of the project is to obtain and compile assessments to identify maintenance requirements and remedial actions to address issues including erosion and sedimentation, which may affect downstream surface water quality. Michael Baker is also responsible for compiling additional information for Region Central NJDOT Maintenance Facilities.

Determining Encroachments to City of Newark's Watershed Boundary, Morris, Passaic, and Sussex Counties, New Jersey. *City of Newark, NJ, Department of Water and Sewer Utilities*. Lead field data collection of survey monument locations of properties possibly encroaching on the City of Newark's watershed boundaries. Responsible for planning daily operations of field work including scheduling, route planning and data collection. Utilized real-time kinematic (RTK) global navigation satellite system (GNSS) receiver unit and ESRI's Collector application software to collect sub-centimeter data points for the purpose of accurately locating property monuments, and ultimately property lines. Mr. Cherichello prepared a report including maps for over sixty properties depicting collected monument locations and property lines over current aerial photography to determine the extent of encroachment of the City of Newark's watershed boundary.

OPS No. A3715 On-Call Stormwater Engineering Services – Basin Inventory, Garden State Parkway & New Jersey Turnpike. *New Jersey Turnpike Authority.* Lead field data collection of all stormwater basin locations associated with the Garden State Parkway and New Jersey Turnpike. Responsible for planning daily operations of field work including scheduling, route planning and data collection. Utilized global navigation satellite system (GNSS) receiver unit and ESRI's Collector application software to collect data points of all basin locations for the NJTA's use in preparing a maintenance schedule for their on-call stormwater engineering services.

OPS No. A3588 On-Call Engineering Services – Drainage Management Program, New Jersey Turnpike, New Jersey. *New Jersey Turnpike Authority.* Lead field data collection of all stormwater inlet locations along sections of the New Jersey Turnpike from Exit 9 to Exit 14. Responsible for planning daily operations of field work including scheduling, route planning and data collection. Utilized global navigation satellite system (GNSS) receiver unit and ESRI's Collector application software to collect data points of all inlet locations for the NJTA's use in preparing a maintenance schedule for their on-call engineering services.

New Jersey Floodplain Mapping, Mercer & Morris Counties, New Jersey. *New Jersey Department of Environmental Protection.* Lead field data collection and measurements of select stream overpasses in Morris County. Responsible for planning daily operations of field work including scheduling, route planning and data collection. Utilized real-time kinematic (RTK) global navigation satellite system (GNSS) receiver unit and ESRI's Collector application software to collect data points of bridge abutments, stream banks, road and stream centerlines, and curb locations and elevations for the NJDEP's use in updating FEMA flood maps.

Shore Road Pavement Analysis, Somers Point, New Jersey. *New Jersey Department of Transportation.* Piloted mission capturing data to inspect and analyze pavement defects, roadway slopes and cross slopes, and flooding issues. Processed data with Pix4D mapping software to digitize photos into 3D spatial models where distances, areas, and volumes were measured. Elevation profiles were extracted to calculate roadway slopes to stormwater inlets and for detailed inspection of the roadway surface failures.

Route 530 Construction Monitoring, Burlington County, New Jersey. *Burlington County, NJ.* Piloted mission capturing video and still aerial photography to document and monitor construction progress on three-mile stretch of county road. Monitoring missions are flown at intervals requested by client. Flight paths and altitudes are repeated for accurate visual analyzation and measurement of the construction progress and to determine estimated time to completion.

Raritan/Sandy Hook Bay Coastal Resilience Planning Study, Monmouth County, New Jersey. *County of Monmouth, New Jersey.* Landscape Architect. Landscape Architect responsible for developing conceptual plans for eleven sites along the Raritan and Sandy Hook Bays that were determined most at risk to beach erosion, storm surge and flooding. Each project location's elevation, proximity to the bay and local streams, current ecological services, and public input informed the resiliency methods proposed. Beach replenishment, oyster reefs and marsh restoration were common methods while other situations would require upland stormwater devices and pump stations.

Michael Baker
INTERNATIONAL

We Make a Difference

Rodney R. Louison, LEED GA

Senior Cost Estimator

General Qualifications

Mr. Louison is a senior cost estimator. He has diversified professional experience in government, corporate, industrial, institutional, medical, and military projects worldwide. Mr. Louison brings to a project an in-depth knowledge of total cost management work, including cost engineering, parametric cost modeling, activity-based cost estimating, value engineering, and life cycle cost analysis. Mr. Louison provides additional supporting services from his project portfolio in condition assessment, litigation support, "Green" building analysis, construction management, contract management, and design development support.

Relevant Experience

Engineering Services for Water and Sewer Infrastructure, Suffolk, Virginia. *City of Suffolk, Virginia.* Senior Cost Estimator. Responsible for quantity survey, cost estimates, and estimating support management for the project. Michael Baker is providing engineering services for improvements to the city's water and sewer infrastructure under an annual services contract. Michael Baker's services include research and field reconnaissance; preparation of preliminary engineering reports; feasibility studies; planning; conceptual design; development impact analyses; field surveys; geographic information system development and integration; hydraulic modeling; site plan reviews; pump station evaluations; preliminary and final design; preparation of bid documents, plans, specifications, and addenda; preparation of regulatory permit applications and approval support; easement plat preparation; bidding-phase support; and construction services.

Years of Experience: 48

Education

Coursework, Business Administration, Northern State University

Coursework, Real Estate Appraisal, Northern Virginia Community College

Licenses/Certifications

LEED Green Associate, Virginia, 2010, 10659645

Professional Affiliations

American Society of Professional Estimators (ASPE), Greater DC, 2004 - 2012, 10210

Leadership in Energy and Environmental Design (LEED), National, 2010 - Present, 10659645

Society for the Advancement of Value Engineering (SAVE), National Capital Chapter, 2006 - 2012, 200704016

Society of Cost Estimating and Analysis (SCEA), Washington Metro, 2011 - Present, EEA1316E-258B-41A6-BCAF-D69A1DC87BD9

Pedestrian Mall Streetscape and Utility Replacement, Winchester, Virginia. *City of Winchester, Virginia.* Senior Cost Estimator. Responsible for cost estimates, parametric modeling, quantity surveys, and sustainability analysis. Michael Baker provided engineering design and related professional services to renew underground public utilities and the streetscape for a pedestrian mall located within the city's historical district. The project included planning and detailed design for the replacement of underground utilities, including 1,300 linear feet of 8-inch water; 1,600 linear feet of 8-inch sanitary sewer; 2,500 linear feet of 24-inch circular and 30- by 24-inch storm sewer; and natural gas lines and electrical distribution lines. Michael Baker conducted comprehensive hydraulic modeling to determine the replacement options and determine adequate sizing of the stormwater sewer pipelines. Michael Baker then developed a detailed demolition construction sequencing plan for the entire project, since some sections of the pipelines needed to remain in operation until the new pipeline was installed. Due to the sensitive nature of the project, Michael Baker launched a full public outreach program to include regular public meetings and presentations to city officials, the public, and stakeholders to ensure responsible execution of the project.

