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Rebuild by Design – New Meadowlands Project

Proposal

**Feasibility Study,
Environmental Impact
Statement, Design
and Construction
Administration
Services**

Term Contract TC-001

DPMC Project P1131-00

September 2015

**CDM
Smith**

in association with



Louis Berger



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September 3, 2015

Department of Treasury, DPMC
Attn: Catherine Douglass
33 West State Street
Trenton, NJ 08608

Subject: Rebuild by Design – New Meadowlands Project
Feasibility Study, Environmental Impact Statement, Design and Construction
Administration Services / Term Contract TC-001 | DPMC Project P1131-00

Dear Ms. Douglass:

The Rebuild by Design – New Meadowlands Project concept proposes to provide storm surge and flood resiliency to the Hackensack Meadowlands through various resiliency measures that will help the region “Protect, Connect, Grow” and eliminate vulnerabilities for the future. The goals of Rebuild by Design are noble, but the concepts must be fully evaluated for alignment with the needs of the Pilot Area No. 1 communities, funding availability, economic interests, design and construction realities, and operations and maintenance requirements. Project stakeholders, community members, and NJDEP must be fully engaged in the design development process to ensure the final project balances the needs of HUD, NJDEP, and the communities, while delivering the long-term resiliency all parties desire.

The CDM Smith/Louis Berger team offers NJDEP the benefit of two leading water resources firms who share a strong commitment to NJDEP. Both firms are extremely invested in regional disaster recovery and the elimination of coastal vulnerabilities in New Jersey. The development of feasible design alternatives that will translate the RBD New Meadowlands concept into a final design will draw on our collective experience in the Meadowlands, a region both CDM Smith and Louis Berger have come to know and appreciate for its people, its geology, its unique hydrology, and its vast natural resources. The project will also allow CDM Smith and Louis Berger to maximize the value of the credibility we have established with state and federal regulators and key project stakeholders. Likewise, the relationships and trust we have built within NJDEP will enable us to streamline our efforts—a critical benefit on such a time-sensitive undertaking.

Understanding that for this project to be a success it must be representative of this unique area and its residents, we have include 8 (eight) specialty subconsultants with recent hands-on experience in the Pilot Area No. 1 communities. The insight and relationships these firms offer will be a great benefit during data gathering, community outreach, and at every stage of the process. In addition to the team members identified in this submittal, representatives from the CDM Smith/Louis Berger





Catherine Douglass

September 3, 2015

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team have had multiple conversations with the RBD team about opportunities to involve them in the process as project tasks are formalized.

In Section 1, we introduce several key factors that will make this a successful project for your organization. We have approached this entire proposal effort with these factors at the forefront; they have shaped our team organization, experience selection, and approach development. Through this focused NJDEP-specific approach, we have assembled what we know will be a winning combination of people, experience, and proven processes.

The achievement of these key factors will be guided by **Maria Watt, P.E.**, a proven performer for NJDEP whose recognized leadership produced the State of New Jersey's first Comprehensive HUD Action Plan in Response to Superstorm Sandy within five days of the event. Maria understands NJDEP and DPMC and possesses the strong communication skills and tenacity to manage complex teams on HUD/NEPA projects. She knows how to manage this team through the processes identified in our approach. Maria will be joined in these efforts by Assistant Program Manager, **Sean McGonigal P.E.**, of Louis Berger, who has been managing NJDEP contracts for the past seven years. Maria and Sean have worked together on NJDEP remediation programs and disaster recovery work in the region as projects have been transitioned between our firms. They have great respect for one another and offer NJDEP a trusted local management team with a shared commitment to your success.

Sections 1 through 3 of this submittal highlight how our personnel, experience, and approach will come together to deliver success on this important project, achieving your goals on this and future resiliency efforts. In many ways, the team and the solutions presented in this proposal are the culmination of all CDM Smith and Louis Berger have been working toward in New Jersey over the past 30 years. This is an exciting opportunity to apply our expertise and our relationships to protect natural resources and enhance the quality of life for Meadowlands residents for generations.

Sincerely,

A handwritten signature in blue ink, appearing to read "T. Schoettle", followed by a long horizontal line.

Thomas R. Schoettle, P.E., BCEE

Senior Vice President

CDM Smith Inc.

cc: Thomas Lewis, P.E., JD – Lewis Berger





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Section 1

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Section 1

Organization and Staffing

1.1 Project Understanding

Flood protection and coastal resiliency are familiar concepts to the communities within the Meadowlands District. Already, significant infrastructure investments in flood control have been made throughout the area, including the recent improvements at Berrys, Moonachie, and Bashes Creek, as well as along Palmer Terrace and State Route 17. Despite these interventions, the reality of coastal and upland riverine vulnerability is now receiving even greater attention in the aftermath of Superstorm Sandy.

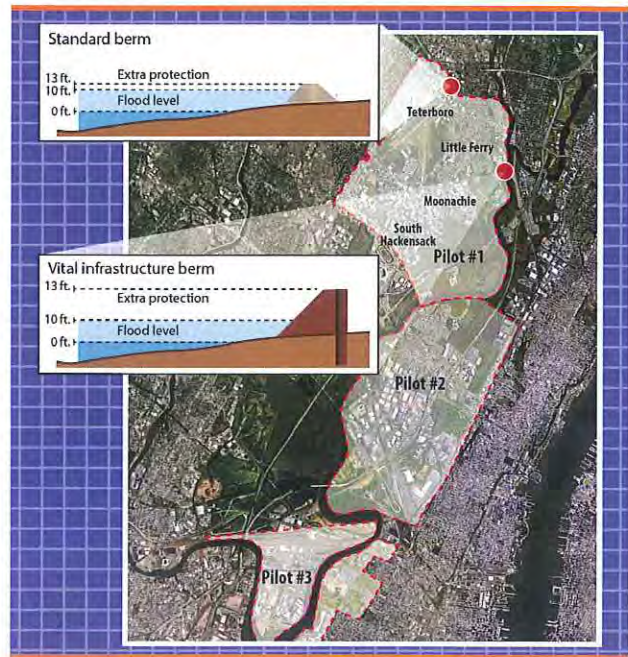
Situated in low-lying areas at the northern edge of the Meadowlands District, the Pilot Area No. 1 communities of Carlstadt, Little Ferry, Moonachie, South Hackensack, and Teterboro have been historically challenged by localized flooding, even during routine weather events. Superstorm Sandy only exacerbated their vulnerability by inundating residential and commercial properties.

The Rebuild By Design (RBD) New Meadowlands project, the subject of this Request For Proposal (RFP), originated with a competition sponsored by the U.S. Department of Housing and Urban Development (HUD). The New Meadowlands project aims to further increase the resiliency of infrastructure to protect communities, specifically those in Pilot Area No. 1. This project is one of two winning projects in New Jersey and will receive an initial \$150 million in Community Development Block Grant-Disaster Recovery (CDBG-DR) funds to implement the first phase of flood mitigation and risk reduction projects.

This New Meadowlands project will evaluate and build on the proposed RBD concepts to determine the best, most cost-effective, and resilient way to practically implement that proposal and maximize the \$150 million HUD CDBG-DR award. The complex effort includes preparation of a feasibility study (FS) and National Environmental Policy Act (NEPA) analysis, which will include drafting and finalizing an Environmental Impact Statement (EIS) for the New Meadowlands project, as well as the design of flood control infrastructure under a very ambitious schedule. Bidding and construction administration services will also be provided.

Figure 1-1 shows an overview of the RBD berm contemplated for Pilot Area No. 1. The intent of the project is to use a system of green and gray

Figure 1-1. Proposed Rebuild By Design Infrastructure in Pilot Area No. 1.



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infrastructure to mitigate and protect against storm surges and rain event flooding. While the FS will ultimately determine what type of measures can be designed and constructed, the flood mitigation and flood risk reduction protection structure(s) are anticipated to cover 7 to 9 miles of shoreline. As shown, the flood risk reduction system may be configured to completely surround the Bergen County Utility Authority's wastewater treatment plant in Little Ferry, as well as other key infrastructure, including vital transportation links. In addition to flood risk reduction measures, the project will assess the feasibility of a freshwater/stormwater detention basin to attenuate peak stormwater runoff before it is discharged to the Hackensack River. To accommodate the larger programmatic scope, it may be necessary to provide discrete improvements to drainage and other infrastructure in the Pilot Area No. 1 communities.

Primary Benefits

The RBD proposed flood risk reduction system is envisioned to greatly improve flood protection and resiliency in the surrounding communities. As work extends beyond Pilot Area No. 1 in the future, the project will become part of a regional plan to attract 120,000 more residents to the area. As envisioned in the RBD proposal, this larger populace will be served by an innovative transportation system that connects citizens with the larger region as well as new commercial and industrial space that generates 10,000 jobs, raises property values, and significantly increases tax revenues. Therefore, the work in Pilot Area No. 1 provides NJDEP with an opportunity to develop the blueprint for the entire New Meadowlands project and other state-wide flood risk reduction initiatives.

In considering this project and our plan to meet its demands, the CDM Smith/Louis Berger team established several key factors that will ultimately make this a success. Throughout this submittal, we demonstrate how these considerations have shaped the development of our team organization and subconsultant selection, the presentation of our critical experience, and the formulation of the approach presented in Section 3.

1.2 Introduction to the CDM Smith/Louis Berger Team Members

To meet the demands of this critical project, CDM Smith Inc. (CDM Smith) has assembled a team with international expertise and unmatched combined experience in the Meadowlands to help NJDEP evaluate the feasibility of alternatives and to develop conceptual and final designs that can be permitted for a long-term flood protection system for Pilot Area No. 1.

CDM Smith is partnering with The Louis Berger Group, Inc. (Louis Berger) to offer NJDEP technical excellence, targeted local resources, and a thorough understanding of

Key Success Factors



Concurrent completion of Feasibility Study and EIS by May 2017.



Alternative solutions that are sensitive to the needs of all stakeholders.



Permittable, constructable designs and construction plans for flood risk reduction and environmental infrastructure.



Compliance with requirements for HUD CDBG-DR and FEMA funding.



Depth of resources with local experience to perform multiple concurrent efforts.



Regulatory approvals at federal, state, and local levels.



A Feasibility Study that identifies additional funding sources for future sustainable resiliency projects.



A final design that is manageable, operable, and financially sustainable.

Figure 1-2. The CDM Smith/Louis Berger team understands the factors required for a successful project.

flood risk reduction design, local environmental reviews and assessments, and funding requirements for HUD and the Federal Emergency Management Agency (FEMA). Rounding out our team are several specialized subconsultants who contribute valuable past work experience in the Meadowlands and/or within the Pilot Area No. 1 host communities.

The members of the CDM Smith/Louis Berger team have long-standing, successful relationships serving NJDEP, with more than 900 projects combined for NJDEP and the New Jersey Division of Property Management and Construction (DPMC) over the past 10 years. In fact, both CDM Smith and Louis Berger have been providing environmental and engineering services to NJDEP under on-call term contracts similar to this one for decades. With our knowledge of your people and processes, NJDEP can trust our team to efficiently prepare the New Meadowlands feasibility study, NEPA analysis, and draft and final EIS, as well as the design of flood risk reduction infrastructure under a very ambitious schedule.

Together, the members of the CDM Smith/Louis Berger team offer NJDEP the right blend of experience to develop feasible design alternatives that address stakeholder and community interests, while maintaining compliance with all state and federal regulatory requirements. **Table 1-1** presents highlights for each of the subconsultants we have selected for our team. This is the team capable of developing a **successful blueprint for resiliency** –not only for Pilot Area No. 1, but also for the entire region.

Targeted Local Resources

Along with the right blend of technical expertise and regional experience, the CDM Smith/Louis Berger team provides NJDEP with targeted local resources to meet the demands of this aggressive schedule, which (as described in detail in our approach in Section 3) will involve initiating numerous simultaneous tasks to ensure that we meet milestones and produce viable alternatives that are informed by environmental realities and community and stakeholder needs. **Figure 1-3** summarizes our team's local capacity to meet project demands, while **Figure 1-4** provides additional highlights about our team member firms.

Table 1-1. The CDM Smith/Louis Berger Team

	Niche experience with enhanced cost benefit analysis that can be leveraged to maximize HUD funding
	Unsurpassed knowledge of Meadowlands ecosystem, restorations projects and green infrastructure with a track record for obtaining regulatory approval
	Local engineering knowledge gained from prior work with Meadowlands host communities will provide insight on community needs to help define cobenefits
	Provides continuity with RBD community outreach efforts in New Jersey will help ensure that NJDEP is consistent in is messaging
	Qualified Section 3 Construction Administration Service Support Firm
	Extensive experience with ongoing state and federal grant programs in host communities will provide insight/coordination with the New Meadowlands project
	A premier coastal engineering and modeling firms with direct experience in other Sandy Resiliency Projects in the New Jersey Area will be the difinitative modeling solutions to this project
	A leader in urban planning/architecture, which will bring state-of-the-art visualization tools to enhance stakeholder consensus building

* Pre-qualification submitted and pending final signoff by DPMC.

1.3 Team Organization

The CDM Smith/Louis Berger team, presented in **Figure 1-5**, was carefully organized to offer the most efficient and effective delivery of services for NJDEP's Pilot Area No. 1 New Meadowlands project. In addition to assembling individuals who have the right expertise

Figure 1-3. The CDM Smith/Louis Berger team has the local capacity to meet project demands.

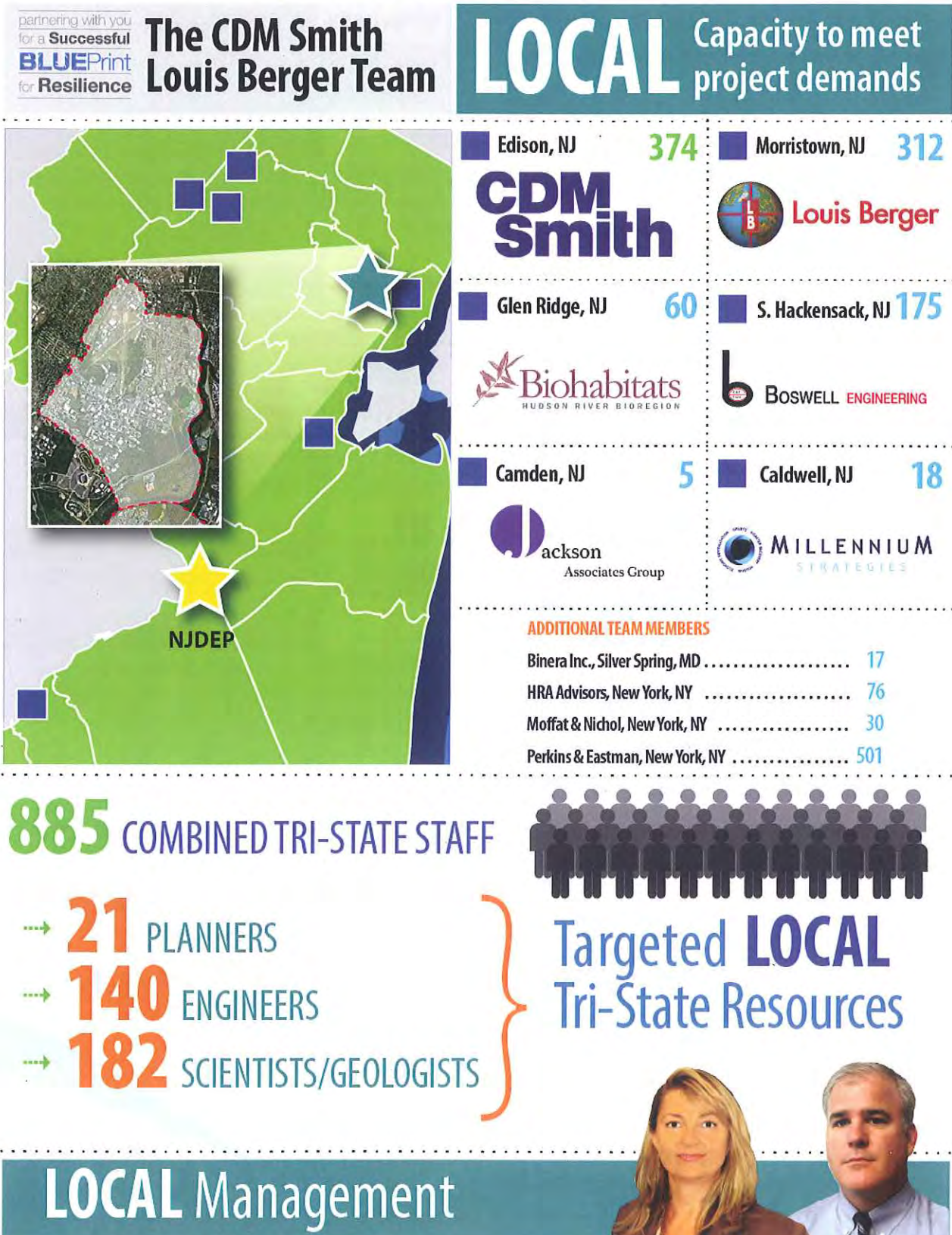
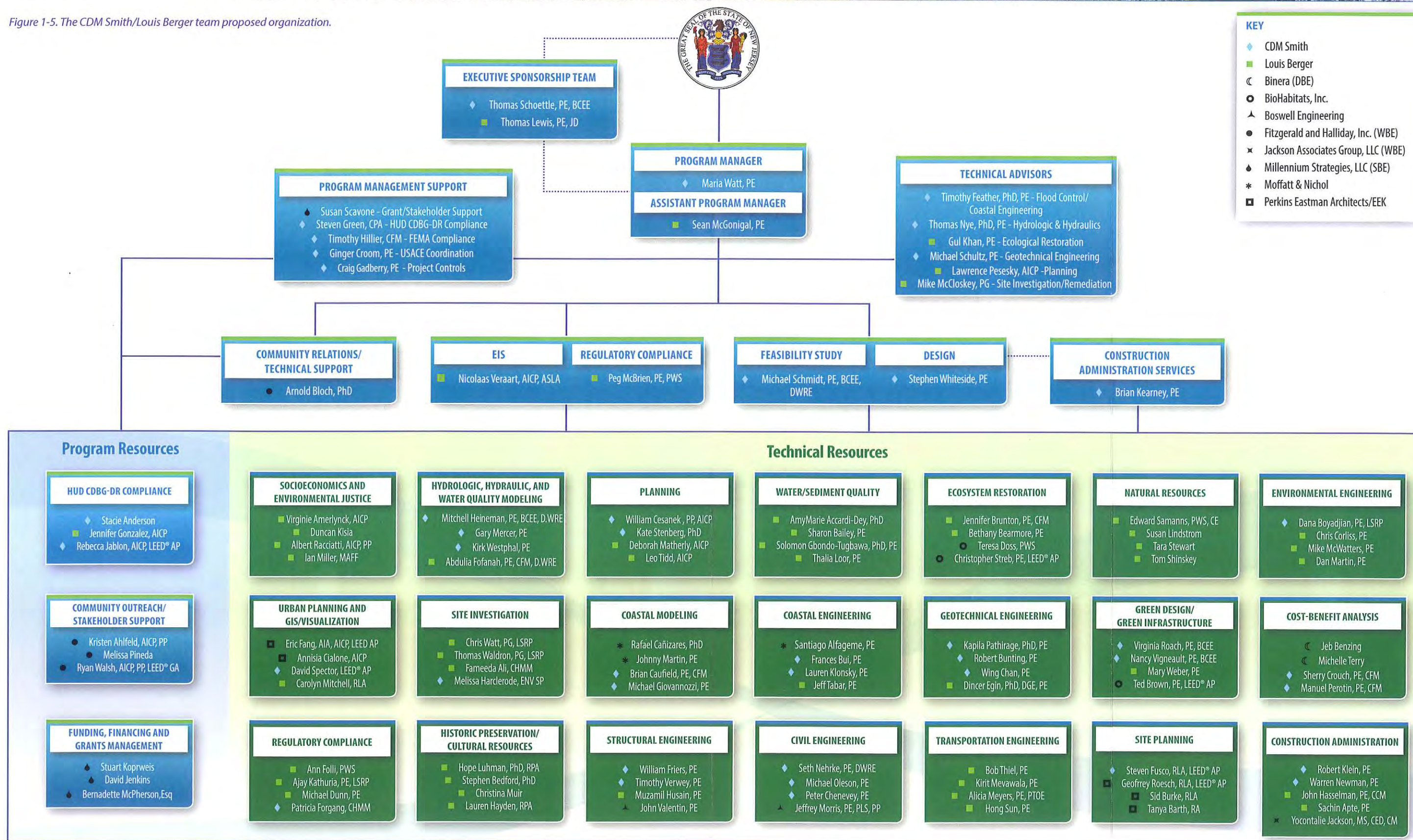