Drainage Improvements, Virginia Beach, Virginia. *City of Virginia Beach, Virginia.* Senior Cost Estimator. Responsible for quantity survey, cost estimates, and estimating support management. Michael Baker is providing program management, engineering and support services on the multi-phase combined drainage improvements

project at The Lakes, Princess Anne Plaza, and Windsor Woods for the design of stormwater and roadway improvements necessary to alleviate widespread area flooding due to moderate rain events and during periods of significant high tides from the Lynnhaven River. The project involves program management, stormwater master planning and programming services, collection systems, stormwater management ponds, closure structures, flood walls, stormwater pumping stations, outfalls, street, road, and bridge improvements, automated systems, supervisory control data acquisition systems, and public utility adjustments and betterments. The project area is roughly bounded by I-264, Lynnhaven Parkway, Princess Anne Road, Edwin Drive, and South Independence Boulevard/Holland Road.

Route 29 Pipeline and Pump Station Engineering Services, Charlottesville, Virginia. *Rivanna Water & Sewer Authority (RWSA).* Senior Cost Estimator. Responsible for cost estimates, and quantity surveys. Michael Baker provided preliminary engineering, final design, and construction phase services for the Route 29 Pipeline and Pump Station project. Located in northeast Albemarle County, the project involved the analysis, planning, and design of new 26,000-linear-foot 20- to 24-inch finished water transmission main and pump stations to serve areas north and west of Charlottesville, Virginia. The proposed facilities improve connectivity and water transmission between systems serviced by the South Rivanna and North Rivanna water treatment plants, and provide system redundancy in these areas. Furthermore, the project allows these portions of the Urban Area Water System to supplement each other when necessary, and provides additional reliability in the Canterbury Hills and Stillhouse system, which includes the design of a 2.4 MGD water booster pump station.

Parkeside Preserve Development Water Booster Pump Station, Annapolis, Maryland. *QW Properties, LLC.* Senior Cost Estimator. Responsible for quantity survey, cost estimates, and estimating support management for the project. Michael Baker provided professional engineering and surveying services for the planning and design of the Parkeside Preserve Development Water Booster Pump Station and associated facilities. The proposed development is approximately 40 acres located on the southeast portion of the City, which is the provider of the public water service. Michael Baker completed a planning study and hydraulic modeling assessment to identify the most feasible and efficient option to provide water service to the proposed development and prepared a preliminary engineering report, including hydraulic requirements, size of pumps, fire flow availability, and the required modifications to the City's water distribution system to create a new pressure service zone for the proposed development and its surroundings.

Security Assessment and Enhancements Design, San Jose, California. *Santa Clara Valley Water District.* Senior Cost Estimator. Responsible for quantity survey and cost estimates for the project. Also managed estimating support. Michael Baker performed a security assessment of the water district's major facilities. Serving San Jose and the entire Silicon Valley, the district is one of largest water wholesalers in California. Shortly after the events of September 11, 2001, Michael Baker conducted a rapid security review of all major district facilities, including treatment plants, pumping stations, and dams. Michael Baker made recommendations for immediate short-term security improvements for the most critical facilities, provided conceptual designs for enhancements, performed an assessment of the supervisory control and data acquisition information technology system, and developed a disaster recovery plan for that system.

System Study – Municipal Domestic Water Security, Nationwide. *U.S. Department of Homeland Security.* Senior Cost Estimator. Responsible for cost estimates, quantity surveys, and managed estimating support. The Michael Baker team conducted a study of state-of-the-art water security to assist efforts to secure the nation's infrastructure and economy against terrorist attacks. The project addressed the examination of four "scenarios" as applied to post treatment distribution of water systems: the trusted insider threat, intentional contamination involving a chemical or biological agent, radiological isotope contamination, and post-event system recertification.

Michael Baker
INTERNATIONAL

We Make a Difference

Lori Wade, P.E., CPSWQ

Post Design

General Qualifications

Lori Wade is an Associate, Civil Engineer and Certified Professional in Stormwater Quality with 18 years of experience in water resources engineering including floodplain management, drainage, and stormwater management (SWM) design for local, state, and federal government projects. She has performed hydrologic and hydraulic analysis of rivers and streams for floodplain studies following regulations under the National Flood Insurance Program (NFIP) and is skilled in drainage design. She is experienced in designing both above ground and subsurface infiltration and detention basins, swales, and water quality treatment structures. Lori is responsible for the final design submission of plans, specifications and cost estimates, and is also responsible for Soil Erosion and Sediment Control and Flood Hazard Area permit applications on various projects.

Years of Experience: 18

Degrees

B.S., 2003, Civil Engineer, The Pennsylvania State University

Licenses/Certifications

Professional Engineer, New Jersey, 2011, 24GE04953400

Certified Professional in Stormwater Quality, 2014, 1001

NJDEP FHA Control Act Rules

NJDEP Stormwater Management Rules

Relevant Experience

South Street and Adams Street Drainage Improvements, Newark, New Jersey. *City of Newark, New Jersey.* Project Manager. Assumed the PM role to coordinate the drainage design for the City of Newark which included a pump station, pipe replacement and realignments, regarding etc. to alleviate a continuous flooding problem in a section of the city. Michael Baker provided a comprehensive drainage study and design for the combined sewer overflow community of Ironbound surrounding the South and Adams Street corridor. The area suffers from frequent flooding that is stifling business growth, creating toxic environments from combined sewers, and causing property and personal damage. Michael Baker studied the roadway drainage and overall drainage patterns of the network of ditches draining to Newark Bay. Following the study, alternatives were developed to separate the sewers in the most critical downstream areas and install green infrastructure to retain rainfall. Michael Baker also assisted the client with long-term prioritization for future separation of sewers. The designs were coordinated with the Ironbound Community Corporation and incorporated the Green Streets Initiative as well as the Passaic Valley Sewerage Commission.

Delancy Street Roadway Improvements, Newark, New Jersey. *City of Newark, New Jersey.* Drainage and Stormwater Engineer Preliminary Design. Responsible for laying out a proposed drainage design including new pipes, inlets, storm vaults and manholes, while evaluating and controlling flow to existing Combined Sewer Outfall Systems (CSOs) in accordance with the NJDOT design manual, and regulations and recommendations set by the City of Newark. Also responsible for storm water management design which included proposing manufactured treatment devices and a detention basin along the project to meet water quality requirements and reduce peaks to existing outfalls in accordance with the NJDEP BMP manual. Michael Baker led the EO215 environmental documentation, NJDEP Permitting, stormwater management and water quality design and utility relocation design. Michael Baker provided engineering and environmental services for comprehensive improvements to Delancy Street, a two-lane arterial roadway located in the southeastern section of the Ironbound neighborhood. Due to a lack of proper maintenance, extensive use by trucks, and apparent deficiencies and geometric constraints, Delancy Street was operating at an unacceptable level of service. Michael Baker completed plans for horizontal and vertical alignment; signage upgrades; pavement marking and striping; maintenance and protection of traffic; right-of-way; utilities; sidewalk improvements, including high visibility crosswalks to meet ADA requirements; specifications; cost estimates; construction schedule; environmental permitting; and hazardous waste management.

OPS No. A3588 On-Call Engineering Services, Statewide, New Jersey. *New Jersey Turnpike Authority.* Stormwater Drainage and Collection Systems Task Lead. The project includes developing a Work Plan to maintain a state of good repair for stormwater drainage features 5' or less in diameter including, existing data collection, field investigation, including cleaning and video inspection, post processing to define recommendations, and identifying repairs on the Turnpike and Parkway. To date several tasks have been performed, including developing an interactive asset management tool, performing as-built investigation, and developing prioritization tools. Michael Baker has promptly responded and delivered studies and design documents for 22 executed task orders with several more anticipated to be executed in 2019. Task orders on the On-Call Engineering Services agreement consisted of Guide Rail Design at Various Locations along the Garden State Parkway, Heavy Highway Equipment Evaluation, Roadside Protection and Guide Rail Opening Design for Turnpike, Pervious Pavement Drainage Improvement (Non-Vegetative) Areas, High Frequency Damage / Rollover Investigation, Turnpike 1N and 1S Service Area access improvements, Parkway Crossover Structure Repair between the Express Lanes and Local Lanes at MP 114.4 NB, and CM/CI services were performed at numerous facilities including generator replacement, HVAC upgrades, and lighting upgrades along the Turnpike and Parkway. Design and environmental permitting for pervious pavement installations are in accordance with the NJDEP BMP Manual, stormwater management/drainage design, assessment and recommendations supporting the Maintenance Department's use, distribution and replacement program for all heavy highway fleet vehicles, design of abutment protection, pavement testing, lighting warrant analyses and design of improvements, assessment and recommendations at high frequency crash locations, and landscaping design at State Police Barracks. In addition, several permit applications were prepared, such as NJDEP Freshwater Wetlands General Permits and Soil Erosion and Sediment Control (SESC) Certification.

Facilities Improvement Program Final Design Services, Turnpike North. *New Jersey Turnpike Authority.* Drainage and SWM Task Lead. Responsible for designing conveyance and basin systems associated with the proposed site improvements. The $90 million project involves upgrading five Maintenance Districts into a state of good repair that will continue to support safe and efficient roadway operations. Lori is responsible for designing a drainage and stormwater management systems to meet pipe capacity and Hydraulic Grade Line (HGL) requirements. Four detention basins preceded by water quality treatment devices are proposed in total at two of the sites to meet stormwater requirements in accordance with the NJDEP and the Delaware & Raritan Canal Commission. Design Challenges include relatively flat terrain, high groundwater tables and the potential for high pollutant loading.

Route 280/21 Interchange Improvements, Newark, New Jersey. *New Jersey Department of Transportation.* Task Manager. Responsible for designing a drainage system, including special inlets to combined sewer systems, scuppers, manholes and tide control check valves to accommodate the new bridges, ramps and roadway realignment, while avoiding conflicts with utilities, guiderail and other roadway structures and meeting inlet/scupper spread and efficiency and pipe capacity requirements. Work included evaluation of existing downspouts and tie in points which convey flow from the scuppers to existing subsurface drainage systems. Temporary drainage was a critical design element. Challenges included piping the flow from the proposed scuppers through the proposed deck while avoiding girders and historic murals where possible, to connect to the existing and proposed downspouts. Challenges also included maintaining positive drainage through four major construction stages over a 3 year period and accommodating significant grading changes while tying into existing outfalls to the Passaic River. Michael Baker provided final design services for a complex urban interchange reconstruction. The project includes intricate ramp design and flyovers in a confined urban area; five new bridges, including one curved girder structure; and 10 soldier pile retaining walls in an area that is currently experiencing settlement issues. Design included managing the geotechnical exploration program in conjunction with hazardous material sampling; extensive utility relocations; pavement design; design exceptions; right-of-way; lighting; intelligent transportation system; four traffic signals; and environmental permitting.

Michael Baker
INTERNATIONAL

We Make a Difference

Eric Martinelli, P.E.

Post Design

Years of Experience: 8

Degrees

B.S., 2013, Civil Engineering, Stevens Institute of Technology

Licenses/Certifications

Professional Engineer, New Jersey, 2019, 24GE05574500

General Qualifications

Eric Martinelli is a Civil Associate with experience in water resources engineering. He has participated in numerous design projects including residential subdivisions, drainage improvements for highway reconstruction and road widening, commercial land development, and project site coastal resiliency. He is skilled in the design of stormwater management Best Management Practices, watershed delineation, hydraulic modeling, drainage design, and soil erosion & sediment control compliance. He is responsible for designing in accordance with the NJ and NY BMP Manuals, NJDOT and NYSDOT regulations, as well as the Standards for Soil Erosion and Sediment Control.

Relevant Experience

South Street and Adams Street Drainage Improvements. *City of Newark.* Drainage Engineer. Eric conducted hydrologic modeling of the Ironbound District in Newark, NJ to determine drainage deficiencies and provided solutions to enhance the operations and maintenance of the current drainage infrastructure. Solutions included a new pump station, pipes, inlets, and manholes to alleviate flooding and increase resiliency. Green infrastructure and streetscaping elements were also incorporated as part of the design to enhance the redeveloping South Street corridor neighborhood. Project complexities include flat terrain, drainage/utility crossings, and existing combined sewer overflow systems. Michael Baker provided a comprehensive drainage study and design for the combined sewer overflow community of Ironbound surrounding the South and Adams Street corridor. The area suffers from frequent flooding that is stifling business growth, creating toxic environments from combined sewers, and causing property and personal damage. Michael Baker studied the roadway drainage and overall drainage patterns of the network of ditches draining to Newark Bay. Following the study, alternatives were developed to separate the sewers in the most critical downstream areas and install green infrastructure to retain rainfall. Michael Baker also assisted the client with long-term prioritization for future separation of sewers. The designs were coordinated with the Ironbound Community Corporation and incorporated the Green Streets Initiative as well as the Passaic Valley Sewerage Commission.

Delancy Street Roadway Improvements, Newark, New Jersey. *City of Newark, New Jersey.* Drainage Engineer. Eric was involved in drainage/inlet spread calculations and laying out a proposed drainage design including new pipes, inlets, and manholes, while evaluating where existing drainage could be maintained in accordance with the NJDOT design manual, and recommendations set by the City of Newark. He assisted in SWM design including water quality treatment devices and a detention basin to meet water quality requirements and peak discharge in accordance with the NJDEP BMP manual. Michael Baker provided engineering and environmental services for comprehensive improvements to Delancy Street, a two-lane arterial roadway located in the southeastern section of the Ironbound neighborhood. Due to a lack of proper maintenance, extensive use by trucks, and apparent deficiencies and geometric constraints, Delancy Street was operating at an unacceptable level of service. Michael Baker completed plans for horizontal and vertical alignment; signage upgrades; pavement marking and striping; maintenance and protection of traffic; right-of-way; utilities; sidewalk improvements, including high visibility crosswalks to meet Americans with Disabilities Act (ADA) requirements; specifications; cost estimates; construction schedule; environmental permitting; and hazardous waste management.

New Jersey Turnpike Authority On-Call Engineering Services, Statewide, New Jersey. *New Jersey Turnpike Authority.* Civil Engineer. Responsible for multiple on-call task order assignments. The project includes developing a work plan to maintain a state of good repair for stormwater drainage features 5' or less in diameter including, existing data collection, field investigation, including cleaning and video inspection, post processing to define

recommendations, and identifying repairs on the Turnpike and Parkway. To date several tasks have been performed, including developing an interactive asset management tool, performing as-built investigation, and developing prioritization tools.

Drainage Pipe Inspection and Evaluation, Betsy Ross Bridge, New Jersey Approach. *Delaware River Port Authority.* Civil Associate. Performed video inspection and developed drainage repair recommendations for the stormwater drainage system on the NJ approach roadways of the Betsy Ross Bridge. As part of the preliminary investigation a sample of pipes, approximately 7,000 SF, primarily CMP was videoed. It is anticipated that the repair recommendations will be developed into contract documents, including plans, specifications, schedule, and engineer's estimate.