Figure 1-4. THE CDM SMITH/LOUIS BERGER PROJECT TEAM

 PRIME CONSULTANT <p><i>Program Management, FS, Design, USACE Coordination, , HUD CDBG-DR Compliance, FEMA Compliance, Regulatory Compliance, Planning, Urban Planning, Environmental Engineering, Site Investigation, Stormwater and Flood Control Engineering & Modeling, Ecological Assessments, Sediments, Green Infrastructure, Climate Change Resiliency, Geotechnical Engineering, Structural Engineering, Civil Engineering, Site Planning, Construction Administration</i></p> <ul style="list-style-type: none"> ▪ Successful track record with NJDEP and DPMC on task order and other contracts ▪ Ability to manage a large, multi-disciplined team of professionals ▪ Capability to provide integrated services from an EIS and FS through design and construction ▪ Strong working relationships with federal and state regulators, the USACE, and the HUD ▪ Portfolio of similar projects for flood-impacted communities: Fort Worth (Trinity River), New Orleans (Blind River), and others ▪ Experienced Program Manager, Maria Watt, P.E., who is well-known and respected by NJDEP and DPMC 		 PRIMARY SUBCONSULTANT <p><i>Program Management, EIS, Regulatory Compliance, HUD CDBG-DR Compliance, Planning, Environmental Engineering, Environmental Science, Hydrology, Environmental Review, Ecosystem Restoration, Wetland Mitigation, Transportation Planning, Environmental Engineering, Environmental Science, Contaminated Sediments, Coastal Engineering, Construction Management</i></p> <ul style="list-style-type: none"> ▪ Unmatched experience in the New Jersey Meadowlands ▪ More than 50 projects in the Hackensack Meadowlands, including ecorestoration, flood management, transportation infrastructure, planning and design, and regulatory approval ▪ Restored more than 500 acres of wetlands and other habitats in the Meadowlands ▪ Prepared and obtained more than 30 different federal and state environmental permits for projects in the Hackensack Meadowlands ▪ Successfully completed EISs for complex, fast-track disaster recovery projects, including the World Trade Center Memorial and Redevelopment Plan GEIS ▪ Extensive experience with HUD CDBG-DR and FEMA compliance and reporting requirements ▪ More than 25 years of experience in Hazardous and Toxic Waste Investigations and Remediation, most of which was performed for NJDEP and USEPA R2 	
 Binera, Inc. Cost-Benefit Analysis	 Biohabitats, inc. Ecosystem Restoration/Green Design	 Boswell Engineering Civil Engineering, Structural Engineering	 Fitzgerald & Halliday, Inc. Community Outreach
<ul style="list-style-type: none"> ▪ Certified DBE ▪ Niche Cost-Benefit-Analysis resume in Tri-State region ▪ Pioneer in the fields of hazard identification and risk analysis ▪ Involved in the development of multiple all-hazards risk management methodologies and tools, including the System-Wide Multi-Hazard Risk Tool (SMRT) 	<ul style="list-style-type: none"> ▪ Focuses on conservation planning, ecological restoration, and sustainable design ▪ Works with coastal cities and communities to regenerate ecological processes, economical resiliency, and cultural vibrancy ▪ Practice is centered on creating adaptive designs for a changing climate, managing whole water systems management and restoring coastal ecosystems 	<ul style="list-style-type: none"> ▪ One of <i>Engineering News Record's</i> Top 500 Engineering Firms and Top 100 Construction Management Firms ▪ Serves as appointed engineering consultant for 30+ communities in Bergen and Hudson County ▪ Thorough understanding of local conditions ▪ Established professional relationships with virtually all of the communities and local officials in the project area 	<ul style="list-style-type: none"> ▪ Certified DBE/WBE in 20+ states ▪ Leaders in regional community outreach program development ▪ Specializes in community outreach and fosters two-way communication ▪ Assesses the needs of each project and provides customized solutions to meet project goals ▪ Experts in facilitating and moderating meetings, as well as performing all organizational logistics
 Jackson Associates Group, LLC Construction Administration	 Millennium Strategies, LLC Grant/Stakeholder Support	 Moffatt & Nichol Coastal Engineering & Modeling	 Perkins Eastman Architects/EEK Urban Planning, Site Planning
<ul style="list-style-type: none"> ▪ Certified WBE ▪ HUD Section 3 certified professional construction management and project management consulting firm ▪ Provides technical assistance to local community organizations that engage in efforts to revitalize underdeveloped neighborhoods ▪ Understands development and the mechanisms needed to achieve development goals 	<ul style="list-style-type: none"> ▪ Certified SBE ▪ Unmatched insight of Pilot Area No. 1 community needs and vulnerabilities ▪ Expertise includes grant writing and administration, economic revitalization, and disaster recovery ▪ Led procurement and administration of \$71+ million in disaster recovery and mitigation funding over last 3 years 	<ul style="list-style-type: none"> ▪ Extensive H&H modeling resume in the Meadowlands ▪ A leader in modern coastal engineering from modeling, understanding and designing for the processes that shape coastlines, harbors and rivers ▪ Provides solutions for shoreline protection, ecosystem restoration, water resources, and stormwater management 	<ul style="list-style-type: none"> ▪ Internationally recognized for integrating the design of buildings and open space and transforming "projects" into genuine places ▪ Brings creative thinking and big picture perspective to design problems of all scales ▪ Expertise from large-scale urban redevelopment to complex mixed use urban infill ▪ Leading the New York Rising program for NYC

Figure 1-5. The CDM Smith/Louis Berger team proposed organization.



and past proven experience, we have developed our team's management structure to best meet the technical, public acceptance, and delivery challenges ahead. This starts with the leadership team of **Maria Watt, P.E.**, as our Program Manager, and **Sean McGonigal, P.E.**, as our Assistant Program Manager. Through their past work on similar projects and the relationships they have developed with NJDEP, they are knowledgeable of the management and administrative protocols, procedures, and processes that must be followed. They not only understand the complexities of your organization and the goals you are trying to achieve, but they know the system and how to get things done. In short, they have earned NJDEP's trust on similar multi-million dollar term contracts. Maria will interface directly with NJDEP to make sure that day-to-day project expectations are understood, communicated to our team, and met, while the Executive Sponsorship Team, including Thomas Schoettle, P.E., BCEE, of CDM Smith and Thomas Lewis, P.E., JD, of Louis Berger—will ensure the necessary team resources are available and our overall commitment to NJDEP is satisfied.

Maria and Sean will be supported by six experienced task leaders. Arnold Bloch, Ph.D. will lead the Community Relations/Technical Support. Nicolaas (Niek) Veraart, AICP, ASLA and Margaret (Peg) McBrien, P.E., PWS will lead the project team for EIS/Regulatory Compliance. Michael Schmidt, P.E., BCEE, D.WRE, and Stephen Whiteside, P.E. will lead our efforts for the FS and Design. Brian Kearney, P.E. will lead Construction Administration Services. All of our proposed task leaders will draw on the

insight of our Program Management Support advisors, who contribute recognized leadership in community outreach, economic development, project controls, and HUD, FEMA, and U.S. Army Corps of Engineers (USACE) compliance. Having ready access to experts in these key programmatic elements will be critical to successful project implementation and execution. In addition, our key task leaders are supported by a wealth of Technical Resources and Program Resources to address program needs.

1.4 Process to Manage and Deliver Task Assignments: The Core of Our Approach

Fundamentally, an on-call contract requires two basic program functions. These can be broadly categorized as:

- Responsive and responsible program management
- Detailed and careful program administration

Our organizational chart shown in Figure 1-5 has been organized to clearly establish program responsibilities in the various functional areas and the role of key technical experts within our core team.

For this program to be successful, the CDM Smith/Louis Berger team must be responsive to NJDEP's needs over a broad technical range, while simultaneously addressing the concerns of numerous project stakeholders.



DEMONSTRATED
EXPERTISE

Maria Watt, P.E., Program Manager

"Partnering with NJDCA, NJDEP, and DPMC to significantly expedite New Jersey's response to Superstorm Sandy has truly been rewarding. Mobilizing a team of over 30 staff from all parts of the county and conducting over 36 scoping meetings with communities, state agencies, and non-profit organizations within 3 days, while simultaneously developing an Unmet Needs assessment to develop the State of New Jersey's

first Comprehensive Action Plan in Response to Superstorm Sandy within 5 calendar days was an incredible feat that CDM Smith was able to achieve. Our extremely rapid response produced a comprehensive HUD Action Plan that expedited release of the first \$1.8 million of desperately needed HUD support to devastated coastal communities." - Maria Watt

Responsive and Responsible Program Management

Our program management team and resources will be locally based in CDM Smith's Edison and Louis Berger's Morristown, New Jersey offices. These two locations give us ready access to the Meadowlands project site and NJDEP's Trenton office.

The depth of our program and assistant program manager's direct experience managing large NJ term contracts has been a key to the success that both CDM Smith and Louis Berger have had on our prior task order contracts with NJDEP and DPMC. We have learned that implementation of the following steps are key to the success of a task order type program.

PM Step 1 – Establish Scope, Schedule, and Budget

Immediately after NJDEP advises our program manager of a task assignment, the program manager will organize a discussion with the task leader and NJDEP Manager. The outcome of this discussion will be a summary of project scope, work breakdown structure, schedule, and budget for the task. This work breakdown structure will be used throughout the life of the task to report schedule, estimated actual costs at completion, and manage deliverable deadlines.

PM Step 2 – Project Team Assignments

As soon as the general needs of the scope of a task is understood, the program manager and task manager will assign the appropriate staff for the task based on the required type of expertise, level of experience, and cost-effectiveness. Very often this step will begin prior to finishing and fully documenting the scope, schedule, and budget for a few important reasons:

- The technical experts can help to inform the dialog concerning what is truly necessary for scope and vet schedules and budgets.
- Knowing exactly what staff mix will be appropriate for a given task assignment helps to more narrowly define budget requirements.

- Matching project team members in concert with setting scope, schedule, and budgets allows the NJDEP Manager to make proactive choices concerning team members, identify potential improvements to the team, and confirm that NJDEP agrees staffing plans are appropriate in terms of both experience levels and the level of effort for each team member.

PM Step 3 – Effective Day-to-Day Management

Following the procedures typically employed by NJDEP, our management team will provide effective management of the day-to-day requirements of the project. Specific duties of the management team include:

- Maintain proactive communications with NJDEP to achieve stakeholder consensus
- Prepare and execute the management plans
- Monitor and report on scope, schedule, and budget
- Monitor the performance of the work and prepare and submit monthly progress reports
- Prepare and submit accurate and timely invoices for payment
- Proactively manage scope change and delays
- Subcontract approval/administration and management
- Verify HUD Section 3 compliance and other federal compliance requirements

Detailed and Careful Program Administration

We have demonstrated the value of dedicated program administration on other NJDEP assignments. We will continue this during the execution of the New Meadowlands project by utilizing a similar structure. Specifically, our project controls specialist will be responsible for the administration of the project. The task managers will provide input to project controls instruments, such as staffing plans, estimates to complete, schedule updates, risk registers, issues logs, invoices, and monthly progress reports, all under the direction of the project controls specialist. We have proven that making the task managers

accountable to a single responsible administrator provides several benefits to NJDEP on a programmatic basis in the following ways:

- Timeliness of monthly reports and documentation is ensured
- Documentation is consistent between task order assignments
- Quality of documentation can be controlled via document review
- Control of task order schedules and internal QA/QC processes

The end result is project success measured by the core program objectives, but especially adherence to scope, schedules, and budgets.

1.5 Staff Qualifications

The role and relevant project experience for each key team member is presented below, while credentials and experience highlights for all CDM Smith/Louis Berger team staff are provided in **Table 1-2**, presented on pages 21 to 25. Detailed resumes for the entire team are provided in Appendix A.

MANAGEMENT



Maria Watt, P.E., Program Manager

Maria has over 30 years of experience and has managed multi-million-dollar, highly complex restoration and recovery programs requiring extensive stakeholder coordination and interface, as well

as agency negotiation. Her recent experience includes program management of numerous disaster recovery term contracts for the State of New Jersey.

- Program Manager for numerous NJDEP and DPMC programs, including the Environmental Action contract, a HUD NEPA Compliance contract, the Design Term Contract for Liberty State Park Freshwater Wetland Ecosystem Restoration Project, and the Demolition Consultant Multiple Award Term contract to support of the Blue Acres Program
- Principal-in-Charge for the New Jersey Department of Community Affairs (NJDEP) contract to develop

New Jersey's first HUD Action Plan in response to Superstorm Sandy and the development of procurement documents to secure the proper resources to implement the approved plan.

- Program Manager for the U.S. Department of Energy's Environmental Restoration Contract at the Brookhaven National Laboratory, a major environmental restoration contract that targeted this 8 square mile site, which included the restoration of the Peconic River
- Program Director for the City of Newark and Together North Jersey Green Infrastructure Contract, funded by HUD, to both manage stormwater more sustainably and promote community renewal
- Program Manager for the Occidental Chemical Corporation Love Canal Environmental Restoration contract, which included three major EISs for the remediation of the Love Canal Superfund Site



Sean McGonigal, P.E., Assistant Program Manager

Sean has more than 24 years of experience, including 17 years supporting NJDEP and DPMC on various contracts and high visibility projects. He has significant program and project management experience

on multi-disciplinary projects, and he has led projects for NJDEP—from the Lower Passaic River Restoration Project to five statewide term contracts for investigations, remedial alternative selection evaluations, remedial design, landfill closure services, and publicly funded site remediation projects. Sean specializes in projects where large-scale

redevelopment occurs in contaminated and ecologically sensitive environments. He leads programs and projects that include investigations, feasibility studies, designs, permitting, stakeholder and community involvement, and negotiations with regulatory agencies. His experience includes: environmental impact statements, due diligence, ecological evaluations, ecological restoration, hazardous waste management, spill response/recovery, remedial investigations, remediation design, and remedial action implementation.

- Managed more than 30 NJDEP projects over 17 years

- Since 2008, has served as Louis Berger's Program Manager on two consecutive remedial design services term contracts (including ecological restoration design services)
- Since 2005, has served as Louis Berger's Contract Manager on four consecutive, 2-year, indefinite quantity general environmental services term contracts for DPMC
- Project Manager for the fast-track Meadowlands Railroad and Roadway Improvement Project and lead representative for client on Meadowlands Xanadu Project

TASK LEADERS



Nicolaas Veraart, AICP, ASLA, Environmental Impact Statement

Niek has more than 25 years of experience providing environmental and infrastructure planning in New Jersey/New York; throughout his career he has focused on economic drivers as key enablers

for sustainable and resilient urban development.

- Secured NEPA approvals for some of the most complex, fast-track disaster recovery projects in the United States, such as the World Trade Center (WTC) Memorial and Redevelopment Plan Generic EIS (GEIS) for HUD and the Fulton Transit Center EIS
- Leads resiliency planning initiatives in the New Jersey/New York area, such as the Hoboken Green Infrastructure Strategic Plan, a local demonstration project under Together New Jersey that integrates transit and community resilience; combined NEPA scoping and development of feasible alternatives to tidal and stormwater inundation for the Mill River Rebuild by Design Project in Nassau County, NY; as well as several award-winning New York Rising Community Reconstruction Plans
- Brings strong NEPA experience with the HUD, USACE, New Jersey Department of Transportation (NJDOT), and FEMA, among other federal clients



Peg McBrien, P.E, PWS, Regulatory Compliance

Peg has more than 27 years of federal and state regulatory experience, including: delineating wetland boundaries, assessing wetland functions and services, restoring and creating streams and wetlands,

obtaining state and federal permits, writing comprehensive environmental impact assessments, conducting ecological risk assessments, and designing treatment wetlands. She managed on-call, task order-based contracts with the New Jersey Meadowlands Commission (NJMC), the National Oceanic and Atmospheric Administration

(NOAA), USACE–New York District, and the State of Delaware.

- Has worked extensively in the Meadowlands for over 20 years with the NJDEP, NJMC, Meadowlands Conservation Trust, USACE – New York District, USEPA, USFWS, NOAA, the Hackensack River Keeper, and other public and private agencies
- Possesses specific experience conducting wetland and stream creation, restoration, and enhancement projects in the Meadowlands, including feasibility studies, design, permitting, construction inspection,

and monitoring at four sites (Secaucus High School, Marsh Resources Inc., Kane, and Mill Creek)

- Managed restoration designs for more than 1,800 acres of aquatic ecosystems, including over 500 acres in the Meadowlands
- Gained comprehensive knowledge of the Meadowlands through her management of

three Meadowlands-wide studies, including the USACE Hudson River Estuary (HRE) Ecosystem Restoration Feasibility Study, the Development of Hydrogeomorphic (HGM) Model and Guidebook for the Tidal Fringe Wetlands in the Hackensack Meadowlands, and the USACE Initial Phase of the Meadowlands Comprehensive Restoration Implementation Plan



DEMONSTRATED
EXPERTISE

Peg McBrien, P.E., PWS, Regulatory Compliance

"Twenty years of studying, designing and inspecting construction of wetlands, boardwalks, berms and other features in the Meadowlands, mainly in Pilot Area 1 communities, has taught me that the Meadowlands are a wonderfully unique, but extremely challenging environment. My project sites have experienced multiple hurricanes, an unprecedented earthquake, massive fires of dry Phragmites vegetation, frequent flooding from

Nor'easters that have made sites unrecognizable, soupy soils that have swallowed excavators whole, and unusual hydrologic patterns from ancient, deteriorated berms and tide gates. I always experience a thrill when we overcome these hurdles, remove tons of debris and degradation, and construct a viable and valuable wildlife oasis and public amenity." - Peg McBrien



Michael Schmidt, P.E., BCEE, Feasibility Study

Mike has 31 years of experience in comprehensive flood control, integrated stormwater management, coastal, ecosystem restoration, and water resource programs for more than 180 federal, state and municipal

clients across 29 US states and six countries. Highlights of his experience include:

- Managing and directing the feasibility, design, and implementation of more than \$500 million of retrofit stormwater, flood control, coastal, and environmental restoration infrastructure, delivering over \$240 million in capital cost savings through innovations in design, construction, and operations
- More than 35 coastal stormwater and flood control programs using cumulative design storm and higher sea levels due to hurricane, Nor'easter, and tropical storm tidal surge conditions
- Developing feasible and sustainable floodplain, floodway, and detention river management standards and designs, including volume-time detention controls for the full range of hydrology and dynamic floodway methodologies that consider both storage and conveyance
- Enhancing and maintaining state-of-the art hydrologic, hydraulic, hydrodynamic, and water quality model tools, including caretaker of the SWMM model for 12 years for CDM Smith with USEPA (SWMM versions 3 through 5) and peer reviewing, applying, and/or directing stormwater and water resource model applications using SWMM, XP-SWMM, HEC HMS and RAS, MODFLOW, EFDC, WASP, WMM, STORM, Mike SHE-11, and STELLA to support feasibility studies, retrofit designs, permitting and operational guidance.



Stephen Whiteside, P.E., Design

With 39 years in geotechnical and dam engineering, Steve's extensive experience includes geotechnical investigation analysis, design, and construction engineering services for levees, floodwalls, dams

for waterfront structures, tunnels, bridges, roadways, pipelines, pump stations, water and wastewater treatment plants, and landfills

- Lead geotechnical engineer for proposed rerouting of the Trinity River in Fort Worth, Texas. This project includes the designs for a new river channel, new levees, raising of existing levees, retaining walls and parks incorporated into the levees on one side of the channel, replacement of existing bridges, new roller compacted concrete (RCC) dam, and isolation gates to control water levels
- Currently a member of a Board of Consultants, required by the Federal Energy Regulatory Commission, in response to an emergency at New York City's Cannonsville Dam. Work included the design of repairs to address piping that, left unchecked, could cause potential failure of the dam.
- Project Manager and lead design engineer for two indefinite delivery agreements with the USACE

- New England Division to provide services at various dams in the region. The projects included: a liquefaction evaluation of the 35-foot-high Old Quincy Reservoir Dam, Braintree, MA; design, installation, and monitoring of slope inclinometers and precision surveying network at the 265-foot-high Ball Mountain Dam, Jamaica, VT; installation of 24-inch-diameter relief wells at the 133-foot-high Townshend Lake Dam, Townshend, VT; construction of a graded filter seepage control beam at the 75-foot-high North Springfield Lake Dam, North Springfield, VT; construction of a downstream toe drain at the 130-foot-high Thomaston Dam in Thomaston, CT; design of automated instrumentation systems at Townshend and North Springfield Lake Dams; and evaluation of instrumentation at Mansfield Hollow Dam, Mansfield, CT.

- Technical consultant for the evaluation of and rehabilitation design for the Lowell Flood Protection project in MA. The system consists of approximately 1,750 linear feet of floodwalls and 3,350 linear feet of earthen levees. CDM Smith performed a geotechnical investigation, developed a rehabilitation design to bring the levees and floodwalls into compliance with FEMA regulations, obtained a Section 408 permit from the USACE, and oversaw the construction.



Brian Kearney, P.E., Construction Administration Services

Brian has 20 years of experience serving as a Project Manager, Construction Manager, Resident Engineer, and Design Engineer on a wide range of multi-disciplinary municipal water supply treatment

and wastewater treatment projects. In addition, he has worked on a variety of environmental projects in the areas of hazardous waste, solid waste, and water resources.

- Deputy Design Services During Construction Manager for \$1.5 billion Catskill/Delaware Ultraviolet Light Disinfection Facility Construction

for New York City Department of Environmental Protection (NYCDEP)

- Managed more than \$24 million in multiple construction projects for the rehabilitation of more than 9 miles of the historic brick sewer system in the City of Newark, New Jersey
- On-site Manager of construction services and resident project representative for the \$15 million upgrade and expansion of the Village of Ridgewood's water pollution control facility in New Jersey



Arnold Bloch, Ph.D., Community Outreach

Arnie is a planner who has been involved in multi-modal projects for nearly four decades. He is most proud of his ability to help forge a strong partnership among agencies, diverse stakeholder interests, and the general public in efforts to best serve current and future needs with safe, accessible, and sustainable solutions.

- Participated on Hudson River RBD project
- Leading the public outreach activities for the New York City Department of Design and Construction (NYCDDC)/Mayor's Office of Recovery and Resiliency (MORR)/New York City Department of Parks and Recreation (NYCDPR) East Side Resiliency Study, a HUD-funded project (which grew out of

the 2014 Rebuild by Design competition) to improve resiliency and quality of life for residents, businesses, and institutions along Manhattan's East Side from Montgomery Street to 23rd Street

- Led the public involvement services for the NY Rising Community Reconstruction Program
- Works diligently to create effective two-way communication and understanding between agencies and the public, as well as to bring the interests of oversight agencies, communities, the underserved, and under-represented to the table
- Utilizes his planning experience and expertise to inform the outreach efforts he leads, from facilitating advisory groups, workshops, hearings, and focus groups

Executive Sponsorship Team



Thomas Schoettle, P.E., BCEE

Tom is a Senior Vice President of CDM Smith based in the firm's Edison, New Jersey office. He has nearly 30 years of diverse experience in the planning, design, and construction of environmental infrastructure throughout New Jersey and New York and is a board certified environmental engineer with a background civil engineering. Tom has led many of the firm's largest infrastructure design projects in the tri-State area. He presently serves as CDM Smith's North East Group Leader where he is responsible for all facets of the firm's business.

- Project Director/Manager on NYCDEP on-call environmental infrastructure design contracts for the past 15 years. Managed project lifecycle of over 130 discrete planning, design, and construction assignments on both in-city and upstate wastewater

and water supply infrastructure, including treatment facilities, regulators, stormwater systems, and dams as well as waterfront structures in Jamaica Bay and the Hudson and East Rivers

- Project Executive for numerous post-Superstorm Sandy projects, including NJDEP's HUD NEPA Compliance contract, Blue Acres Program, and NYC Housing Recovery Inspection Program, and New York State Governor's Office of Storm Recovery Social Services Block Grant (SSBG) Housing Program
- Project Manager/Executive on many municipal infrastructure design projects for communities and municipal utility authorities throughout New Jersey



Thomas Lewis, P.E., J.D.

Tom is a federal/state regulatory compliance and environmental expert with bachelors and masters degrees in engineering, a law degree with a focus on environmental law and regulatory/administrative law,

and more than 30 years of relevant experience on disaster recovery, hazardous waste investigations, ecosystem restoration, and flood mitigation-related projects.

- Project Director/Executive on numerous coastal and upland environmental and disaster management programs and projects, including: New Meadowlands Rail Link for Giants Stadium Redevelopment, three NJDOT on-call type contract; more than 10 different federal contracts—including FEMA, USACE, Federal

Highway Administration (FHWA)/US Department of Transportation (USDOT), and Federal District Court; and more than 10 other State of New Jersey on-call contracts—including NJDEP, Office of Emergency Management (OEM), and DPMC)

- Principal-in-Charge/Contract Executive on large-scale projects for clients/projects such as the Port Authority of New York and New Jersey (PANYNJ), USEPA (Grant-Funded Program Management Contract), USACE - New York District, and the U.S. Postal Service
- Program and project management experience encompasses more than 20 discrete projects/sites involving coastal and marine settings

Program Support



Susan Scavone, Grant/Economic Redevelopment Support

Susan directs Millennium Strategies' grant writing and administration, economic revitalization, disaster recovery, and housing rehabilitation efforts. She specializes in federal, state, and

philanthropic grant procurement, state agency coordination, and alternative funding methodology processes.

- Responsible for implementing the firm's Disaster Recovery and Sustainability Division, which has procured over \$71 million in funding from FEMA, HUD DR, CDBG, NJDEP, NJCDA, as well as philanthropic organizations in the aftermath of Hurricane Irene and Superstorm Sandy
- Procured and administered multiple grants and projects for Passaic and Union County flood prone towns where Millennium successfully acquired over 40 homes and elevated over 20 homes

- Responsible for the first demolition/rebuild elevation project completed in Pompton Lakes, NJ funded through FEMA
- Led disaster recovery and mitigation efforts in southern Bergen County, including the successful appeal of the Moonachie Borough Hall with FEMA Public Assistance, multiple funding streams for infrastructure mitigation efforts in Carlstadt, Little Ferry, and Moonachie and continued work with Moonachie, federal, and state entities on mitigation efforts for two manufactured housing locales in the borough



Steven Green, CPA, HUD/CDBG-DR Compliance

Steve is responsible for the design and oversight of all financial operations. As Financial Manager, he also assists in the selection, negotiation, contracting and oversight of subcontractors. This

position requires expertise in federal regulations, contract negotiations, accounting policies and controls, and project management.

- Financial Manager for NJDCA's Superstorm Sandy Disaster Recovery Support Term Contract

- Financial Manager for various disaster recovery projects, including Galveston (2009-2011) and Harris County (2009-2013), TX; Minot (2012-2014), ND; and the State of Illinois (2010-2014)
- Assists in the development and implementation of project policies and procedures especially in dealing with CDBG requirements
- Assists with the design of and controls in software applications used on these projects



Timothy Hillier, P.E., CFM, FEMA Compliance

Tim is a coastal engineer with a diverse background that combines a well-developed theoretical understanding of marine engineering concepts with significant practical experience. His areas of expertise

include coastal flood hazard analysis and mitigation, marine hydraulic evaluation, waterfront structural investigation and design, and hydrographic data collection.

- Senior Coastal Engineer for the USACE - New Orleans District for the Louisiana Coastal Flood Hazard Identification and Mapping Program.
- Extensive FEMA experience includes Coastal Flood Hazard Studies (Region 1), Map Modernization Contract (Region 1), and Map Coordination Contract (Regions 9 and 10).
- Waterfront inspections for U.S. Coast Guard stations in NY and CT and for Lockheed Martin Corporation in Middle River, MD.



Ginger Croom, P.E., USACE Coordination

Ginger is a program manager with 15 years of technical and management experience for federal, state, and municipal water resources planning and design projects in dam removal, stormwater, water

supply, watershed planning, and wastewater projects. Her technical strengths include hydraulic, hydrologic and water quality modeling, stormwater best management practices (BMPs), and watershed assessments.

- Project Manager for the USACE - Fort Worth District and Local Sponsor, Trinity Uptown Program, Fort Worth, TX, which included the concurrent performance of an FS and EIS

- Task Order Manager for USACE - North Atlantic Division's North Atlantic Coast Comprehensive Study that included technical oversight and task management completion of six pre-feasibility level studies analyses for coastal areas in NY, NJ, DE, MD, and DC
- Modeler for USACE's Muddy River Flood Control Studies in Boston and Brookline, MA



Craig Gadberry, P.E., Project Controls

Craig is a chief estimator with over 20 years of experience. As CDM Smith's leading authority on estimation, he oversees the performance of many of the firm's most vital projects. His responsibilities include the preparation of feasibility estimates, conceptual estimates, preliminary design estimates, final

design estimates, detailed bid estimates, and change order pricing, and negotiating.

■ Oversees the development of engineer's opinion of probable cost of construction estimates.

- Proficient in the use of many software packages, including Timberline, Primavera, and Insite Sitework.
- Experienced in alternate delivery methods, including design-build and construction manager-at-risk.

Technical Advisors



Timothy Feather, Ph.D., P.E., Flood Control

Tim's professional and academic focus has been on the development of interdisciplinary solutions to environmental challenges, and he has been involved in projects nationwide servicing federal and

state water resource agencies with special planning and policy studies focused on flood mitigation and risk reduction. As part of the USACE Evaluation of Environmental Investments Research Program, Tim has researched methods for monetary and nonmonetary valuation of environmental project features and developed an overall evaluation framework for environmental plan formulation.

■ Quality Manager for Blind River Freshwater Diversion Project in St. James Parish, LA, which included the development of a feasibility document and supporting environmental evaluations to support feasibility-level design for a new channel and diversion structures

- Quality Manager for USACE - North Atlantic Division's NACCS
- Quality Manager for USACE Institute of Water Resources, Enhancement of Technical Assistance to Coastal Communities, a nationwide contract that examined the spectrum of available tools and approaches described in terms of best practice, implementation, funding, monitoring, and risk quantification, based on published literature, technical reports, and other resources



Thomas Nye, Ph.D., P.E., Hydrologic & Hydraulics

Tom's extensive professional expertise in water resources includes stormwater, groundwater, and river modeling, watershed planning, operations, permitting, and conceptual design. He serves as Team Leader and

Technical Specialist in the development of stormwater master plans.

System (HEC-HMS) and Adaptive Hydraulics Model (ADH), and the U.S. Geological Survey's MODFLOW

- Participates in ongoing research and development of integrated surface water/groundwater tools and has developed the Dynamic Floodway Utility (DFU), a tool used to perform floodway analysis for FEMA Flood Insurance Studies using SWMM
- Serves as Team Leader and Technical Specialist for stormwater management projects, as well as integrated surface water, groundwater, and design projects



Gul Khan, P.E., Ecological Restoration

Gul has more than 26 years of professional experience that includes more than 18 years of experience on ecosystem restoration and wetland mitigation project management, investigations, engineering design, and permitting. He has been

directly involved in environmental and engineering projects in the Meadowlands for over 20 years, and the range of projects includes flood mitigation, environmental compliance, wetland restorations, and transportation improvements.

- Lead quality technical reviewer on several environmental restoration projects with NJDEP in the past 15 years

- Provided technical guidance and quality control reviews on several projects from stormwater improvement to mitigate flooding on State Route 17 (NJMC) and at Teterboro Airport (PANYNJ), ecosystem restoration in Meadowlands along Hackensack River (USACE - New York Districtistrictistrict, NJMC), and environmental site investigation compilation across several sites in Meadowlands (USACE - New York).
- Senior technical reviewer on multiple ecorestoration projects that have received American Council of Engineering Companies New Jersey and Coastal America Spirits Awards



Michael S. Schultz, P.E., Geotechnical Engineering

With 39 years of experience, Mike provides consulting, project and program management, senior technical review, and direction on complex geotechnical engineering efforts, including those involv-

ing geotechnical engineering aspects of water, water resources, wastewater, environmental remediation, transportation, and facilities projects.

- Project Director for New York City Economic Development Corporation's (NYCEDC's) for the design and construction services for Harbor Siphons

Project, a 1.75-mile long water pipeline between Brooklyn and Staten Island, New York

- Senior Quality Reviewer for design for 13 miles of DC Water and Sewer Authority's (DC Water's) 15- and 23-foot inside diameter combined sewer overflow (CSO) tunnels in Washington, DC
- Engineer-of-Record for design of the M Street Tunnels and Tingey Street Microtunnel in Washington, DC
- Geotechnical and Tunneling Task Leader for the Metropolitan District Commission's CSO Program Management Project in Hartford, CT



Lawrence Pesesky, AICP, Planning

Larry has more than 28 years of experience as a transportation planning and NEPA project manager preparing and managing multi-modal transportation planning and feasibility studies, EISs, and permit applications. He is a recognized national expert in methods for estimating the indirect and cumulative impacts of proposed transportation projects.

- Project Manager and/or Deputy Project Manager on PANYNJ transportation projects since 2000; projects

include PATH-EWR Connection Feasibility and Stage I Design Studies, JFK Light Rail System, and Interstate Network Analysis

- Project Manager on many New Jersey Turnpike Authority (NJTA) projects, such as Engineering and Environmental Investigations for Interchange 6 to 9 Widening Program
- Project Manager of five consecutive on-call environmental contracts with New York City Transit



Michael McCloskey, P.G., Site Investigation/Remediation

Mike has 32 years of experience in contaminant site investigations, hazardous waste remediation, and geo-environmental/hazardous waste experience, including technical, quality, project, persone, and financial management.