Roadway Engineering Services for Roadway Maintenance & Operations 2014MES965B & 2016MES094B, Statewide, New Jersey. *New Jersey Department of Transportation.* Civil Associate for multiple on-call task order assignments. The on-call project types include drainage improvement for failed inlets, slope erosion, and localized ponding issues, roadside safety design, curb ramps, MPT, and traffic signage and striping plans. The agreements include more than 50 on-call projects to be completed within a short duration throughout New Jersey. Recent design solutions include culvert replacements/repairs, culvert and pipe cleaning, headwall replacement, incorporation of Best Management Practices (BMPs) such as small basins and swales, outfall replacements, riprap aprons and embankments, detention and infiltration basin clearing/regrading and outlet repair and adding drainage structures/roadway underdrain throughout a corridor to collect and convey water downstream. Constructability, ROW, apparent utilities, and availability of proposed drainage structures and materials are considered in the proposed drainage design. Deliverables include proposed design plans, details, hydrologic and hydraulic report backup, specifications, quantities and estimates for the project.

26th – 34th Street Flood Reduction Improvement Project, Ocean City, New Jersey. *City of Ocean City.* Civil Associate. Michael Baker provided modeling and design services for drainage improvements for a 280-acre section of the City between the Bay and West Avenues and 26th – 34th street that has suffered from regular tidal and nuisance flooding. Michael Baker modeled the one-, two-, five-, and 10-year storm events. Outflow curves were paired with pump stations to achieve efficient sizing of a new system with offline pump capacity. Michael Baker then developed final design plans, including typical sections; construction, drainage, and utility plans; profiles; pump station design; electrical design; construction details; and outfall cross sections.

North End Pump Station and Flood Reduction Project, Ocean City, New Jersey. *City of Ocean City.* Civil Associate. Michael Baker provided assistance to redesign another consultant's work and "right-size" a project to reduce flooding in a 300-acre section of the City's North End neighborhood, which has suffered from regular tidal and nuisance flooding. Michael Baker was tasked to update and improve the design and prepare construction documents and to bring it into compliance with Federal Emergency Management Agency (FEMA) funding requirements to secure the City's $5.5 million grant award. The multiphase project includes analysis of the existing North End stormwater management system, identification of drainage issues, and design of proposed improvements. The project includes development of a DHI MIKE FLOOD urban stormwater collection network model coupled with a 2-dimensional flexible mesh solver that accounts for surcharges and bypass flows.

World Trade Center Flood Resilience Bollard Protection System, New York City. *Port Authority of New York & New Jersey.* H&H Task Lead. The PANYNJ sough to evaluate the post Hurricane Sandy flood resiliency of their facilities and implement improvements to safeguard them. Eric oversaw the hydrologic modeling of the World Trade Center complex to determine impacts to the site drainage systems during extreme coastal storm events. Improvement measures include mobile pump stations and backflow preventers. Michael Baker provided engineering services for the development of a site-wide bollard protection system; part of the WTC Flood Resilience Program. Michael Baker's services included hydraulic analysis and modeling; structural analysis; development of design criteria, prototype system design; preparation of preliminary plans, specifications, and cost estimates; development of a work plan for a demonstration test; and preparation of a training outline, and operations & maintenance manual.

Michael Baker
INTERNATIONAL

We Make a Difference

Elizabeth Calt

Post Design

General Qualifications

Elizabeth Calt is a Civil Associate with five years of experience in drainage design, stormwater modeling, and developing environmental Freshwater Wetlands (FWW) and Flood Hazard Area (FHA) plans and permits.

Years of Experience: 5

Degrees

M.S., 2018, Civil Engineering, Water Resources, Villanova University

B.S., 2016, Civil Engineering, Water Resources, The College of New Jersey

Relevant Experience

South Street and Adams Street Drainage Improvements, Newark, New Jersey. *City of Newark, New Jersey.* Engineering Technician. Prepared drainage maps. Michael Baker provided a comprehensive drainage study and design for the combined sewer overflow community of Ironbound surrounding the South and Adams Street corridor. The area suffers from frequent flooding that is stifling business growth, creating toxic environments from combined sewers, and causing property and personal damage. Michael Baker studied the roadway drainage and overall drainage patterns of the network of ditches draining to Newark Bay. Following the study, alternatives were developed to separate the sewers in the most critical downstream areas and install green infrastructure to retain rainfall. Michael Baker also assisted the client with long-term prioritization for future separation of sewers. The designs were coordinated with the Ironbound Community Corporation and incorporated the Green Streets Initiative as well as the Passaic Valley Sewerage Commission.

Resilient NJ Program Management and Oversight, Statewide, New Jersey. *New Jersey Department of Environmental Protection.* Engineering Technician. Continuation of HEC-RAS modeling for Long Beach Island resiliency. Michael Baker is providing program management, monitoring, and oversight for the Regional Resilience Planning Grants Program, known as Resilient NJ, throughout the project's five-year lifecycle. New Jersey received $10 million in National Disaster Resilience competition funding to support the creation of Resilient NJ to help regions and communities that experience significant flooding to undergo a comprehensive planning process to identify vulnerabilities due to increased flooding risk.

New Jersey Turnpike Authority On-Call Engineering Services, Statewide, New Jersey. *New Jersey Turnpike Authority.* Engineering Technician. Prepared plans, quantities, field visits, and alt. analysis for various on-call stormwater projects. Michael Baker is performing multiple on-call engineering services for the New Jersey Turnpike Authority. To date, it has completed tasks that entail guard rail design, heavy highway equipment inspection, pavement drainage improvements, crash-frequency investigations, crossover structural repairs, pavement testing, service-area access repairs, and landscape design. Michael Baker has also coordinated with the New Jersey Department of Environmental Protection (NJDEP) to ensure compliance with NJDEP's best management practices.

Betsy Ross Bridge New Jersey Approach Stormwater Pipe Inspection, Pennsauken Township, New Jersey. *Delaware River Port Authority.* Engineering Technician. Created plans and quantities for stormwater cleaning/ pipe repair. Michael Baker coordinated and prepared a summary report of the Betsy Ross Bridge (New Jersey approach) stormwater pipe inspection. A past pipe failure of an isolated area of the Route 90 stormwater system resulted in the settlement of the embankment. The pipe was repaired, but the client requested Michael Baker, through a transportation and transit on-call GEC contract, to perform a broader inspection of the stormwater pipe system along the New Jersey approach to the Betsy Ross Bridge within the right-of-way.

Basin and Outfall Inventorying, Statewide, New Jersey. *New Jersey Department of Transportation.* Engineering Technician. Responsible for assisting with report for DRCC and drainage analysis for infiltration basin within Cranbury Brook Watershed. Resized basin to adequately meet the 100 year storm event requirements for the NJDOT. Michael Baker was selected by NJDOT Bureau of Environmental Program Resources to inventory stormwater basins and outfalls for assessment purposes. The primary goal of the project is to obtain and compile assessments to identify maintenance requirements and remedial actions to address issues including erosion and sedimentation, which may

affect downstream surface water quality. Michael Baker is also responsible for compiling additional information for Region Central NJDOT Maintenance Facilities.