- Performs senior level reviews on projects under the NJDEP

- Manages projects for NJDEP, NJTA, NJ Transit, PANYNJ, and NJDOT
- Senior contract manager for NJDEP RI/Remedial Action Selection, remedial design, and landfill closure design on-call contracts—served on more than 20 RI/RAS projects for various RI, RAS, remedial design, and landfill closure-related environmental assessments
- Principal-in-charge on three 2-year IQCs for on-call general environmental services for DPMC

1.6 Staff Commitments

The time commitments for members of our team are presented in the Key Personnel Data Sheets presented under the subtab at the end of this section. For ease of review, the data sheets are presented in alphabetical order.

Name	Credentials	Years Experience	Project Role	Experience Highlights
Thomas Schoettle	P.E., BCEE	29	CDM Smith Contract Executive	<ul style="list-style-type: none"> Project Director/Manager on NYCDEP on-call environmental infrastructure design contracts for the past 15 years. Managed project lifecycle of over 130 discrete planning, design, and construction assignments on both in-city and upstate wastewater and water supply infrastructure, including treatment facilities, regulators, stormwater systems, and dams, as well as waterfront structures in Jamaica Bay, and the Hudson and East Rivers Project Executive for numerous post-Superstorm Sandy projects, including NJDEP's HUD NEPA Compliance contract, Blue Acres Program, and NYC Housing Recovery Inspection Program, and NYS Governor's Office of Storm Recovery (GOSR) SSBG Housing Program
Thomas Lewis	P.E., JD	30	Louis Berger Contract Executive	<ul style="list-style-type: none"> Project Director/Executive on numerous coastal and upland environmental and disaster management programs and projects, including New Meadowlands Rail Link for Giants Stadium Redevelopment, three NJDOT on-call type contracts; more than 10 different federal contracts (including FEMA, USACE, FHWA/USDOT, and Federal District Court); and more than 10 other State of New Jersey on-call contracts (including NJDEP, OEM, DPMC) Principal-in-Charge/Contract Executive on large-scale projects for clients/projects such as the New Meadowlands Rail Link for Giants Stadium Redevelopment, PANYNJ, USEPA, USACE - New York District, and the U.S. Postal Service
Maria Watt	P.E.	30	Program Manager	<ul style="list-style-type: none"> Principal-in-Charge, Project Manager, Project Director, and Program Manager for numerous NJDEP projects, including the Environmental Action contract, HUD NEPA Compliance contract, Design Term Contract for Liberty State Park Freshwater Wetland Ecosystem Restoration Project, and the Demolition Consultant Multiple Award Term contract to support of the Blue Acres Program Responsible for the NJDCA contract to develop New Jersey's first Action Plan in response to Superstorm Sandy and the development of procurement documents to facilitate obtaining the proper resources to implement the HUD approved Action Plan Program Manager for the U.S. Department of Energy's Environmental Restoration Contract at the Brookhaven National Laboratory, a major environmental restoration contract, which included the restoration of the Peconic River
Sean McGonigal	P.E.	22	Assistant Program Manager	<ul style="list-style-type: none"> Since 2005, has served as Louis Berger's Contract Manager on four consecutive, two-year indefinite quantity general environmental services term contracts for the DPMC Project Manager for fast-track Meadowlands Railroad and Roadway Improvement Project and Lead Representative for client on Meadowlands Xanadu Project
Arnold Bloch	Ph.D.	39	Community Relations/Technical Support Task Leader	<ul style="list-style-type: none"> Leading the public outreach activities for the NYCDDC/MORR/NYC DPR East Side Reliency Study, a HUD-funded project (which grew out of the 2014 RBD competition) to improve resiliency and quality of life for residents, businesses, and institutions along Manhattan's East Side from Montgomery Street to 23rd Street Led the public involvement services for the NY Rising Community Reconstruction Program
Nicolaas Veraart	AICP, ASLA	28	EIS Task Leader	<ul style="list-style-type: none"> Has secured NEPA approvals for some of the most complex and sensitive projects in the United States, such as the World Trade Center Memorial and Redevelopment Plan NEPA EIS in Lower Manhattan for HUD Leads sustainable planning initiatives in the New Jersey/New York area, such as the Hoboken Strategic Green Infrastructure Plan, a Local Demonstration Project under the HUD Sustainable Communities program, which integrates transit resiliency with community resilience, the most recent planning for Superstorm Sandy recovery, which included transit and alternative energy plans for the South Jersey Transportation Authority

Name	Credentials	Years Experience	Project Role	Experience Highlights
Peg McBrien	P.E., PWS	28	Regulatory Compliance Task Leader	<ul style="list-style-type: none"> Managed restoration designs for more than 1,800 acres of aquatic ecosystems As a former USACE and USEPA employee, thoroughly familiar with environmental regulations, guidelines, and procedures
Michael Schmidt	P.E., BCEE, D.WRE	31	Feasibility Study Task Leader	<ul style="list-style-type: none"> Developing stormwater, flood control, coastal, ecosystem restoration, and water resource programs for more than 180 communities across 28 U.S. states and five countries Directing more than 35 coastal stormwater and tidal control projects Directing projects totaling \$500 million of stormwater, flood control, coastal, and environmental restoration infrastructure, saving clients more than \$240M in implementation costs through innovation
Stephen Whiteside	P.E.	39	Design Task Leader	<ul style="list-style-type: none"> Lead Geotechnical Engineer for the Trinity Uptown Program in Fort Worth, TX, which included the concurrent performance of an FS and EIS Member of a Board of Consultants, required by the Federal Energy Regulatory Commission, in response to an emergency rat New York City's Cannonsville Dam
Brian Kearney	P.E.	20	Construction Administration Task Leader	<ul style="list-style-type: none"> Deputy Design Services During Construction Manager for \$1.5 billion Cat/Del UV Light Disinfection Facility Construction for NYCDEP Managed more than \$24 million in multiple construction projects for the rehabilitation of more than 9 miles of the historic brick sewer system in the city of Newark, NJ
Susan Scavone		29	PgM Support - Grant/Economic Redevelopment Support Lead	<ul style="list-style-type: none"> Responsible for implementing the firm's Disaster Recovery and Sustainability Division, which has procured over \$71 million in funding from FEMA, HUD DR, CDBG, NJDEP, NJCDA as well as philanthropic organizations in the aftermath of Hurricane Irene and Superstorm Sandy Procured and administered multiple grants and projects for Passaic and Union County flood prone towns where firm successfully acquired over 40 homes and elevated over 20 homes
Steven Green	CPA	31	PgM Support - HUD/CDBG-DR Compliance Lead	<ul style="list-style-type: none"> Financial Manager for NJDCA's Superstorm Sandy Disaster Recovery Support Term Contract Financial Manager for various disaster recovery projects, including Galveston (2009-2011) and Harris County (2009-2013), TX; Minot (2012-2014), ND; and the State of Illinois (2010-2014)
Timothy Hillier	P.E., CFM	13	PgM Support - FEMA Compliance Lead	<ul style="list-style-type: none"> Senior Coastal Engineer for the USACE New Orleans District for the Louisiana Coastal Flood Hazard Identification and Mapping Program Extensive FEMA experience includes Coastal Flood Hazard Studies, Map Modernization Contract, and Map Coordination Contract
Ginger Croom	PE	19	PgM Support - USACE Coordination Lead	<ul style="list-style-type: none"> Project Manager for the USACE Fort Worth District and Local Sponsor, Trinity River Central City Project, Fort Worth, Texas, which included the concurrent performance of an FS and EIS Task Order Manager for USACE North Atlantic Division's NACCS providing technical oversight and task management completion of six pre-feasibility level studies analyses for coastal areas in NY, NJ, DE, MD, and DC
Craig Gadberry	P.E.	21	PgM Support - Project Controls	<ul style="list-style-type: none"> Oversees the development of engineer's opinion of probable cost of construction estimates Proficient in the use of many software packages, including Timberline, Primavera, and Insite Sitework

Name	Credentials	Years Experience	Project Role	Experience Highlights
Timothy Feather	Ph.D., P.E.	26	Technical Advisor - Flood Control	<ul style="list-style-type: none"> Quality Manager for Blind River Freshwater Diversion Project in St. James Parish, LA, which included the development of a feasibility document and supporting environmental evaluations to support feasibility-level design for a new channel and diversion structures Quality Manager for USACE North Atlantic Division's NACCS
Thomas Nye	P.E., Ph.D.	20	Technical Advisor - Hydrologic & Hydraulics	<ul style="list-style-type: none"> Modeling experience includes various versions of the USEPA's SWMM, USACE's HEC-HMS and ADH, and the U.S. Geological Survey's MODFLOW Participates in ongoing research and development of integrated surface water/groundwater tools and has developed the DFU, a tool used to perform floodway analysis for FEMA Flood Insurance Studies using SWMM
Gul Khan	P.E.	26	Technical Advisor - Ecological Restoration	<ul style="list-style-type: none"> Managed ecological restoration projects for and coordinated with NJDEP on more than 15 restoration projects in the past 15 years Managed projects in the Meadowlands since 2007, including flood control services, ecosystem restoration, and environmental site investigation compilation (for USAC - New York District)
Michael Schultz	P.E.	39	Technical Advisor - Geotechnical Engineering	<ul style="list-style-type: none"> Project Director for NYCEDC's design and construction services for Harbor Siphons Project, a 1.75-mile long water pipeline between Brooklyn and Staten Island, NY Senior Quality Reviewer for design for 13 miles of DC Water and Sewer Authority's (DC Water's) 15- and 23-foot inside diameter CSO tunnels in Washington, D.C.
Lawrence Pesesky	AICP	34	Technical Advisor - Planning	<ul style="list-style-type: none"> As Program Manager/Director, provided QA/QC on environmental planning contracts with New York City Transit and the Peninsula Corridor Joint Powers Board, both of which involved EISs and other environmental planning services with combined contract values over \$10M As Principal-in-Charge, provided QA/QC on environmental research and technical support contract with Federal Highway Administration through a nationwide IDIQ contract
Michael McCloskey	P.G.	25	Technical Advisor - Site Investigation/Remediation	<ul style="list-style-type: none"> Senior Contract Manager for NJDEP RI/RAS, remedial design, and landfill closure design on-call contracts—served on more than 20 RI/RAS projects for various RI, RAS, remedial design, and landfill closure-related environmental assessments Principal-in-charge on three 2-year IQCs for on-call general environmental services for DPMC

Program Resources

Stacie Anderson		12	HUD CDBG-DR Compliance	<ul style="list-style-type: none"> Section 3 Technical Specialist for NJDEP Sandy NEPA Compliance Term Contract Section 3 Technical Specialist for the New York State GOSR project
Kristen Ahlfed	AICP, PP	16	Community Outreach/ Stakeholder Support	<ul style="list-style-type: none"> Focus includes community planning and public engagement Experienced in large consensus-building exercises as part of agency coordination Understands importance of getting stakeholder buy-in early for a successful project
Stuart Koprweis		37	Funding, Financing and Grant Management	<ul style="list-style-type: none"> Has been instrumental in developing alliances and partnerships with numerous statewide organizations, as well as assisting both municipal governments and private corporations from New York to Colorado by providing financial incentives for real estate highest/best uses and economic development / impact analysis Has participated in and credited with the phenomenal revitalization of Jersey City; creating various new programs including a block long Art Mural to promote economic growth

Technical Resources

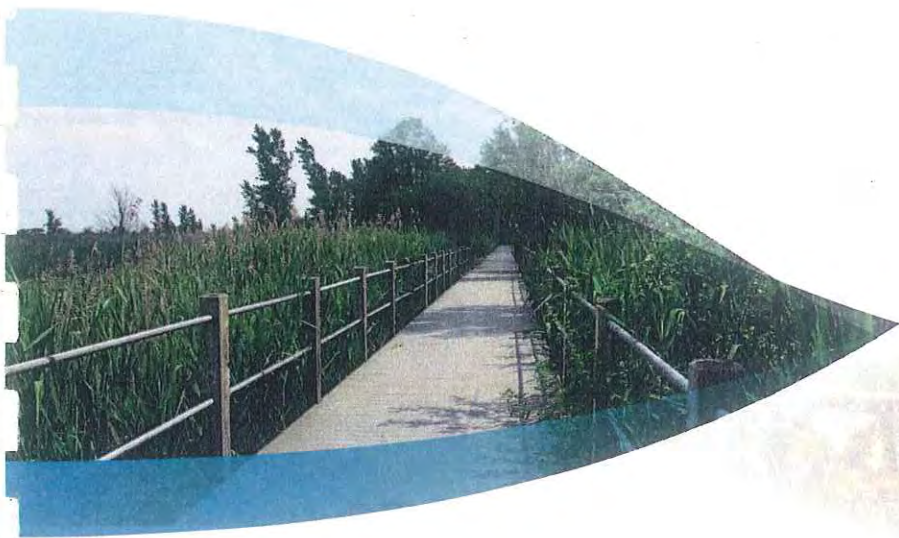
Name	Credentials	Years Experience	Project Role	Experience Highlights
Virginie Amerlynck	AICP	14	Socioeconomics & Environmental Justice	<ul style="list-style-type: none"> NYCEDC, Raise the Shorelines Citywide Study, New York, New York New York State GOSR, Second Anniversary Report
Mitchell Heineman	P.E., BCEE, D.WRE	32	Hydrologic, Hydraulic and Water Quality Modeling	<ul style="list-style-type: none"> Participated in numerous CSO and stormwater planning projects for the Boston Water and Sewer Commission, MA Served as Project Engineer for a variety of CSO, sewer, and stormwater planning projects throughout New England
William Cesanek	P.P., AICP	38	Planning	<ul style="list-style-type: none"> Project Manager for and environmental impact assessment for a Special Area Management Plan for the Hackensack Meadowlands District Commission under the direction of USEPA and USACE Served as the assistant project management for the EIS required for permitting of a \$1.5 billion project to widen the NJ Turnpike
AmyMarie Accardi-Dey	Ph.D.	15	Water & Sediment Quality	<ul style="list-style-type: none"> USACE, Kansas City District, Lower Passaic River Restoration Project Remedial Investigation/Feasibility Study Oversight, Bergen County, NJ USACE, Kansas City District, Lower Passaic River Restoration Project, Feasibility Study, Bergen County, NJ
Jennifer Brunton	P.E., CFM	17	Ecosystem Restoration	<ul style="list-style-type: none"> Contributed to the restoration of nearly 1,000 acres of habitat restoration, over 500 acres of which is located within New Jersey NJDEP, Higbee Beach Wetland Restoration Project, Cape May County, NJ
Edward Samanns	PWS, CE	28	Natural Resources	<ul style="list-style-type: none"> Managed the updated version of the 1981 USACE Technical Guide on Shore Protection, Maryland for USACE - Baltimore District Contributed on Richard P. Kane Natural Area, Wetland Mitigation Bank for EarthMark Mitigation Services, LLC in Rutherford, NJ
Dana Boyadjian	P.E., LSRP	39	Environmental Engineering	<ul style="list-style-type: none"> Project Manager for residential home demolition under NJDEP's Blue Acres Program Senior Environmental Engineer for Superstorm Sandy Environmental Review Support Contract
Eric Fang	AIA, AICP, LEED AP	26	Urban Planning and GIS Visualization	<ul style="list-style-type: none"> Has led large-scale urban design and redevelopments and university and campus planning projects nationally and internationally for public agencies, private developers, and large institutions Experience include Arverne-by-the-Sea, the largest waterfront urban renewal site in the US and widely cited as a model for resilient waterfront development and Special Initiative for Rebuilding and Resiliency
Chris Watt	P.G., LSRP	16	Site Investigation	<ul style="list-style-type: none"> Has been responsible for all technical, financial, and contractual aspects for over 40 active projects for NJDEP's Remedial Investigation Term Contract over the past two years As the Licensed Site Remediation Professional (LSRP), has the ultimate technical authority and ethical responsibility for Site Investigations, Remedial Investigations, Remedial Actions, and issuances of Remedial Action Objectives (RAO) necessary to close contaminated site, especially for state and federal clients
Rafael Canizares	Ph.D.	19	Coastal Modeling	<ul style="list-style-type: none"> Experienced in the development and application of morphological models of coastal and estuarine areas, which includes the integration of hydrodynamic, wave, and sediment transport modeling Expertise in the field of storm surge modeling and forecasting, including the development of regional coastal models and their integration with data assimilation techniques for the purpose of model correction, calibration, and initialization