FY2018 Morris and Bergen Counties Local Concept Development Studies. *North Jersey Transportation Planning Authority.* Engineering Technician. Performed stormwater modeling. Local Concept Development Study of Martin Luther King Avenue Bridge over the Whippany River in in the Town of Morristown, Morris County. Current bridge inspection report classified the 117 years old stone arch bridge as structurally deficient and functionally obsolete. The goal of this study was to develop reasonable alternatives that address the study's purpose and need, and select a Preliminary Preferred Alternative (PPA) for advancement to Preliminary Engineering (PE). Local Concept Development Study of East Anderson Street Bridge over the Hackensack River in in the City of Hackensack and Township of Teaneck, Bergen County. Although built in 1971, the current bridge is structurally deficient and functionally obsolete. This study involved coordination with both municipalities while developing an alternative that satisfied all users of the facility while limiting impacts during construction. The goal of this study was to develop reasonable alternatives that address the study's purpose and need, and select a PPA for advancement to PE. Tasks include project & risk management, public outreach, data collection & data analysis, alternatives analysis, construction cost development, and preparation of the concept development report.

Garden State Parkway Guide Rail Design, Statewide, New Jersey. *New Jersey Turnpike Authority.* Engineering Technician. Assisted in the development of a digitized stormwater map for the Turnpike and Parkway. Michael Baker provided engineering services for guide rail installation at seven critical locations along the Garden State Parkway. Michael Baker's services included field assessment, warrant analysis, recommendation development, and final design.

Scudder Falls Bridge Replacement, Final Design Services, Bucks County, Pennsylvania. *Delaware River Joint Toll Bridge Commission.* Engineering Technician. Responsible for assisting with COP 22 and 23. Michael Baker is providing final design and post-design services for the Scudder Falls Bridge Replacement project. The existing four-lane bridge over the Delaware River is functionally obsolete and needs to be replaced to alleviate recurring current peak-period and emergency-incident traffic congestion and projected future traffic. Michael Baker is designing replacement of the existing bridge with a twin-span structure carrying six lanes of through traffic (three in each direction), two auxiliary northbound lanes for entry/exit travel, and one auxiliary southbound lane for entry/exit travel. The scope of work also includes drainage upgrades, approach widening, a bicycle/pedestrian walkway, new bridge inside shoulders, a new all-electronic toll (AET) collection system, an intelligent transportation system (ITS) equipment building, and noise-abatement walls.

New Jersey Turnpike and Garden State Parkway Lighting Design, Newark, New Jersey. *New Jersey Turnpike Authority.* Engineering Technician. Prepared environmental FWW and FHA plans. Michael Baker is performing electrical engineering and design services for interchange lighting upgrades to facilities along the entire New Jersey Turnpike and Garden State Parkway. The design contract involves the preparation of two contract bid sets. The first involves luminaire, conduit, wiring, and electrical equipment upgrades at Interchange 14 and along the eight-mile Newark Bay Hudson County Extension. The second entails full lighting system replacement, including light poles and foundations, at Interchanges 2, 3, 4, and 5. Each contract follows separate design and construction schedules. Michael Baker will perform horizontal illuminance calculations, electrical engineering and power distribution design, conduit layout design, environmental permitting, soil erosion and sediment control services, utility engineering, and maintenance and protection of traffic (MPT) elements. Several Freshwater Wetland, Waterfront Development, and Flood Hazard Area permits were developed. In total, Michael Baker will implement approximately 300 new light poles, 800 luminaires, 15 miles of conduit, and 80 miles of lighting cables.

Route 34 Concept Development Study, Monmouth and Middlesex County, New Jersey. *New Jersey Department of Transportation.* Engineering Technician. Responsible for developing necessary CADD and GIS maps. Created CD report and performed an existing conditions site evaluation. Michael Baker performed a full scope concept development (CD) study on New Jersey State Route 34 in Colts Neck Township, Holmdel Township, Township of Marlboro, Township of Aberdeen, and Borough of Matawan in Monmouth County and Old Bridge Township in Middlesex County. This CD study reviewed and assessed existing roadway conditions within the project limits.

Relevant Experience

Relevant Experience

Northwest Resiliency Park

City of Hoboken, NJ | 2023

Hoboken, New Jersey

Contact: Kimberli Craft, P.E., City Engineer, 201-420-2000 x1105

Michael Baker is providing full-time construction management for the construction of a 5.4-acre interactive urban park in the city of Hoboken, which incorporates sustainable design and extensive stormwater management features, including collection and storage of all storm runoff into an underground, one-million-gallon stormwater storage tank.

As part of the project, Michael Baker will oversee extensive soil sampling and testing of the former industrial site, coordinate with local sewer authority for pump station construction, and manage construction of numerous park features, including play equipment, building structures, athletic facilities, and other interactive features. Michael Baker will perform utility coordination, supervise the construction of a stormwater sewer system, and manage the construction of a park building and community room. Additionally, it will oversee the attainment of SITES v2 sustainability certification, conduct public engagement, update the project website, and complete and submit all close-out documents.

Relevance to NHSA:

- Field investigations
- Surveys
- Feasibility studies
- Conceptual, preliminary, and final design
- Impact analyses
- Hydraulic modeling
- Permitting
- Bidding-phase support
- Construction services

The Northwest Resiliency Park sits on 5.4 acres of land that was previously used by the Henkel Chemical plant, which closed in 2001. Before that, it was a marshland that had been filled in during the late 19th and early 20th centuries and was subject to frequent flooding. Following Superstorm Sandy in 2012 the U.S. Department of Housing and Urban Development and the City's 2014 Green Infrastructure Strategic Plan identified the area as a potential flood management park. The site was remediated to EPA standards, capped in 2016, and used as a temporary pop-up park starting in 2017.

The project calls for the implementation of several landscaped basins around the perimeter of the park, as well as stormwater basins under the basketball court and athletic field. The most significant component, located 25 feet underground, is a precast, one-million-gallon stormwater storage tank and retention system that combats flooding by storing and filtering rainwater. Michael Baker will supervise the installation of the tank and the supporting excavation system, which is comprised of fully braced, 80-foot sheet piles and a perimeter of 700 linear feet. Approximately 30,000 cubic yards of excavation to subgrade will occur next, followed by the installation of 98 H-piles, dense-graded aggregate, a mud slab, and the tank. Throughout construction, substantial dewatering of groundwater will occur. Following construction of the tank, the site will be turned over to the local sewer authority, which will construct a pump station that will control the release of stored stormwater into the local stormwater network.

Since the area is a former industrial site that was remediated and capped earlier this decade, Michael Baker will also oversee the removal of the current asphalt cap, monitor subsequent soil sampling by the contractor and the city's licensed site remediation professional, and supervise the installation of a new cap which will make up the finished park surface and include paved walkways, landscaped areas, athletics fields, and buildings. Michael Baker will coordinate with major utilities for the relocation or removal of services, manage the construction of an extensive stormwater sewer system, and perform checks for proper grading, slopes, and adherence to construction details. Additionally, it will manage the construction of a canopy area with two buildings that will form the gathering place for social activities and community events: a park building with a café and seating area and a community room. The park will also feature an interactive play fountain that will convert to an ice rink in the winter.

Following the project, Michael Baker will prepare close-out documents that include as-built drawings and inspection reports.

Construction Management Services for Upgrade of Newtown Creek Water Pollution Control Plant

New York City, New York

NYC Dept. of Environmental Protection | 2019

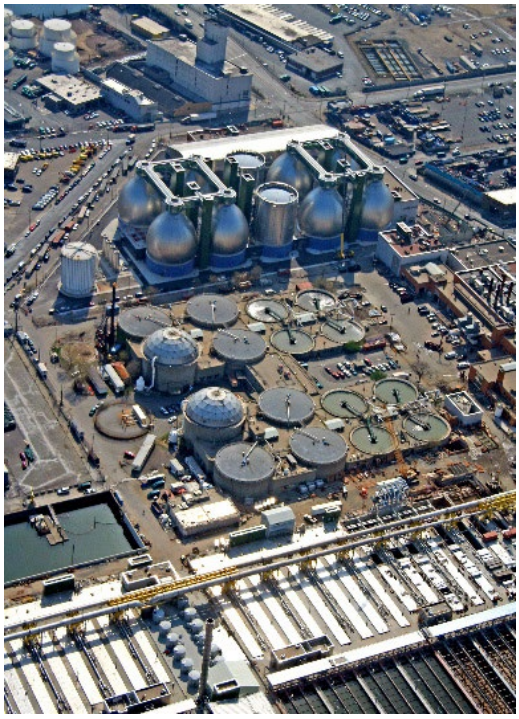
Contact: Ken Moriarty, Acting Assistant Commissioner, 718-595-6238

Michael Baker is providing construction management services as part of a tri-venture team for the $1.5 billion, 10-year upgrade of the Newtown Creek Water Pollution Control Plant in New York City.

The upgrade is part of a multiyear, multi-million-dollar capital improvement program for the wastewater treatment plant that is intended to increase the plant's current operating capacity by 50 percent and ensure that the facility complies with Clean Water Act treatment standards.

Relevance to NHSA:

- Construction management
- Construction inspection
- Project management
- Constructibility review



The plant is located on a 53-acre site and is the largest of the 14 wastewater treatment facilities within New York City. It processes approximately 310 million gallons of wastewater per day from the boroughs of Manhattan and Brooklyn. Construction includes the erection of eight 3-million-gallon carbon steel egg-shaped digesters and two 2.4-million-gallon steel sludge storage tanks. The three-phase upgrade encompasses a total of 15 construction contracts, many of which are being performed concurrently.

Construction management services to be furnished by the team include providing project management; performing resident engineering inspection; processing contractor payments; monitoring project operations and subcontracted expert services; preparing and reviewing the master Critical Path Method schedule, shop and working drawings, and as-built contract drawings; preparing change orders and contract modifications, an occupancy schedule, and delay analysis and claims reports; maintaining records; conducting a project constructibility review; and providing select supplemental services, as required.

Coordinating the services of multiple contractors is challenging and requires in-depth management expertise. The task is even more difficult when many contracts must be performed simultaneously. The team will leverage its knowledge and experience in managing multiphase projects to ensure that there are no interruptions to plant operations during building construction and system startup.

Because of the size and complexity of the Newtown Creek plant upgrade, scheduling is critically important. In addition, consent decree schedule compliance is essential to ensure that the plant meets secondary wastewater treatment standards.

Community outreach is integral to the successful execution of the project. The team is developing and will implement a communications plan that addresses potential construction-related issues, such as air pollution, odor control, noise, and truck traffic volume.

Design, Resident Engineering, and Construction Management Services for the Coney Island Water Pollution Control Plant Upgrade

Brooklyn, New York

NYC Dept. of Environmental Protection | 2016

Contact: Reza Marandi, P.E., Project Manager, 718-595-5932

Michael Baker, in a joint venture team, has been providing design, resident engineering, and construction management services on a continuous basis since 1979 for the upgrade of the 100-million-gallon-per-day Coney Island Water Pollution Control Plant.

Relevance to NHSA:

- Mechanical, electrical, structural and architecture
- Construction management and resident engineering
- Project sequencing
- City code compliance
- Odor control

The plant serves an area of more than 22 square miles with a population of 690,500, and treats domestic wastewater primarily, and some industrial and commercial wastes. The plant used a modified aeration process capable of only 50 to 60 percent removal of pollutants and could not meet federal and state standards. In addition, most of the plant's facilities were 20 to 40 years old and were deteriorating rapidly. The plant is being upgraded to a full secondary treatment plant, with 85 percent pollutant removal. Michael Baker's services include Section 201 facility planning; design; design services during construction; construction management, including resident engineering; and operations services, including startup assistance, operator training, and first-year operations assistance. The upgraded plant provides treatment for 100 million gallons per day of wastewater at average conditions, and maximum capacity was increased from 140 to 200 million gallons per day. All flows receive primary treatment, and full secondary treatment are provided for all flows up to 150 million gallons per day.

Upgrade Elements

The upgrade included the construction of new facilities, reconstruction of existing facilities, and demolition of other facilities, all of which had to be accomplished while maintaining the plant in continuous operation and meeting treatment goals. Elements of the upgrade included reconstruction of the main sewage pump station with new pumps that discharge into a new conduit so that wastewater flows by gravity through the remainder of the plant; renovation of the grit tanks with the addition of aeration and odor control systems; and new primary settling tanks and sludge degritting facilities. The aeration tanks operated in a step-aeration mode. The aeration tanks were covered with flat aluminum panels, and the air from these tanks were treated to remove odors. Fine bubble domes or dic-type diffuses will be employed.

Other upgrades include new final settling tanks to supplement the reconstructed settling tanks and new sodium hypochlorite disinfection facilities and modifications to outfall structures. Upgrade of the sludge-handling facilities included reconstruction of two gravity thickeners and installation of and six new gravity thickeners, all housed in a new building, and reconstruction of six, high-rate, 90-foot diameter anaerobic digesters. A digester gas recovery system. including holding tanks, provides fuel to generate 35 percent of the plant's power needs. Five 30-foot-diameter storage tanks were reconstructed to hold the digested sludge, which is conveyed by a new seven-mile force main to the 26th Ward Water Pollution Control Plant for ultimate disposal.

Odor Control Measures

To solve a critical odor problem, the joint venture conducted odor surveys and recommended interim measures to reduce odors until long-term solutions could be implemented. Odor complaints have decreased significantly since the interim measures were implemented. The new odor-control process, separation, was selected to minimize odors. The grit tanks, primary settling tanks influent channel, and mixed-liquor channel were aerated to keep the sewage moving and prevent septic conditions. When the upgrades are completed, sludge will be rapidly removed, treated, and conveyed to the 26th Ward Water Pollution Control Plant. Chemical addition is provided to oxidize odor-causing compounds in the liquid phase before odors are emitted into the atmosphere. Chemical addition systems include hypochlorite addition to plant influent, primary tank influent, gravity thickener overflow, ferric chloride to gravity thickener influent, and potassium permanganate to primary sludge. In areas where odors could not be prevented, odor contact systems to treat exhaust air were installed.

Total Energy System

The project includes a "total system" energy design. Nearly 67 percent of the plant's electrical energy needs is purchased from a utility company and 33 percent is generated on-site. The system was designed to take advantage of special electrical utility rates and energy-efficient motors and lighting, and to use as little natural gas and fuel oil as possible. The four new 1,600-kilowatt engine generators use digester gas produced by the plant to generate electricity. Electricity from the engine generators will be used to run the main sewage pumps, which are the plant's largest energy user, and other dedicated motors. Heat recovered from the engine generators' jacket water cooling system will be used to make sludge digesters. A new substation supplies electricity for the remaining plant equipment and serves as a backup for the new engine-generator system. A new substation with four feeders and power distribution system was provided. The new plant power system, including the new generator, were constructed in stages to continuous operation during construction. The boilers were replaced with two 600-pH, state-of-the-art boilers in a phased installation. New heating, ventilation, and air conditioning systems have been installed in each facility.