Name	Credentials	Years Experience	Project Role	Experience Highlights
Santiago Alfageme	P.E.	20	Coastal Engineering	<ul style="list-style-type: none"> Specializes in shoreline protection, storm damage reduction, dredging, and navigation projects in the open ocean, harbors, coastal wetlands, inlets, and inland waterways Served as Project Manager and Senior Coastal Engineer for USACE's North Atlantic Coast Comprehensive Study Serves as principal for a feasibility study for NYC Economic Development Corporation's Raise Shorelines Citywide Study
Kapila Pathirage	Ph.D., P.E.	23	Geotechnical Engineering	<ul style="list-style-type: none"> Engineering experience includes investigations, design, and construction for tunnels, microtunneling, HDD, dams, slurry walls, pipe lines, and many other types of projects Senior geotechnical engineer for a HDD project to cross the Raritan River in New Jersey
Virginia Roach	P.E., BCEE	30	Green Design/Green Infrastructure	<ul style="list-style-type: none"> Experience includes a broad range of stormwater management studies, site designs, and construction projects Managing green infrastructure design services for the NYCDEP's Office of Green Infrastructure and Edenwald Houses
Jeb Benzing		15	Cost-Benefit Analysis	<ul style="list-style-type: none"> Highly skilled in the application of risk management methodologies and working with stakeholders to integrate continuous risk management practices into their planning processes A resiliency subject matter expert with extensive experience in many facets of emergency management and security, including emergency and disaster response and mitigation, planning, preparedness, and exercises
Ann Folli	PWS	23	Regulatory Compliance	<ul style="list-style-type: none"> NJDEP (in coordination with the NOAA), Lincoln Park Wetland Restoration Project, Jersey City, NJ New Jersey Meadowlands Commission, Restoration of Rutherford/East Rutherford Drainage Ditch System, New Jersey Meadowlands
Hope Luhman	Ph.D., RPA	31	Historic Preservation/Cultural Resources	<ul style="list-style-type: none"> 77th Regional Readiness Command, Phase IA Archaeological Surveys, New York and New Jersey 99th Regional Support Command-US Army Reserve and USACE-Mobile District, Phase I Archeological Survey of the Floyd WET Facility, Floyd, Oneida County, New York
William Friers	P.E.	42	Structural Engineering	<ul style="list-style-type: none"> Experienced in the design, inspection, evaluation, construction, and rehabilitation of dams, hydroelectric facilities, and associated hydraulic structures Has inspected and evaluated over 70 dams and served as Lead Engineer for the evaluation and design of remedial repairs for over 50 New York State dams
Seth Nehrke	P.E., D.WRE	16	Civil Engineering	<ul style="list-style-type: none"> Experience includes both urban and rural hydrology and hydraulics, USEPA NPDES permit compliance, erosion and sediment control, and sea level rise evaluations Has designed more than \$60 million in water resource and stormwater capital improvements
Bob Thiel	P.E.	20	Transportation	<ul style="list-style-type: none"> 20 years of experience in Alternative Project Delivery and civil engineering design, including roadway alignment, preparation of construction contract documents for public bidding, including design of construction staging and traffic control plans
Steven Fusco	RLA, LEED AP	10	Site Planning	<ul style="list-style-type: none"> Experience includes both passive and active park landscape design, playground design; woodland, shoreline, and wetland restoration, and campus master planning Specializes in large scale park planning and development
Robert Klein	P.E.	17	Construction Administration	<ul style="list-style-type: none"> Seasoned Construction Manager and Resident Engineer Served as resident engineer for NYCDEP's Edenwald Houses North and South green infrastructure project Construction manager for NYCDEP's Brookfield Avenue Landfill Remediation project



Section 1

Organization Chart/ Staffing Plan



PROJECT KEY PERSONNEL LIST

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT							
		FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE	HOURLY WAGE LEVEL 1-7
CDM Smith	Maria Watt, P.E. Program Manager	15	10	15	5	5		5	7
CDM Smith	Thomas Schoettle, P.E. Executive Sponsorship Team	5	5	5					7
CDM Smith	Timothy Hillier, CFM FEMA Compliance	5	5	5					7
CDM Smith	Stephen Whiteside, P.E. Design Task Manager	5		20	10	5		5	7
CDM Smith	Michael Schmidt, P.E. Feasibility Study Task Manager	20	10	5				5	7
CDM Smith	William Cesanek, PP, AICP Planning		5						7
CDM Smith	Virginia Roach, P.E. Green Design/Green Infrastructure	20		20					7
CDM Smith	Peter Chenevey, P.E. Civil Engineering	10		10					7
CDM Smith	Mitchell Heineman, P.E. Hydrologic, Hydraulic and Water Quality Modeling	10		5					7
CDM Smith	Gary Mercer, P.E. Hydrologic, Hydraulic and Water Quality Modeling	10		5					7
CDM Smith	Kirk Westphal, P.E. Hydrologic, Hydraulic and Water Quality Modeling	10		5					7
CDM Smith	Michael Schultz, P.E. QA/QC: Geotechnical Engineering	5		5					7
CDM Smith	Ginger Croom, P.E. USACE Coordination	5		5					6
CDM Smith	Thomas Nye, Ph.D, P.E. Technical Advisor: Hydrologic & Hydraulics	5		5					6
CDM Smith	Timothy Feather, Ph.D., PE Technical Advisor: Flood Control/Coastal Engineering	5		5					6
CDM Smith	Patricia Forgang, CHMM Regulatory Compliance	10		10					6
CDM Smith	Kate Stenberg, Ph.D Planning		10						6
CDM Smith	Kapila Pathirage, Ph.D, P.E. Geotechnical Engineering	5		5					6
CDM Smith	Robert Bunting, P.E. Geotechnical Engineering	20		20					6
CDM Smith	Nancy Vigneault, P.E. Green Design/Green Infrastructure	20		20					6

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FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT							
		FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE	HOURLY WAGE LEVEL 1-7
CDM Smith	Sherry Crouch, P.E. Cost-Benefit Analysis	5		5					6
CDM Smith	Manuel Perotin, P.E. Cost-Benefit Analysis	5		5					6
CDM Smith	William Friers, P.E. Structural Engineering	20		20					6
CDM Smith	Timothy Verwey, P.E. Structural Engineering	5		10					6
CDM Smith	Michael Oleson, P.E. Civil Engineering	10		10					6
CDM Smith	Brian Kearney, P.E. Construction Administration Services				10	10	5	5	6
CDM Smith	Craig Gadberry, P.E. Project Controls	20		20					6
CDM Smith	Steven Green, CPA HUD CDBG-DR Compliance	5	5	5	5				6
CDM Smith	Dana Boyadjian, P.E., LSRP Environmental Engineering	20		20					6
CDM Smith	David Spector, LEED AP Urban Planning and GIS/Visualization	5		5					6
CDM Smith	Warren Newman, Jr., P.E. Construction Administration				20	20		10	5
CDM Smith	Wing Chan Geotechnical Engineering	20		20					5
CDM Smith	Seth Nehrke, P.E. Civil Engineering	30		30	10	10			5
CDM Smith	Rebecca Jablon, AICP, LEED AP HUD CDBG-DR Compliance		10						5
CDM Smith	Brian Caufield, P.E. Coastal Modeling	10		5					5
CDM Smith	Michael Giovannozzi, P.E. Coastal Modeling	10		5					5
CDM Smith	Robert Klein, P.E. Construction Administration				20	20		10	5
CDM Smith	Steven Fusco, RLA, LEED AP Site Planning	15		15					4
CDM Smith	Frances Bui, P.E. Coastal Engineering	25		25					4
CDM Smith	Lauren Klonsky, P.E. Coastal Engineering	25		25					4
CDM Smith	Melissa Harclerode, ENV SP Site Investigation	25		25					4
CDM Smith	Stacie Anderson HUD CDBG-DR Compliance	5		5					3
The Louis Berger Group	Tom Lewis, P.E. Executive Sponsorship Team	5	5	5					7

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		FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE	HOURLY WAGE LEVEL 1-7
The Louis Berger Group	Gul Khan, P.E. Technical Advisor: Civil & Ecological Renovation	5	5	5		5			7
The Louis Berger Group	Lawrence Pesesky, AICP Technical Advisor: Planning		5						7
The Louis Berger Group	Albert Racciatti, AICP, PP Socioeconomics & Environmental Justice	5	5	5					7
The Louis Berger Group	Dincer Egin, Ph.D, P.E. Geotechnical Engineering	5		5					6
The Louis Berger Group	Hope Luhman, Ph.D, RPA Historic Preservation/Cultural Resources	5	10						6
The Louis Berger Group	Mike McCloskey, PG Technical Advisor: Site Investigation/Remediation	5	5	5					6
The Louis Berger Group	Sean McGonigal, P.E. Assistant Program Manager	15	20	10	5	5		5	6
The Louis Berger Group	Bob Thiel, P.E. Transportation Engineering	5		5					6
The Louis Berger Group	Nicolaas Veraart, AICP, ASLA EIS Task Manager	20	25	5					6
The Louis Berger Group	Hong Sun, P.E. Transportation Engineering	5	5	5					6
The Louis Berger Group	Jennifer Brunton, P.E., CFM Ecosystem Restoration	20	20	30		5			5
The Louis Berger Group	Chris Corliss, P.E. Environmental Engineering	20	20	5					5
The Louis Berger Group	Muzamil Husain, P.E. Structural Engineering	5		5					5
The Louis Berger Group	Ajay Kathuria, P.E., LSRP Regulatory Compliance	20	15	10		5			5
The Louis Berger Group	Mary Weber, P.E. Green Design/Green Infrastructure	10	10	20					5
The Louis Berger Group	Jeff Tabar, P.E. Coastal Engineering	5		5					5
The Louis Berger Group	Peg McBrien, P.E., PWS Regulatory Compliance Task Manager	30	20	25		10			5
The Louis Berger Group	Solomon Gbondo-Tugbawa, Ph.D, P.E. Water Sediment Quality	5	10						5
The Louis Berger Group	AmyMarie Accardi-Dey, Ph.D Water & Sediment Quality	10	10						5
The Louis Berger Group	Kirit Mevawala, P.E. Transportation Engineering	15		15					5
The Louis Berger Group	Edward Samanns, PWS, CE Natural Resources	10	20	10					5
The Louis Berger Group	John Hasselmann, P.E., CCM Construction Administration		3		10		90	50	5

PROJECT KEY PERSONNEL LIST

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT							
		FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE	HOURLY WAGE LEVEL 1-7
The Louis Berger Group	Fameeda Ali, CHMM Site Investigation	5	10						5
The Louis Berger Group	Chris Watt, PG, LSRP Site Investigation	20	20						5
The Louis Berger Group	Thomas Waldron, PG, LSRP Site Investigation	20	20			5			5
The Louis Berger Group	Ian Miller, MAFF Socioeconomics & Environmental Justice	5	10						5
The Louis Berger Group	Sharon Bailey, P.E. Water Sediment Quality	10	5	10					5
The Louis Berger Group	Michael Dunn, P.E. Regulatory Compliance	10	10						5
The Louis Berger Group	Ann Folli, PWS Regulatory Compliance	25	25						4
The Louis Berger Group	Duncan Kisia Socioeconomics & Environmental Justice	5	5						4
The Louis Berger Group	Bethany Bearmore, P.E. Ecosystem Restoration	20	20	15					4
The Louis Berger Group	Abdulai Fofanah, P.E., CFM Hydrologic, Hydraulic, and Water Quality Modeling	15	15						4
The Louis Berger Group	Dan Martin, P.E. Environmental Engineering	15	15	15					4
The Louis Berger Group	Stephen Bedford, Ph.D Historic Preservation/Cultural Resources	10	10						4
The Louis Berger Group	Deborah Matherly, AICP Planning	5	15						4
The Louis Berger Group	Carolyn Mitchell, RCLA Urban Planning and GIS / Visualization	10		5					5
The Louis Berger Group	Virginie Amerlynck, AICP Socioeconomic and Environmental Justice	5	15						4
The Louis Berger Group	Alicia Meyers, P.E. Transportation Engineering	5	15	15					4
The Louis Berger Group	Sachin Apte, P.E. Construction Administration			15	10		50	20	3
The Louis Berger Group	Susan Lindstrom Natural Resources	5	25	5					3
The Louis Berger Group	Tara Stewart Natural Resources	5	25	5		10			3
The Louis Berger Group	Leo Tidd, AICP Planning		15						3
The Louis Berger Group	Tom Shinsky Natural Resources	15	15			10			3

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		FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE	HOURLY WAGE LEVEL 1-7
The Louis Berger Group	Jennifer Gonzalez, AICP HUD CDBG-DR Compliance	20	20						3
The Louis Berger Group	Mike McWatters, P.E. Environmental Engineering	15	15	15		5			3
The Louis Berger Group	Thalia Loor, P.E. Water Sediment Quality	10	10						3
The Louis Berger Group	Lauren Hayden Historic Preservation/Cultural Resources	5	15						1
The Louis Berger Group	Christina Muir Historic Preservation/Cultural Resources	5	15						1
Binera	Jeb Benzing Cost-Benefit Analysis	10		5					7
Binera	Michelle Terry Cost-Benefit Analysis	10		10					3
BioHabitats, Inc.	Teresa Doss Ecosystem Restoration	15	15	15					5
BioHabitats, Inc.	Christopher Streb, P.E., LEED AP, Ecosystem Restoration	15	15	15					3
BioHabitats, Inc.	Ted Brown Green Design/Green Infrastructure	15	15	15					4
Boswell Engineering	Jeffrey Morris, P.E., PLS, PP Civil Engineering			10					5
Boswell Engineering	John Valentin, P.E. Structural Engineering			10					5
Fitzgerald and Halliday, Inc.	Arnold Bloch, Ph.D Community Relations / Technical Support	5	10						6
Fitzgerald and Halliday, Inc.	Kristen Ahlfeld, P.E., AICP, PP, Community Outreach/Stakeholder Support	5	10						5
Fitzgerald and Halliday, Inc.	Ryan Walsh, AICP, PP, LEED GA, Community Outreach/Stakeholder Support	5	10						5
Fitzgerald and Halliday, Inc.	Melissa Pineda Community Outreach/Stakeholder Support	10	10						4
Jackson Associates Group, LLC	Yocontalie Jackson Construction Administration						15		7
Millennium Strategies, LLC	Susan Scavone Grant/Stakeholder Support	5	10						7
Millennium Strategies, LLC	David Jenkins Funding, Financing and Grants Management	15	15						6
Millennium Strategies, LLC	Bernadette McPherson, Esq Funding, Financing and Grants Management	5	10	5					6

PROJECT KEY PERSONNEL LIST

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		FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE	HOURLY WAGE LEVEL 1-7
Millennium Strategies, LLC	Stuart Koprweis Funding, Financing and Grants Management	5	10						6
Moffatt & Nichol	Santiago Alfageme, P.E. Coastal Engineering	20		20					7
Moffatt & Nichol	Rafael Canizares, Ph.D Coastal Modeling	20		20					5
Moffatt & Nichol	Johnny Martin, P.E. Coastal Modeling	10		5					5
Perkins Eastman Architects/EEK	Geoffrey Roesch, RLA Site Planning	5		10					7
Perkins Eastman Architects/EEK	Eric Fang, AIA, AICP, LEED AP Urban Planning and GIS Visualization	10	5						6
Perkins Eastman Architects/EEK	Sid Burke, RLA Site Planning	5		10					5
Perkins Eastman Architects/EEK	Tanya Barth, RA Site Planning	5		10					5
Perkins Eastman Architects/EEK	Annisia Cialone, AICP Urban Planning and GIS Visualization	15	15						4

INSERT THE WAGE LEVEL FROM 1 TO 7 OF EACH KEY PERSON. **DO NOT** INSERT ANY HOURLY RATE



Section 2

Experience on Large Scale Projects











Section 2

Experience on Large-Scale Projects

CDM Smith and Louis Berger have been trusted partners to both NJDEP and NJDPMC on many of the state's largest and most challenging programs. Most recently, both firm's have also provided valuable support on programs that have arisen in response to Superstorm Sandy. We have come together on this project because collectively we bring the ideal blend of New Jersey focused environmental planning and NEPA expertise, combined with results-oriented design experience on flood control systems.

Together with our carefully selected team of subconsultants, we have the confidence that we can deliver a successful project for the state of New Jersey. This section provides an overview of our collective experience and how this experience and the expertise of our people will address the critical success factors shown below in **Figure 2-1** as well as inform our technical approach, summarized in Section 3.

Figure 2-1. The CDM Smith/Louis Berger team's relevant experience delivers on each of the key project success factors.

Key Success Factors	Experience to Meet the Challenge
 Concurrent completion of Feasibility Study and EIS by May 2017	This team has decades of NJDEP and DPMC experience and proven technical approach from similar projects to streamline the management and execution of the project to meet the aggressive schedule. In addition, both CDM Smith and Louis Berger have the proven ability to successfully execute concurrent FS/EIS efforts, as demonstrated by the Trinity Uptown Program and World Trade Center projects.
 Alternative solutions that are sensitive to the needs of all stakeholders.	Our unparalleled resume of work within the Meadowlands provides us with the existing relationships within the local communities to balance programmatic objectives with local needs and identify co-benefits that need to be present in the alternatives to build consensus and achieve buy-in.
 Permittable, constructable designs and construction plans for flood mitigation/protection and environmental infrastructure.	CDM Smith and Louis Berger are leaders in water resources management, geotechnical engineering, contaminants, and ecosystem integration, having performed these services for all major state and federal agencies (NJDEP, DPMC, USACE, USEPA).
 Compliance with requirements for HUD CDBG and FEMA funding.	We wrote the HUD Action Plan and are overseeing major FEMA programs in New Jersey and New York. We are also recognized leaders in HUD CDBG and FEMA compliance nationwide.
 Depth of resources with local experience to perform multiple concurrent efforts.	The CDM Smith/Louis Berger team has the unmatched experience performing EIS, wetland restoration, and publicly funded remediation in New Jersey to generate alternatives quickly.
 Regulatory approvals at federal, state and local level.	CDM Smith and Louis Berger have decades of experience and established credibility with regulators. Our team offers local firms with specific experience in the Pilot Area No. 1 communities.
 A Feasibility Study that identifies additional funding sources for future sustainable resiliency projects.	Our team members have experience identifying alternative financing options, including work on the Blue Acres and wetlands banks programs.
 A final design that is manageable, operable, and financially sustainable.	Our team understands the constraints and practicalities of these communities and also has experience designing sponsorship programs for major urban centers.

2.1 Relevant Qualifications

The following pages highlight our team's combined qualifications in the service areas that are most relevant to this contract. Our six key experience examples are introduced on page 2-9.

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2.1.1 FS/Design Development

CDM Smith and Louis Berger have completed FSs for most of our design projects, including flood control projects. This experience includes:

- CDM Smith's work on the Trinity Uptown Plan flood protection program in Fort Worth, Texas, involved an FS to develop alternatives that translated the riverfront "live, work, play" revitalization vision into a functional design that met USACE approval. This project included a fast-track, integrated FS/EIS that was completed and received a Record of Decision in less than two years.
- For USACE-New York District, Louis Berger executed FSs for two separate projects: the Keyport Flood Control Project in the Borough of Keyport, NJ and the Highlands Flood Control Project, in the Borough of Highlands, NJ. For each project, Louis Berger evaluated a storm damage reduction plan and formulated both structural and non-structural design alternatives for the 50-year storm.
- For the USACE and Louisiana Department of Natural Resources, Coastal Restoration Division, CDM Smith provided planning and developed preliminary concepts for a freshwater diversion into the Blind River from the Mississippi River in St. Johns Parish,

LA. The EIS included all components of a large and complex NEPA study, including environmental, engineering, public involvement, and agency coordination.

- For the Muddy River Restoration project, CDM Smith designed a flood control system in Boston and Brookline, MA. This environmental restoration project included constructed wetlands and involved coordinating the environmental permitting and site restoration in a congested city environment, requiring input from multiple government agencies and city departments.

2.1.2 EISs

The CDM Smith/Louis Berger team is composed of biologists, ecologists, wetland scientists, planners, archeologists, air quality and noise specialists, geologists, engineers, and economists who have worked on more than 700 EISs nationwide, including projects for USACE.

Both CDM Smith and Louis Berger are national leaders in NEPA compliance support, including: internal and public meeting facilitation, comment analysis, alternatives development, impact analysis (including cumulative impacts), decision documents, and graphic and layout support. Collectively, the firms have more than 30 years

DEMONSTRATED EXPERTISE

Moving from Vision to Accepted Design



The CDM Smith/Louis Berger team understands that while this project will be informed by the work done by the RBD team, the final design must be representative of the needs and realities of the Pilot Area No. 1 communities, as well as available funds. Both firms have experience guiding design concepts through ultimate design and construction.

World Trade Center Redevelopment

Louis Berger managed a complex EIS effort for this culturally sensitive, high-profile project that translated the original design concept into a project that could be built within budget and meet strict regulatory schedule requirements.

Trinity Uptown Plan

CDM Smith's concurrent FS/EIS guided stakeholders through the evaluation and selection of a final design that provided flood protection while maintaining the essence of the original "live, work, play" project vision

of experience preparing EISs with nationally recognized subject matter expertise in a number of disciplines.

Our experience includes developing and implementing regulations and guidance for NEPA-related activities, reviewing third-party NEPA documents for regulatory compliance, and developing environmental management systems to coordinate agencies' NEPA programs. Through years of experience, CDM Smith and Louis Berger have completed all levels of NEPA compliance, from documenting categorical exclusions to preparing complex programmatic EISs. This wide breadth and depth of experience demonstrates our ability to complete any NEPA document, regardless of its complexity. For instance, Louis Berger prepared the E.O. 215 EIS for the 35-mile long New Jersey Turnpike Widening project between Interchanges 6 and 9. This E.O. 215 EIS was approved, and the project was advanced to final design, permitting, and construction.

The CDM Smith/Louis Berger team is proud to have successfully completed EISs for some of the most complex, fast-track disaster recovery projects in the tri-state area, including the World Trade Center Memorial and Redevelopment Plan GEIS and the Fulton Street Transit Center EIS.

2.1.3 Flood Risk Reduction and Shoreline Protection

With more than 50 years of flood control and stormwater management experience, we have applied our expertise to more than 300 projects in the U.S. and around the world. Our proven approach seeks to provide multiple benefits, while balancing multiple issues, such as sustainability, stormwater and flood controls, public parks and green spaces, aesthetics, redevelopment opportunities and public acceptance.

Our team provides a variety of planning, modeling, and design services for flood control, risk management, warning, and recovery including:

- Model and database development
- Dynamic floodplain and floodway modeling and mapping

- Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) and digital FIRM (DFIRM) support and program review
- Development standards and ordinance support, including volume-time detention control methods
- Riverine and coastal applications, including urban storm sewer areas

2.1.4 Hydrology, Hydraulics, and Hydrodynamic Modeling

Our team offers NJDEP extensive experience in hydrologic, hydraulic, and hydrodynamic modeling. CDM Smith staff helped develop and maintain nationally recognized modeling software, such as the USEPA Storm Water Management Model (SWMM), and we maintain a large staff of highly skilled modelers.

We have supported flood control facilities analysis and design, including detention ponds, reservoirs and dams, levees, pump stations, canals, bridges, erosion control and channel protection/restoration, control structures, and storm sewer systems.

The team's nationally recognized experts specialize in developing comprehensive hydrologic and hydraulic (H&H), water quality, and water resources master plans for riverine, coastal waterways, urban storm drain and channel systems, wetlands, and lakes to quantify and describe existing H&H and water quality conditions. This information is then used to model the changes that result from modifying inflow, inlet control structures (e.g. flood mitigation measures), and effectiveness of water quality improvement measures (e.g. green infrastructure). We have applied our expertise to more than 300 related studies across the country—expertise that includes modeling, in-depth knowledge of state and federal regulations, experience developing policies, planning and design procedures, peer review, and technical standards.

H&H modeling is key to the development of feasible design alternatives that accomplish flood resiliency, and it is a valuable tool in demonstrating compliance and pre- and post-design conditions to regulatory agencies and stakeholders. Our experience includes:

- For the Trinity Uptown Program, CDM Smith played a central role in the development of hydrologic (HEC-1) and hydraulic models (HEC-RAS and HEC-GeoRAS) that were critical to meeting NEPA, USACE, FEMA, and regional approval for the project.
- For the Blind River Freshwater Diversion Project in Louisiana, CDM Smith performed hydrologic, hydraulic, hydrodynamic, water quality, and decision support modeling (HEC HMS-RAS, EFDC, STELLA) to arrive at a final accepted design solution to divert up to 500,000 cfs of freshwater from the Mississippi River.
- For the Rutherford Ditch Tide Gates/ NJ Route 17 project, Louis Berger conducted H&H modeling (HEC-HMS and HEC-RAS) for NJMC to determine the most efficient gate design for the site-specific conditions and suggest revisions to the existing and proposed storm drainage systems where necessary to mitigate flooding from the 25-year storm event.
- For the Potomac Levee Project in Washington, D.C., Louis Berger provided H&H modeling to design improvements to an existing levee system that protects the National Mall from flood impacts, and to design a new flood containment structure across 17th Street.

2.1.5 Green Infrastructure Design

The CDM Smith/Louis Berger team has recent relevant experience with the planning, design, construction, and performance monitoring of green infrastructure (GI) stormwater best management practices (BMPs). These projects include green stormwater infrastructure (GSI) such as downspout disconnections, cisterns and rain barrels, bioretention and rain gardens, vegetated roofs, pervious pavement, bioswales, and vegetated curb extensions.

CDM Smith has been working with the Office of Green Infrastructure at NYC DEP and partnering agencies, including the New York Office of Green Infrastructure and Economic Development Corporation (NYCEDC), to plan, site, and design green infrastructure improvements in Queens, the Bronx, and Brooklyn. Green infrastructure improvements include right-of-way bioswales (ROWBs), stormwater green streets (SGSs), and various types of green infrastructure practices (e.g., porous pavements, vegetated bioretention areas, and redirection of roof runoff to green infrastructure) on public properties.

Louis Berger and Perkins Eastman collaborated on the Hoboken Green Infrastructure Strategic Plan which received a 2015 Outstanding Plan Award from the American Planning Association – New Jersey Chapter. Louis Berger brings national experts in GI and low impact

New York City Green Infrastructure and Stormwater Expertise

CDM Smith has played a key role in the siting and design of green infrastructure best management practices (BMPs) in New York City. We have worked with NYC DEP to identify 1,300 potential right-of-way green infrastructure and on-site public retrofits to improve stormwater management, and we are now conducting geotechnical investigations, including borings and permeability tests, to determine the final locations. To date, there has been a 70 percent



acceptance rate based on the results of geotechnical investigations due to favorable geologic conditions that allow for infiltration. It is anticipated that limited survey and final design will be done for nearly 1,090 final ROWBs. In addition, CDM Smith is now overseeing NYCDEP's MS4 compliance program, which will provide NJDEP with leading insight on the suitability of green infrastructure installations in the New Meadowlands design and the feasibility and maintenance related to different alternatives.

design with decades of experience at the forefront of sustainable stormwater management on the west coast. They spearheaded the incorporation of GI for combined sewer management through the development of the Integrated Planning Framework for the City of Baltimore, Maryland Sanitary Sewer Overflow Consent Decree Program and developed the Low Impact Development Incentive program for the City of Sammamish, Washington. Louis Berger is currently developing a Resource Gateway for Innovative Sewer and Stormwater Management for New Jersey's Urban Water Solutions Initiative to provide New Jersey municipalities and utilities with strategies to better manage sewer and stormwater infrastructure in the face of critical urban water management issues and climate change impacts.

2.1.6 Site Investigation, Remediation, and Restoration

Managing and protecting wetland and other ecologically sensitive resources is a continuing priority that demands effective, innovative design solutions. Balancing wetland protection and ecosystem restoration with residential and commercial growth requires a comprehensive understanding of wetland and ecosystem function, regulatory constraints, and development pressures. From wetland resources, species and habitat inventory, and impact assessment through mitigation design and permit services, the CDM Smith/Louis Berger team provides an interdisciplinary team to provide all necessary services to execute the this project, including:

- Wetland identification and boundary delineation



CDM Smith restored and enhanced approximately 100 acres of tidal and freshwater wetlands for the Liberty State Park project.



Louis Berger's design for NJDEP's Lincoln Park restored 42 acres of wetlands, streams, and salt marsh habitat and entailed removal and segregation of contaminated materials and media.

- Habitat assessment and restoration design
- Ecological inventories and wetland function/value assessments
- Design plans
- Developing maintenance and monitoring plans
- Mitigation banking services
- Permitting/regulatory assistance

Our team has designed and implemented soil and groundwater investigations for small and large sites nationwide, including the design and implementation of field programs for sampling and characterizing potentially contaminated areas, and identifying contaminants of concern. We have also designed field and laboratory quality assurance/quality control (QA/QC) programs to ensure the accuracy and validity of sampling and analytical methodologies, including strict adherence to detailed sampling and analysis, and chain-of-custody protocols to ensure legal defensibility of work products.

Based upon our years of experience investigating and characterizing all types of contaminated sites in a myriad of hydrogeological settings, we have developed systematic processes that can be implemented in a cost-effective manner without turning it into a "science project." We have found that careful upfront planning of approaches and strategies, coupled with a focus on the end use of the data collected, proves invaluable in investigating the right data and controlling investigative costs. Our team



uses and has pioneered innovative site characterization technologies designed to save money on expensive drilling and well installation methods.

Our design engineers have proven experience in preparing practical remedial designs for site cleanup actions. We routinely prepare design documents supporting voluntary cleanup actions, including both new and innovative technologies as well as traditional methods, for optimal reliability and cost-effectiveness. In every case, our remedial design efforts are crafted with the magnitude of the project and its regulatory requirements in mind. With each client engagement, we provide design staff with extensive knowledge of presumptive and innovative remedial technologies and their associated costs, efficiencies, and limitations.

Our vast experience in implementing and optimizing a wide array of remedial technologies allows us to recognize and pursue appropriate remedial solutions based on practical experience, not just on theoretical or published information. Our team has prepared hundreds of hazardous, toxic, and radiological waste (HTRW) remedial designs, including plans, specifications, and cost estimates. For many of these designs, we provided services during the remedial action phase. In every case, our remedial design efforts were consistent with the magnitude of the project and its regulatory requirements.

2.1.7 State and Local Regulatory Compliance

The CDM Smith/Louis Berger team's regulatory and site knowledge is based on over 20 years of publicly funded program engineering experience in New Jersey. Our understanding of the local regulations ensures that our design and construction support activities will be completed in accordance with regulatory requirements and will keep projects moving forward. Our team has extensive experience moving public and private projects through the permitting process. We have a reputation for thinking creatively to develop solutions that meet the requirements of regulatory agencies, while meeting the needs of our clients.

We offer NJDEP the demonstrated ability to address environmental concerns through all stages of the investigative and design process. Also, our extensive resume of

“CDM Smith has been instrumental in providing guidance to the DEP in our environmental reviews. Their HUD expertise has thus far outweighed the expertise of the competing contractors.”

– Donna Mahon, NJDEP CDBG-DR
Grant Program Historic Preservation
Reviews

work in New Jersey provides thorough knowledge of state and local regulatory agencies, geological features, and climatic conditions. In addition, we bring knowledge of local construction methods gained from working under varying site conditions we have encountered throughout the region, especially within the Meadowlands and along river shorelines.

Most importantly, we have experience working in New Jersey, specifically in the Meadowlands District, and completing permit applications for a variety of project types and sizes. Both CDM Smith and Louis Berger offer experience in key permitting areas, having worked directly for permitting agencies such as NJDEP and USACE. Our team's local scientists not only have experience preparing wetland permit applications, but also have worked directly for the USACE on eco-restoration and dredging projects, cost benefit methodologies, and other research.

A recent example of this is Louis Berger's contract with NYCEDC for Mitigation and Restoration Strategies for Habitat and Ecological Sustainability (MARSHES), the first wetland mitigation bank in New York, expressly being developed to facilitate future waterfront redevelopment projects requiring wetland mitigation. Louis Berger also gained the regulatory approvals necessary to develop the Marsh Resources Wetland Mitigation Bank – Phases 1, 2, and 3 and the Kane Wetland Mitigation Bank, all of which are located within the Meadowlands District.

2.1.8 HUD and FEMA Compliance

We have a proven record of delivering CDBG-DR programs. From our collective experience, the CDM Smith/Louis Berger team can draw upon lessons learned, previously developed policies, procedures, protocols, and successful housing rehabilitation and repair and infrastructure programs. Collectively, our partners have successfully managed hundreds of millions of HUD CDBG and CDBG-DR funds for projects associated with flood hazard mitigation.

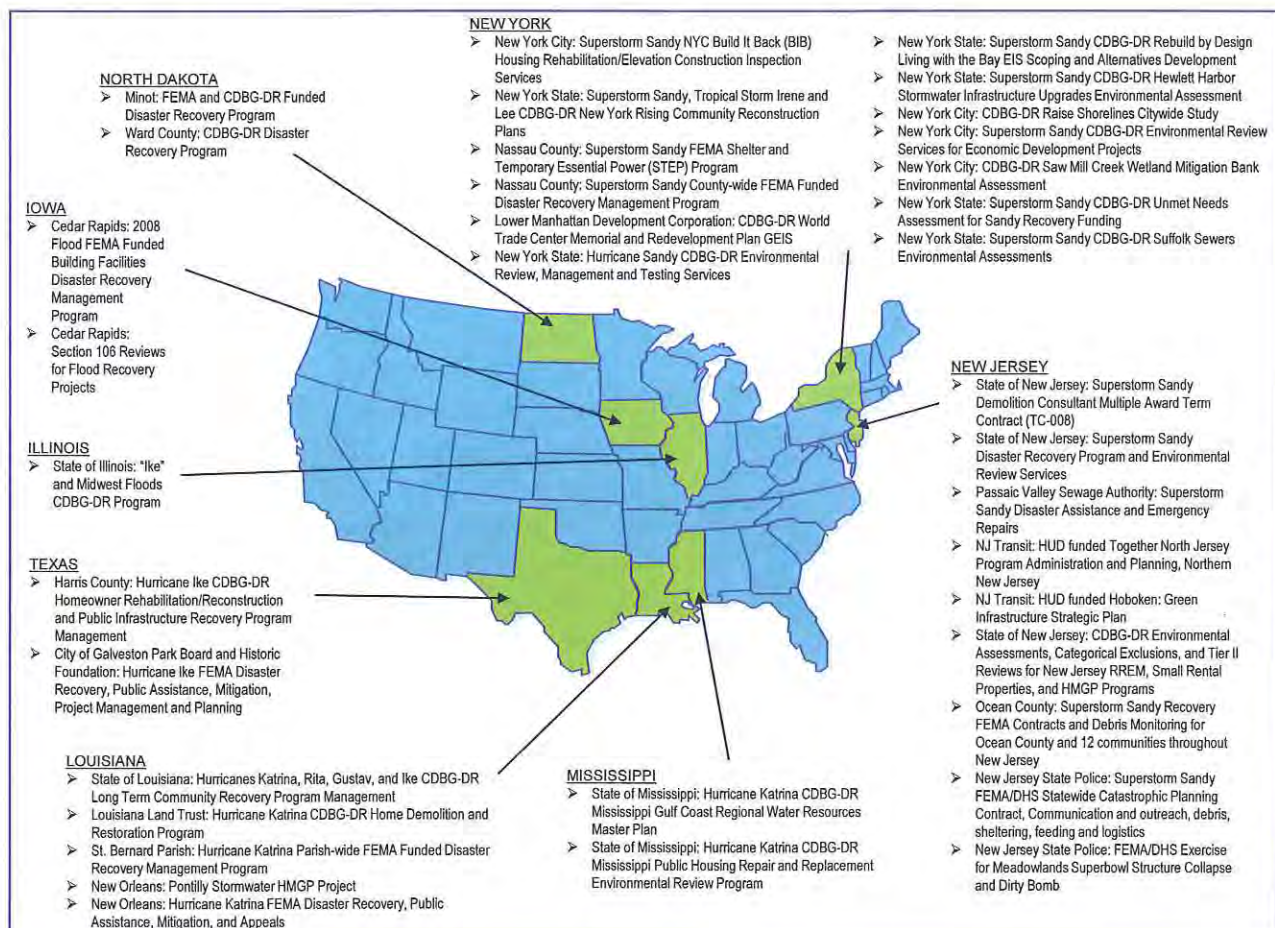
CDM Smith offers a full-service HUD CDBG-DR group that brings more HUD experience than any other firm in the country. Our previous HUD projects range from small, short-term solutions to some of the most complex, comprehensive CDBG-DR programs delivered in the past 10 years. Our CDBG-DR experts are supported by

a staff of 5,000+ that provide program management and engineering services to local governments for infrastructure projects. No other firm is backed by these technical resources and directly relevant experience that combines CDBG-DR and engineering.

Combined, we offer an unparalleled resume of management for disaster-related HUD and FEMA programs related to Superstorm Sandy in New Jersey and New York and nationwide.

- Louis Berger has been instrumental in both environmental and Section 106 compliance for some of the most complex projects in New York, including the World Trade Center Memorial and Redevelopment GEIS, the Dutch Kills Rezoning EIS, the Gowanus Rezoning DEIS, the Broadway Triangle Rezoning

Figure 2-2. Representative sampling of the CDM Smith/Louis Berger team's HUD and FEMA experience.





Section 2 • Experience on Large-Scale Projects

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EIS, as well as the Fulton Street Transit Center EIS and the No. 7 Line Extension and Hudson Yard EIS.