Architecture

The plant facilities are being transformed from a group of unmonitored, isolated buildings to an integrated, centrally controlled plant, in which all entrances and exits can be monitored for efficiency and security. A street was closed to create a central vehicle court, accessible only from one entrance, isolating any noise and visual disturbance associated with truck activity within the vehicle court. A new plant maintenance and support facility provides maintenance shops for the city's other water pollution control plants along the south shore of Brooklyn and Queens. The new facilities were designed to blend well with the surrounding community. The resulting low-profile and architectural treatment of brickwork, plantings, and appropriate lighting will improve aesthetics. A Percent for Art project provides a plant boundary treatment that combines aesthetics with security, and graffiti protection.

Construction Management and Resident Engineering

Construction sequencing has been a critical aspect of the upgrade, as plant operations have had to continue without interruption during construction. The first phase included the construction of the new primary settling tanks and the northern half of the sludge degritter building. The next phase included the construction of a new plant maintenance building, mixed-liquor channel and service tunnel, southern half of the sludge degritter building, and the western half of return-slope pumping station. The reconstruction of the pump and power house followed. The next phase included the construction of new final settling tanks and rehabilitation of main sewage and return sludge pumping facilities, followed by construction of a new administration building, hypochlorite storage building, chlorine contact tanks, and other facilities. The following phases included construction of new aeration tanks, construction of a new thickener building and return sludge pumping station, reconstruction of the C-final settling tanks, rehabilitation of the sludge storage tanks, construction of a new odor control building, and partial reconstruction of the primary settling tanks.

Michael Baker provided resident engineering construction management services in all engineering disciplines, including construction sequencing, scheduling, contract administration, cost estimating and cost control, claims review and resolution, contractor pay application review, shop drawing review, design updates during construction, and change-order review. Michael Baker also provided quality assurance and quality control for the concrete work. Michael Baker's responsibilities included the monitoring of concrete placement; on-site concrete testing, including sump, air, and temperature tests; and the formation and curing of concrete test cylinders. Additionally, Michael Baker provided recommendations for concrete design mix approvals and helped generate concrete statistical analysis tables.

Value-Added

The plant's "total system" energy design facilitates the use of digester gas produced in the waste treatment process to generate electricity for the plant, minimizing the amount of energy that needs to be purchased from utility companies.

South Street and Adams Street Drainage Improvements

City of Newark | 2018 (PE/PD)

Newark, New Jersey

Contact: Kareem Adeem, Acting Director, 973-733-5361

Michael Baker provided a comprehensive drainage study and design for the combined sewer overflow community of Ironbound surrounding the South and Adams Street corridor.

Relevance to NHSA:
- Separation of Storm and Sanitary Sewer Systems
- Green Infrastructure coordination
- Successful Community Engagement
- Effective combination of fieldwork and modeling approach

The area suffers from frequent flooding that is stifling business growth, creating toxic environments from combined sewers, and causing property and personal damage. Michael Baker studied the roadway drainage and overall drainage patterns of the network of ditches draining to Newark Bay. Following the study, alternatives were developed to separate the sewers in the most critical downstream areas and install green infrastructure to retain rainfall. These include pump stations, new conveyance systems, larger pipes for storage, inlets manholes and appurtenances. The project alternatives will also include separating storm and sewer lines as part of CSO improvements.

Michael Baker also assisted the client with long-term prioritization for future separation of sewers. The designs were coordinated with the Ironbound Community Corporation and incorporated the Green Streets Initiative as well as the Passaic Valley Sewerage Commission.

For this analysis, Michael Baker utilized a two-dimensional modeling approach to model different hydrographs throughout the 500 acres of Newark. With the analysis, Michael Baker modeled over 20 miles of combined sewers. Additionally, Michael Baker conducted a number of field investigations examining the current condition of the ditches draining the area.

Delancy Street Comprehensive Improvements

City of Newark | 2020 (PE/PD)

Newark, New Jersey

Contact: Kim Singleton, Principal Engineer, 973-733-6452

The City of Newark, in conjunction with the NJTPA and the NJDOT Local Aid Office, proposed comprehensive improvements to Delancy Street, a two-lane arterial roadway located in the southeastern section of the Ironbound. The City of Newark selected Michael Baker to complete final design for these improvements as the Delancy Street Roadway Improvements project.

Relevance to NHSA:
- Extensive Permitting
- Water Quality Treatment
- Roadway Flooding Improvements

The project proposes to improve 1.1 miles on Avenue I, Delancy Street, and Rutherford Street. The project limits are between Avenue I and Backus Street to the west, to the Rutherford Street intersection with Avenue P at the eastern terminus. Michael Baker prepared roadway improvement final design documents in accordance with the City of Newark's and NJDOT's standards and specifications. The improvements consist of eliminating existing substandard design elements, widening the roadway and placement of pavement marking to provide through and left turn lanes for heavy truck traffic, improvements to existing drainage to address roadway flooding and to meet stormwater management requirements and reconstruction of the pavement to minimize future maintenance caused by heavy truck traffic. As part of the project, Michael Baker completed horizontal and vertical alignment design, signage, intersection modifications, pavement marking and striping plans, maintenance and protection of traffic plans, drainage and stormwater management plans, right of way plans, utilities plans, sidewalk improvements including high visibility crosswalks to meet ADA requirements, specifications, cost estimate, construction schedule, and environmental permitting and hazardous waste material management.

Pequannock Watershed Dams/Reservoir Security Improvements

City of Newark | 2020 (est.)

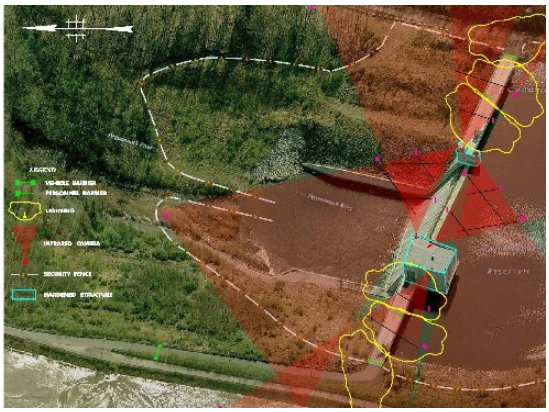
Newark, New Jersey

Contact: Kareem Adeem, Acting Director, 973-733-5361

The Pequannock Watershed Dams/Reservoir Security Improvements project is upgrading security at various reservoirs and dams to meet the latest New Jersey Safe Dam Act, the National Dam Safety Program Act, and the Department of Homeland Security requirements. Michael Baker is performing an identification of site-related vulnerabilities, and emergency response and prevention. The dams are complex facilities that include water impoundment or control structures, reservoirs, spillways, outlet works, powerhouses, and canals or aqueducts.

Relevance to NHSA:
- GIS Services
- Data Collection and Review
- Permitting

Dams are considered among the Nation's critical infrastructure and key resources. Such critical infrastructure facilities are so vital that their incapacity or destruction would have a debilitating impact on security, national economic security, or public health or safety. Michael Baker is providing conceptual, preliminary design, and final design services for the complete security system for 13 dams and reservoirs facilities. Improvements include day/night HD video surveillance system, high efficiency LED dam and building security lighting, access control and alarm monitoring, building hardening and security doors and locks, high security fencing, crash resistant vehicular access gates and bollards, electrical and communications systems, and roadway improvements. Security alarm and video systems are to be integrated in Genetec IP Security Center. Camera surveillance systems include all associated network servers and software. Project includes a Security Policies and Procedure Manual in accordance with latest Homeland Security guidance and all associated permitting. The Final Design plan package includes project specifications and construction cost estimates.