- Louis Berger is presently working on joint HUD/FEMA environmental assessments for \$383 million in sewer extension projects, EIS scoping for the \$125 million Rebuild by Design project in Nassau County, and HUD Categorical Exclusions for stormwater infrastructure upgrades, bulkheading, and comprehensive watershed improvements.
- CDM Smith's experience with funding through FEMA reimbursement and HUD CDBG-DR was instrumental in a recently awarded a \$9.5 million contract with NJDCA to assist in developing Action Plans that will be used to help distribute financial assistance to residents and businesses devastated by Superstorm Sandy.
- For the New York Rising Community Reconstruction Program (NYRCR), CDM Smith and Louis Berger collaborated closely with integrated multi-disciplinary teams charged with supporting initial community recovery planning efforts by providing technical guidance to planning committees for communities in Brooklyn, Queens, Staten Island, Nassau County, and Ulster County to produce their Community Reconstruction (NYRCR) Plans, as well as the completion of critical studies to determine key vulnerabilities and the needs of each community. The planning process for the development of the reconstruction plans was based on local knowledge and ideas. Public engagement meetings were strategically scheduled to receive input and gauge community support on potential recovery projects. The process resulted in the identification of community-driven recovery priorities and projects to increase the communities' resiliency to future extreme weather events. The Final Community Reconstruction Plans proposed recovery projects that are potentially eligible for CDBG-DR funding.
- For NJDEP, both Louis Berger and CDM Smith have prepared environmental review documents for CDBG-DR funded Superstorm Sandy Recovery

projects for NJDEP, including housing and non-housing projects. Together the firms have completed hundreds of task orders, ranging from environmental assessments to categorical exclusions and Tier II reviews, using the NJDEP web mapping tool and coordinating with NJDEP HUD program managers on a routine basis.

- For the State of Illinois following Hurricane Ike, CDM Smith served as the CDBG program manager from the initial stages of setting policies and procedures to reviewing project worksheets (PWs), making recommendations for grant awards through HUD-required project monitoring, reporting, and closeout.
- For the city of Minot, North Dakota, CDM Smith is managing and coordinating flood recovery efforts after the city experienced a catastrophic flooding disaster in 2011. As part of these efforts, CDM Smith conducted an unmet needs assessment study to determine those results that had not yet been addressed by private or government disaster recovery efforts and funding. These needs included long-term recovery, housing needs, and the restoration of infrastructure, economic development, and economic revitalization. CDM Smith is providing all the services necessary to implement various disaster recovery programs including, but not limited to: case management, environmental reviews, construction management, CDBG compliance review, relocation assistance, and Davis-Bacon compliance. Most recently, in 2015, CDM Smith developed the City of Minot's successful Application for Phase I to the National Disaster Resiliency Competition (NDRC), which included the City's first Framework for Resiliency. These projects and others are described in more detail in Section 4.

Millennium Strategies has a similarly extensive resume with local management and compliance under FEMA and HUD funding programs for the purpose of developing flood mitigation projects and strategies. Millennium typically operates as the Grant Writer, Grant Administrator, Disaster Recovery Specialist, and/or Advocate for towns and stakeholders in need of mitigation, including:

- Hazard Mitigation Grant Program (HMPG) project administration on behalf of Bergen County, NJ (impacting all 70 municipalities, including Carlstadt, Little Ferry, Moonachie, South Hackensack, and Teterboro).
- Grant consultations based on FEMA Public Assistance funding and HMGP needs of various municipalities in the Meadowlands region.
- Grant consultation and writing for FEMA Elevation, Acquisition, and Infrastructure needs on behalf of Bergen County.

2.1.9 Stakeholder Engagement

The CDM Smith/Louis Berger team has developed public information documents and educational programs for numerous projects across the country. We have worked extensively with citizen advisory committees, participated in public meetings, and provided expert testimony to answer concerns and gain acceptance for the implementation of controversial projects. Our team has developed public education strategies and materials specific to an individual community's needs, as well as broad-based programs designed to reach large target audiences. Our technical experts and communication specialists work together to develop newsletters, brochures, press releases, fact sheets, slide shows, videotapes, public service announcements, and other materials necessary to build community trust and understanding.

The team will employ a collaborative approach to stakeholder engagement. We will be appropriate, understandable, responsive, and accurate when deciphering each municipality's goals and objectives, as well as needs and expectations of RBD funds. Ensuring each stakeholder has a firm understanding of the risks and benefits associated with all project alternatives will be similarly vital to long-term project success and cooperation from the community.

This team is aware of the various needs each community has in regard to flood mitigation. Each community is impacted differently by different types of disasters. For example, the hazard mitigation needs identified and apparent after Hurricane Irene were vastly different from the needs each community had following Superstorm

Sandy. The understanding that a one-size-fits-all approach to solutions will not work (both logistically and in the pursuit of building trust among community members) requires this team to invest a great amount of time in stakeholder and community engagement. In proper facilitation, the team will benefit from securing the trust and understanding of community members and key governmental groups, ensuring that future project implementation and consensus-building on project designs will be as seamless as possible.

2.1.10 Leveraging Funds and Identifying Regional Opportunities

We have assisted clients in securing funding and implementing projects funded by the USDOT, USEPA, FEMA, and HUD. What sets us apart from the competition is our extensive experience implementing HUD-funded CDBG-DR programs throughout the United States.

Our subconsultant, Millennium Strategies, is highly experienced in leveraging funds from multiple resources to successfully complement and expand the impact of disaster recovery projects. Millennium's existing knowledge and ability to navigate through the complexities of grant programming related to flood mitigation, sustainable infrastructure, development and repair, and resiliency to protect critical infrastructure will be necessary to the long-term success of communities impacted by the RBD scope of work.

Millennium is able to extend its overarching knowledge of disaster recovery and infrastructure grant funding in consultation with the RBD team, as well as individual communities, regarding their potential to apply for, leverage, and complement project funds. Millennium has specific experience on navigating grant programs, as well as the capacity to easily find and research new funding opportunities that may arise throughout the grant period.

2.2 Project Examples

Table 2-1 identifies the six key project examples we have included in this section, as well as their relevance to the NJDEP New Meadowlands project.



Table 2.1 Highlights of the relevance of the CDM Smith/Louis Berger team's experience.

Project	Relevance to NJDEP New Meadowlands	Page Number
Feasibility Studies, Environmental Impact Statements, Design and Construction Administration Services in the Hackensack Meadowlands	Demonstrates the CDM Smith/Louis Berger team's unmatched insight on Meadowlands ecological, hydrologic, and geotechnical conditions, as well as the area's key contamination and permitting issues.	2-13
Trinity Uptown Program	Displays CDM Smith's ability to see a high-profile program based on a larger revitalization plan through FS/EIS/design, delivering a project that increased resiliency while producing major recreation and economic benefits.	2-15
Blind River Freshwater Diversion Feasibility Study and EIS Project	Highlights CDM Smith's ability to complete a concurrent FS/EIS for a flood mitigation/levee project involving restoration of 36 square miles of wetlands.	2-17
Remedial Investigation/Remedial Action Selection (RI/RAS), landfill Closure Design and Remedial Design (including Ecological Restoration) Statewide Term Contracts	Demonstrates the CDM Smith/Louis Berger team's unmatched insight on Meadowlands ecological, hydrologic, and geotechnical conditions, as well as the areas key contamination and permitting issues.	2-19
Disaster Recovery CDBG-DR NEPA Compliance & Resiliency Planning	Describes the numerous environmental reviews and other disaster recovery support services CDM Smith and Louis Berger have completed in compliance with NEPA and HUD requirements.	2-21
Environmental Review of Lower Manhattan Disaster Recovery Projects	Demonstrates Louis Berger's ability to complete major, HUD-funded FS/EIS programs under tight deadlines, as well as their capacity to develop a valuable, program-wide framework for environmental analyses.	2-23

Table 2-2 on the following pages shows which of our proposed staff worked on each of the highlighted projects.

Table 2-3, which immediately follows the six project examples, demonstrates the depth of relevant experience our team possesses.

2.3 Project Experience Data Sheets

Completed Key Team Member Project Experience Data Sheets are provided at the end of this section for all staff meeting the requirements set forth in the RFP and Addendum A.

Table 2-2. Many of the CDM Smith/Louis Berger team members have participated on our example projects.

Staff Member	Feasibility Studies, Environmental Impact Statements, Design, and Construction Administration Services in the Hackensack Meadowlands	Trinity Uptown Program	Blind River Freshwater Diversion Feasibility Study and EIS Project	State-wide Term Contracts	Disaster Recovery CDBG-DR NEPA Compliance and Resiliency Planning	Environmental Review of Lower Manhattan Disaster Recovery Projects
CDM Smith						
Dana Boyadjian				x	x	
Ginger Croom		x				
Kirk Westphal			x			
Michael Oleson		x				
Maria Watt				x	x	
Michael Schmidt		x	x			
Michael Schultz		x				
Peter Chenevey			x			
Timothy Feather		x	x			
Steve Whiteside		x	x			
William Cesanek	x					
Louis Berger						
Abdulai Fofanah	x			x		
Ajay Kathuria	x			x		
Albert Racciatti	x				x	x
AmyMarie Accardi-Dey	x					
Ann Folli	x			x		
Bethany Bearmore	x			x	x	
Bob Thiel	x					
Chris Corliss	x			x		
Chris Watt	x			x		
Dan Martin	x			x		
Dincer Egin	x			x	x	
Duncan Kisia						
Edward Samanns	x			x	x	
Fameeda Ali	x			x	x	
Gul Khan	x			x		
Ian Miller					x	
Jeff Tabar					x	
Jennifer Brunton	x			x	x	
Jennifer Gonzalez					x	

Table 2-2. Many of the CDM Smith/Louis Berger team members have participated on our example projects. (cont'd)

Staff Member	Feasibility Studies, Environmental Impact Statements, Design, and Construction Administration Services in the Hackensack Meadowlands	Trinity Uptown Program	Blind River Freshwater Diversion Feasibility Study and EIS Project	State-wide Term Contracts	Disaster Recovery CDBG-DR NEPA Compliance and Resiliency Planning	Environmental Review of Lower Manhattan Disaster Recovery Projects
Lawrence Pesesky	x			x	x	x
Mary Weber					x	
Michael Dunn	x			x		
Michael McCloskey	x			x		
Mike McWatters	x			x		
Muzamil Husain	x			x		
Nicolaas Veraart	x				x	x
Peg McBrien	x			x	x	
Richard Barrington	x			x		
Sean McGonigal	x			x		
Solomon Gbondo-Tugbawa	x					
Steven Bedford					x	
Susan Lindstrom	x			x		
Tara Stewart	x			x	x	
Thalia Loor	x					
Thomas Lewis	x			x	x	x
Thomas Waldron	x			x		
Tom Shinsky	x			x		
Virginie Amerlynck					x	
Perkins Eastman						
Annisia Cialone					x	
Eric Fang					x	
FHI						
Arnold Bloch					x	
Kristen Ahlfield					x	
Melissa Pineda					x	
Ryan Walsh					x	
BioHabitats						
Ted Brown	x					
Teresa Doss	x					

Feasibility Studies, Environmental Impact Statements, Designs, and Construction Administration Services in the Hackensack Meadowlands

NJ Meadowlands Commission, New Jersey Sports and Exposition Authority, NJDEP, USEPA, New Jersey Department of Transportation, USACE – New York District

Our team offers NJDEP decades of experience implementing well over 50 projects in the Hackensack Meadowlands for a variety of federal, state, and private clients, including: the New Jersey Meadowlands Commission (NJMC), the New Jersey Sports and Exposition Authority, NJDEP, the USEPA, the USACE - New York District, Teterboro Airport, New Jersey Transit, the New Jersey Department of Transportation (NJDOT), Williams Transco Pipeline Company, and Marsh Resources, Inc. Our team has restored more than 500 acres of wetlands and other habitats in the Meadowlands and conducted FSs, EISs, permitting, design services, and construction administration services involving 1,000s of acres of upland and wetland habitats within the Meadowlands region over the past three decades. This includes flood mitigation planning, site investigations and remediation, and natural resource surveys, among others. Our team's depth of experience and knowledge of the challenging Meadowlands environment and the multiple engaged stakeholders provides an unparalleled advantage to NJDEP that will provide a constructible, permittable, realistic flood protection plan in the most cost-effective and timely manner. Just a few of our team's 50+ projects in the Meadowlands are described in detail below to provide proof of our successful FSs, EISs, design, and construction administration services in the Hackensack Meadowlands.

Special Area Management Plan (SAMP) and EIS

CDM Smith was responsible for the SAMP and EIS that provided a future land use plan to balance environmental protection with reasonable economic development and growth in the 32-mile study area. The SAMP, which was completed for NJMC—at the time known as the Hackensack Meadowlands Development Commission—identified strategic land uses and environmental management activities that met area-wide social and economic needs, while complying with all applicable regulatory requirements. CDM Smith conducted wetlands impact assessments specifically tailored for the Meadowlands characteristics, along with environmental screening

of alternative land management scenarios and environmental resource mapping. The result was an award-winning plan that satisfied the needs of the many state and federal stakeholders—including NJDEP, USEPA, USACE, USFWS, and NOAA—and incorporated input from a significant public outreach and education campaign. Carol Browner, USEPA Administrator at the time of the study's publication, declared it "one of the first land-use planning efforts in the country to fully integrate environmental needs with human uses."

The Rutherford Tide Gates project for the NJMC

On behalf of NJMC, Louis Berger addressed flooding problems for New Jersey Route 17 and its surrounding areas and further advanced other high-priority projects identified by the NJMC's Hackensack Meadowlands Floodplain Management Plan. The firm was contracted to study, design, and implement measures to alleviate regional flooding in the vicinity of Route 17 in Rutherford and East Rutherford, New Jersey. Flooding commonly occurred upstream of the Rutherford Tide Gates, including Route 17 near the NJ Transit Bergen County Line rail bridge, causing impassable conditions in this commercial corridor. NJMC faced intense political and public pressure to not only correct

the flooding problems, but to do so in a cost-effective and timely manner. Louis Berger completed the initial FS for the in-depth characterization of the flooding problems at the site, including: developing topographic mapping; geotechnical and environmental sampling and analyses; a wetland delineation; cultural resource assessment; agency pre-application meetings; hydrologic and hydraulic (H&H) data review; and project specific H&H modeling (HEC-HMS and HEC-RAS) and results analyses. Louis Berger also determined the most efficient tide gate design for the project conditions. In support of the project, the team delineated all on-site wetlands and open waters under the regulatory jurisdiction of USACE and NJDEP. The team prepared applications and secured the following permits and approvals: USACE Section 404/Section 10 Permit; NJDEP



August 26, 2015 Aerial Photograph depicting critical infrastructure in portions of Pilot 1 Communities - taken as part of Louis Berger's annual monitoring of restored wetlands in Carlstadt.

Freshwater Wetlands Permit, Water Quality Certificate, Stream Encroachment Permit, Waterfront Development Permit, NJPDES Request for Authorization for Stormwater Discharge Associated with Construction Activity, NJPDES Discharge to Surface Water or Groundwater Permit, and Bergen County Soil Conservation District - Soil Erosion & Sediment Control Plan Certification. Once regulatory approvals were obtained, Louis Berger completed final designs and construction bid documents including plans, specifications, and cost estimates. In addition, they provided construction management and inspection support services throughout the duration of construction.

Hackensack Meadowlands Ecosystem Restoration Study (HMERS)

As a member of the USACE-New York District's HMERS, Louis Berger provided a variety of environmental, engineering, and planning services for the HMERS, a sub-set of the Hudson-Raritan Estuary Ecosystem Restoration Study. In addition to preparing the necessary NEPA documentation for the Programmatic EIS for the HMERS, the team developed the Meadowlands Comprehensive Restoration Implementation Plan (MCRIP) for the Meadowlands ecosystem. This feasibility report addresses the engineering, environmental, and economic aspects to determine the feasibility of restoration in the Meadowlands. The MCRIP will be used as an implementation tool for future restoration within the Meadowlands, including, but not limited to: analysis and recommendations concerning salt marsh and freshwater wetland restoration, adjacent upland buffer enhancement, water management control structures, water quality, contaminated sediment impacts on biota, and benthic habitat restoration. In addition to providing an overview of existing conditions in the Meadowlands, the MCRIP identifies degradation problems and restoration needs and analyzes programmatic Meadowlands-wide and site-specific ecosystem restoration opportunities. It provides a comprehensive menu of restoration measures to be implemented to address the degradation factors and discusses specific implementation approaches for each of the Meadowlands' habitat categories: open water areas, tidal marshes, freshwater impoundments, freshwater wetlands, and uplands. From these basic approaches, suites of restoration measures

Project Example #1

Feasibility Studies, Environmental Impact Statements, Designs, and Construction Administration Services in the Hackensack Meadowlands

Key Staff Members (see Table 2-2 for additional staff)

Sean McGonigal, Niek Veraart, Peg McBrien, Susan Scavone, Thomas Lewis, Gul Khan, Larry Pesesky, Mike McCloskey

Reference

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Louis Berger:

Ross Feltes, Chief of Natural Resources Management

One DeKorte Park Plaza, P.O. Box 640, Lyndhurst, NJ 07071

Phone: 201.460.1700 (Administration Offices)

Benefits to NJDEP

Our depth and wealth of knowledge in the Meadowlands as demonstrated from our successful execution of numerous projects will expedite the identification of critical data gaps, the integration of community concerns and development of constructible solutions.

Relevance to New Meadowlands

- Development of future land use plans and an EIS that balanced environmental protection with reasonable economic development
- Leadership of large stakeholder involvement and alternatives development efforts that balanced community needs with environmental and economic interests
- Identification of Meadowlands-wide and site-specific ecosystem restoration opportunities
- Leadership of disaster recovery efforts and funding support for Pilot Area No. 1 communities

Hackensack Meadowlands Floodplain Management Plan

prepared in conformity to

The National Flood Insurance Program
Community Rating System
Activity 510 Guidelines

for

The New Jersey Meadowlands Commission
One DeKorte Park Plaza
Lyndhurst, New Jersey

October 24, 2005



Feasibility Studies, Environmental Impact Statements, Designs, and Construction Administration Services in the Hackensack Meadowlands (Continued)

NJ Meadowlands Commission, New Jersey Sports and Exposition Authority, NJDEP, USEPA, New Jersey Department of Transportation, USACE – New York District

may be customized to address the unique complexity of any individual site.