Design of Green Infrastructure

New York City Department of Design and Construction | 2019

Boroughs of Queens and Brooklyn, New York

Contact: Sofía Zuberbühler-Yafar, Project Executive - Green Infrastructure, 718-391-2525

Michael Baker is providing preliminary and final design services for part of an 1,100-acre green infrastructure in the boroughs of Queens and Brooklyn. Its responsibilities include performing analyses of tributary drainage areas, selecting suitable sites, and designing right-of-way bioswales (ROWB).

Relevance to NHSA:
- Site selection
- Analysis of tributary drainage areas
- Geotechnical investigations
- Topographic survey
- Soil testing
- Right-of-way bioswale design
- Feasibility review

During the preliminary design phase, Michael Baker identifies potential sites for constructing bioswales within the New York City street rights-of-way by conducting topographic surveys, geotechnical investigations, and reviews of records for sewer and water utilities provided by the Department of Environmental Protection. Additionally, Michael Baker screens for environmental hazards and coordinate with New York City Transit to identify possible conflicts with subsurface structures. In the final design phase, it prepares contract plans, specifications, and estimates for constructing approximately 400 bioswales.

New York City experiences substantial surface runoff during heavy rainstorms, which inundate its sewer networks and often cause combined sewer overflows. To reduce the frequency and magnitude of these overflows and improve water quality, the city has embarked on a 20-year program to construct green infrastructure, which captures rainwater and allows it to infiltrate the soil to be absorbed by vegetation. Michael Baker is providing design services for a portion of this infrastructure.

During the preliminary design phase, Michael Baker employs a methodical process to identify potential sites for the construction of bioswales within the city street rights-of-way. As part of these services, it analyzes tributary drainage areas, conducts site walkthroughs, and oversees geotechnical drilling and soil testing. To select sites, it performs a desktop analysis of possible utility conflicts based on records of water and sewer utilities. It also implements ground-penetrating radar surveys to identify other potential subsurface conflicts that are not found by the desktop analysis. Michael Baker also screens for environmental hazards in or near the project area by reviewing environmental databases and coordinates with New York City transit agencies to locate possible conflicts with subsurface structures.

Additionally, during the final design phase, Michael Baker prepares design plans, specifications, and construction costs for approximately 400 ROWBs. These documents verify the proper ROWB type and size, taking into consideration all constraints, including property boundaries, surface constraints like signs, hydrants, and lighting, and subsurface utility interferences. Bioswale design also includes the selection of proper plant palette, tree type, and tree guards.

Resilient NJ, Regional Planning for a Stronger New Jersey

Statewide, New Jersey

New Jersey Department of Environmental Protection, Office of Coastal and Land Use Planning | 2019

Contact: Nicholas Angarone, P.P., AICP Manager, New Jersey Coastal Management Program, 609-984-0058

Michael Baker is assisting the New Jersey Department of Environmental Protection with program management, monitoring and oversight for the Regional Resilience Planning Grants Program, known as Resilient NJ throughout the project's 5-year lifecycle.

Relevance to NHSA:
- Hydraulic Analysis
- Funding
- Program Management

The State of New Jersey received $10,000,000 in National Disaster Resilience (NDR) competition funding to support the creation of Resilient NJ to help regions and communities that experience significant flooding to undergo a comprehensive planning process to identify vulnerabilities due to increased flooding risk.

Resilient NJ seeks to fund up to six planning projects within multi-municipal regions within the nine Sandy-impacted counties in New Jersey: Bergen, Hudson, Essex, Union, Middlesex, Monmouth, Ocean, Atlantic, and Cape May. Planning grants will fund multi-municipal Regional Planning Units (RPUs) to undergo a comprehensive process to identify and address vulnerabilities to increased flood risk, protection of environmental resources, and promotion of sustainable/smart growth development. In addition to program management and oversight, Michael Baker is providing innovative solutions in the following program areas:

Vulnerability Assessment Methodology for Riverine Flooding

As part of the program oversight, Michael Baker, is creating a vulnerability assessment methodology for riverine flooding that can be applied across regional planning areas. Michael Baker was a lead author for FEMA's climate change report and developed standards for increases in rainfall due to climate change and development trends for the entire nation. Michael Baker has extensive experience with projecting increased riverine flooding into the future.

Cost Benefit Analysis (CBA) Methodology

The Michael Baker Team will leverage our national experience performing Cost Benefit Analyses (CBA) for flood mitigation and develop a standard CBA methodology for the Resilient NJ. The CBA is a technical process that must be standardized to support the comparison of projects/strategies. The methodology will consider the latest policies and national best practices, including research from the U.S. Army Corps of Engineers (USACE) Institute for Water Resources, HUD (NDRC), and FEMA.

Outreach Campaign

Michael Baker is coordinating, arranging, and facilitating an outreach campaign with local public engagement events with NJDEP to support the program. The goal of this effort is to make communities in the nine Hurricane Sandy-impacted counties aware of the program and to actively engage the public in the planning and decision-making process. Michael Baker's outreach strategy is inclusive and comprehensive with a focus on low income, socially vulnerable populations.

Construction Management for Flood Hazard Risk Reduction and Resiliency Grant Program, Work Order #3, CMF-003

Statewide, New Jersey

New Jersey Department of Environmental Protection | 2021 (est.)

Contact: Rebecca Jones, NJDEP Division of Dam Safety and Flood Control, 609-292-1246

Michael Baker is the Construction Manager currently managing eight (8) flood resiliency projects totaling approximately $44M.

Responsibilities include scheduling and coordinating progress meetings, monitoring local government contractor project progress, maintaining a master CPM schedule, preparing independent cost estimates, reviewing local government contractor invoices, HUD compliance and monitoring and construction labor compliance with federal and state regulations.

The Flood Hazard Risk Reduction and Resiliency Grant Program (Grant Program) provides grants to eligible municipalities and counties to construct "shovel–ready" flood risk reduction and resiliency projects through a competitive application process. The Grant Program utilizes funding awarded to the State of New Jersey from the U.S. Department of Housing and Urban Development (HUD) under the Community Development Block Grant – Disaster Recovery (CDBG-DR) program. Many of the projects consisted of construction of large diameter outfall pipes (60"+), emergency generators, pump stations, storm sewer upgrades, trash rakes and pavement restoration.

The project described in this work order entails assisting the NJDEP Grant Manager with the monitoring and oversight of the Grant Program. Grants are awarded for flood mitigation infrastructure projects to municipalities and counties who are referred to as "local government contractors" in this document. The project consists of the monitoring of several local government grant contracts with a focus on overall project management and compliance with the grant requirements and Statement of Assurances for this term contract and for each local government contract.

Relevance to NHSA:

- Proposed QA/QC manager Pete Senus is the Project Manager
- As the Program Manager, Michael Baker has constant contact with NJDEP throughout the project
- Stormwater Management Innovations
- Schedule Management
- Construction Administration Management
- Stormwater Staging
- Hurricane Sandy Federal HUD Grant Funding (Labor Monitoring)