On behalf of the USACE -New York District, Louis Berger and **Biohabitats** worked together to perform geotechnical, HTRW, and biological investigations in the NJ Meadowlands for the HMERS, including the Programmatic EIS for proposed ecorestoration projects in the NJ Meadowlands, the MCRIP, the Meadowlands Environmental Site Information Compilation (MESIC), and the Hackensack Meadowlands Project Management Plan (PMP) and provided support in the preparation of restoration concept designs for Anderson Creek Marsh. Former Louis Berger scientists, now with Biohabitats, worked on these projects while at Louis Berger and continued to be involved while at Biohabitats. In particular, Biohabitats provided Louis Berger with critical Quality Review of these ecosystem restoration work products. The PEIS for the MCRIP provides an evaluation of environmental, social, and economic issues and alternatives to achieve project goals and objectives, while avoiding/minimizing adverse impacts, providing the USACE with the necessary NEPA compliance documentation for MCRIP implementation. The PEIS is a comprehensive document that considers a number of related actions proposed in the MCRIP, including cumulative, direct, and indirect impacts.

Oversight of the remedial investigation / feasibility study (RI/FS) in the Berry's Creek watershed for USEPA Region 2

Louis Berger supported USEPA Region 2 and provided oversight on an RI/FS in the Berry's Creek watershed of the Meadowlands. The Berry's Creek Study Area is 12 square miles in Bergen County and includes tidal marsh wetland areas, dozens of tributaries, and 6.5 miles of tidal waterways. Most of the creek is tidal, and tide gates regulate the extent of tidal influence in the headwater tributaries. The creek originates in the West Riser Ditch near Teterboro Airport, meanders through the reed marshes, and then discharges into the Hackensack River, primarily via the Berry's Creek Canal and the lower portion of Berry's Creek. Contaminants are known to be elevated in the water column and sediments at levels that warrant detailed evaluation of nature, extent, and potential risks. The Study Area has historically been associated with mercury contamination originating from the Ventron/Velsicol Superfund site. Mercury concentrations in Berry's Creek sediments are at levels greater than what is considered to be protective of wildlife and are among the highest levels known to exist in freshwater ecosystems in the United States. Mercury processing operations ceased at the site in 1974, and the property was listed on the National Priorities List (NPL) in 1984 (NJD980529879) due to mercury contamination in soils, groundwater, sediment, and surface water. In 2008, USEPA executed an Administrative Order on Consent with a group of Potentially Responsible Parties (PRP) to conduct a RI/FS in Berry's Creek, which was contaminated from discharges of mercury from the

Ventron/Velsicol site and discharges of contaminants from other upland properties. To assist with scoping the RI, Louis Berger assisted USEPA with the development of a "Framework" Work Plan, which presents the preliminary conceptual model of the Study Area, a description of the fate and transport of mercury and methylmercury in a tidal system, and lists the types of field programs that the USEPA expected the PRP Group to complete as part of the RI. The team also assisted the USEPA with the development of the Community Involvement Plan and fact sheet. These documents were designed to facilitate effective two-way communication between the USEPA, the communities, and public within and around the Study Area. Louis Berger has been conducting oversight of the PRP field program since 2009. They have supported USEPA at technical meetings with the PRP and provided technical comments on PRP-report deliverables. Technical discussion has included modeling hydrodynamics and sediment transport in Berry's Creek and modeling interactions between the waterway and marshes. Louis Berger has provided support to the USEPA on the Screening Level Ecological Risk Assessment, human health exposure, incorporation of isotope data into the RI to map a site-specific food web, and the use of sediment toxicity and porewater data as lines of evidence on the fate and transport of mercury in the Study Area. Louis



Berger's in-depth knowledge of Berry's Creek, which flows through the Pilot Area No. 1 Communities, will be an asset to NJDEP's flood protection project.

By planning, designing, and/or providing construction administration/inspection services on over 50 wetland restoration, flood protection, site remediation, Teterboro airport improvements, and other projects in the Meadowlands—mainly in Pilot Area No. 1 communities, Louis Berger is extremely familiar with and has overcome the challenging soils, hydrologic trespass, and other unique constraints of designing and building in the Meadowlands. Louis Berger has coordinated with multiple federal, state, and local stakeholders and successfully obtained all the necessary federal, state, and local approvals to move the Meadowland projects from conception to completion.

Grant Administrator and Disaster Recovery Services

Millennium Strategies, LLC, has been working continuously in the Meadowlands region on various projects since 2012 in the capacity of Grant Writer, Grant Administrator, Disaster Recovery Specialist, and Advocate. Highlights include:

Borough of Moonachie (\$4.5M) – FEMA Public Assistance Grant Program: An Appeal for damages sustained to Borough Hall. Assisted with the initial submission of the Project Worksheet (PW) and an appeal, which was approved by FEMA. The appeal raised the level of funding from \$1.6 million for repairs to the current \$4.5 million for a complete demolition/rebuild.

Borough of Carlstadt (\$4.2M) - New Jersey Economic Development Authority (NJEDA) Neighborhood & Community Revitalization Program (NCR): Obtained funding for drainage improvements for 112 businesses located in the Carlstadt industrial center—an Low-Moderate Income (LMI) census block that employs a disproportionate number of LMI employees from

in and around southern Bergen County and adjoining communities.

County of Bergen (\$3.8M) - Hazard Mitigation Grant Program (HMGP) – 4086 Grant Application and Administration: Two projects, including the installation of 16 back flow preventers in various locations throughout Little Ferry, Moonachie, and Carlstadt.

County of Bergen/Borough of Little Ferry (\$652,970) – NJDEP Flood Hazard Risk Reduction and Resiliency Grant Program: Application for the procurement of a self-cleaning apparatus for the Losen Slote.

Borough of Moonachie (\$162,383) – Bergen County Open Space Grant Program: Wrote an application to obtain funding for the development of a passive park in the floodway. This will be the first passive park in the borough.

Borough of Moonachie – (\$10,000,000) HUD CDBG DR Grant Program: Requested and secured funding through NJDCA for manufactured housing units. Currently working with the borough, Congressman Pascarella's Office, Senator Menedez' Office, and the Fair Share Housing group to present permanent flood mitigation funding options to NJDCA and HUD for two manufactured housing communities that house one-third of Moonachie's population. These two communities experience repeated flooding and retain a major portion of the borough's LMI populations.

Moffatt and Nichol has developed several regional numerical models that include the New York/New Jersey Region. For example, as part of the NYNJ Harbor Deepening EIS project, a three-dimensional model of the NY/NJ region was developed using the MIKE suite of models. The model was used to evaluate the impacts on hydrodynamics as well as water quality parameters that the deeper channel will have in Newark Bay and the Passaic and Hackensack Rivers.

Trinity Uptown Program

Tarrant Regional Water District & USACE Fort Worth District

The \$909 million Trinity Uptown Program centers on rerouting the Trinity River in Fort Worth, Texas through a 1.6-mile bypass channel to create a new downtown waterfront area, while restoring the level of protection for the upstream river reaches. A combination of floodwalls, earthen levees, and isolation gates along the bypass channel will allow the creation of more than 12 miles of publicly accessible waterfront. Water levels within the newly created waterfront will be controlled by a 400-foot-long hydraulically controlled lock and dam. The new Trinity Uptown encourages recreation and offers significant long-term economic development potential, while achieving the required flood protection improvements need for the community.

CDM Smith began work on the project for the Tarrant Regional Water District (TRWD) in 2002, during the initial planning and feasibility phases. During this time, the firm worked hand-in-hand with the urban design architect to develop the overall "vision" for the over 800 acre project. The vision embodied a "live, work, play" philosophy based on providing mixed land use, which encourages an urban lifestyle. CDM Smith provided all of the engineering support and technical feasibility analysis work to allow the vision to meet the necessary functional requirements in order to receive USACE approval. We worked closely with USACE during this time to collaboratively develop solutions and complete the EIS. This collaborative approach allowed the preliminary design and EIS to be developed and approved within an initial 18-month schedule.



Major project elements include:

- 1.6-mile bypass channel
- Three flood isolation structures w/ navigation and pedestrian gates (24 ft (W) x 17 ft (T) vertical roller gates)
- 400-ft wide hydraulically controlled dam w/ boat lock (7 – 48 ft (W) x 18 ft (T) leaf gates)
- Storm water pump station (400 cubic feet per second or ok cfs)
- Four vehicular bridges
- Three multi-span pedestrian bridge (two signature bridges)
- Six valley storage (floodplain) mitigation sites—over 4 million cubic yards (CY) of excavation
- Two aquatic mitigation sites
- Water, sanitary sewer, and storm water utilities
- Natural gas, electrical transmission lines, and communication utilities
- Numerous ecosystem and recreational improvements

Starting in 2002, CDM Smith played a central role in the development of the hydrology (HEC-1) and hydraulic models (HEC-RAS and HEC-GeoRAS) that were critical to meeting NEPA, FEMA, and regional approval for the project. These efforts required regular meetings with USACE, TRWD, and the City of Fort Worth to discuss initial model development, proposed alternatives, and selected the final plan. CDM Smith continues to update these models as designs are finalized and construction completed. Hydraulic modeling efforts included the qualification development and technical requirements for the construction of a 1:40 scale physical model, the length of a football field, of the bypass channel, which was used to further calibrate and analyze the HEC-RAS model. A 2-dimensional RMA model was also developed as part of this effort to model flow and velocity with the bypass channel and through the gate structures.

Following federal approval of the project in 2006 by receipt of its Record of Decision (ROD), CDM Smith continued to support the project in a variety of ways, including:

- Assistance on a supplemental EIS
- Environmental assessments
- Environmental remediation and cleanup
- Building demolition and abatement bid packages
- Groundwater testing, monitoring, and modeling
- Water quality modeling
- Geotechnical investigations and design analysis
- Designs for valley storage grading and site improvement bid packages



- Bypass channel final design
- Isolation gate preliminary design
- Aquatic mitigation design for stream restoration
- Technical review of designs by others for utilities and bridges
- Cost estimating for the overall program
- Overall program support

As the primary designer on the program, CDM Smith has supported the USACE-Fort Worth District and TRWD in the design of levees, floodwalls, floodgates, mass grading, lock and dam, aquatic mitigation, and development of the new waterfront and recreation areas which complement the flood protection and hydraulic conveyance requirements.

Levee and channel design included the use of USACE accepted design software and adherence to applicable guidance including, but not limited to:

- Levee design and settlement analysis in accordance with EM 1110-1-1904 and 1110-1-1913
- Slope stability and seepage analysis (EM 1110-2-1902) using SLOPE/W and SEEP/W
- Screening of floodwall and retaining wall (EM 1110-2-1806, 2100, 2104, 2502, 2504, and 2906) using CT-WALL, LPILE, ALLPile, CPGA and CWALSH design programs. Additional analyses were run using finite model analysis in STAAD.Pro.

The levee designs and retaining walls that range in height from 15 ft to over 25 ft had to overcome settlement and stability channel challenges from geological conditions on site. Design work on the walls included the analysis of over 40 different wall types and layout combinations for selection of the preferred alternative. Geotechnical and environmental investigations include both

Project Example #2

Trinity Uptown Program

Key Staff Members (see Table 2-2 for additional staff)

Mike Schmidt, Steve Whiteside, Ginger Croom,
Tim Feather, Mike Schultz

Reference

CDM Smith:

Gail Hicks, PMP, Project Manager
USACE, Fort Worth District
819 Taylor Street, Fort Worth TX, 76102-0300
Phone: 817.886.1900

Benefits to NJDEP

CDM Smith expedited the concurrent development of the FS and EIS to fast track the implementation of this large-scale flood mitigation project. This expertise in developing concurrent documents can be leveraged by NJDEP to ensure the successful completion of the New Meadowlands FS and EIS by May 2017, which is critical for the release of additional HUD funding.

Relevance to Meadowlands

- Design and construction of 1.6-mile bypass channel with earthen levee and retaining walls/ floodwalls
- 400-ft long dam with 7- 48 ft x 18 ft hydraulically controlled gate
- Concurrent FS and EIS development
- Large waterfront program based on a vision for urban revitalization
- Focuses on environmental restoration, water quality improvements, land use planning, and community infrastructure



conventional land based drilling operations as well as barge mounted drill rigs for acquiring soil and rock sample with the existing river.

Geotechnical testing included:

Unconfined Compression	ASTM D 2166	Triaxial	ASTM D 2850
Direct Shear Soil	ASTM D 3080	Direct Shear Rock	ASTM D 5607
Consolidation	ASTM D 2430	Moisture Content	ASTM D 2216
Falling Head Permeability	ASTM D 2423	Sieve Analysis	ASTM D 422
Compaction	ASTM D 698	Atterberg Limits	ASTM D 4318

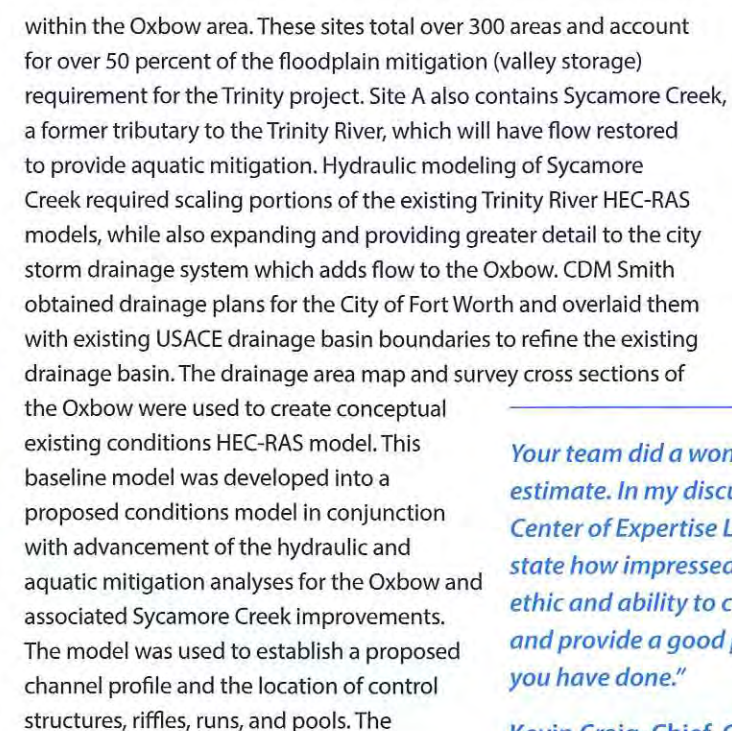
Detailed plan work was completed using MicroStation V8.5 and AutoCAD with civil design modeling using Bentley GeoPAK and Inroads. As required by USACE, SpecsIntact was utilized for all specification development using the master guide specifications available from the Unified Facilities Guide Specifications (UFGS). SpecIntact is designed for use with Master text that conforms to the Construction Specifications Institute's (CSI) format. Cost estimates were developed using the USACE MCACES MII software program and supplemented with RS Means Costworks and other internal cost estimating program. Using these programs, CDM Smith has completed or is in progress on the following designs:

- Bypass Channel – Design, Documentation Report (DDR) and Final Plans and Specifications

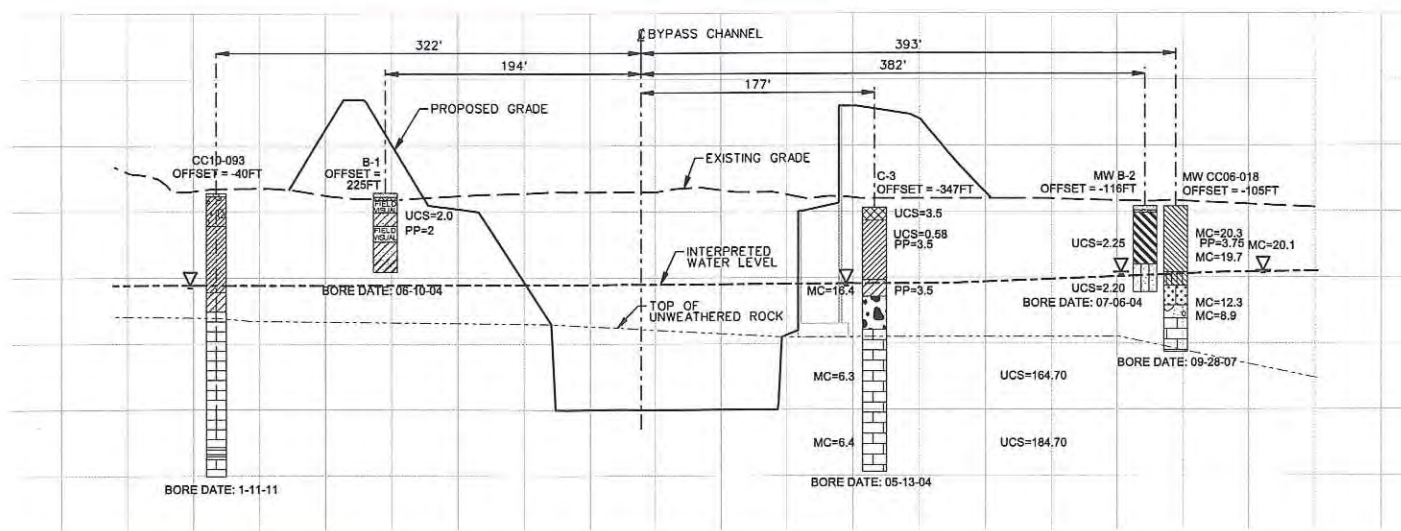
Completed

- Riverside Oxbow Valley Storage – Sites A and C (mass grading, aquatic mitigation, ecosystem restoration, recreation)
 - Size: 300-acres (ac) site (250-ac native prairie and grassland)
 - Excavation: 1.55 million CY
 - Aquatic Mitigation: 4,000 linear feet (LF)
 - Recreational Trails: 10,000 LF
 - Estimated Construction Cost - \$25-30 million
- Samuels Avenue Valley Storage (mass grading, recreation)
 - Size: 100-ac site
 - Excavation: 900,000 CY
 - Recreational Trails: 4300 LF
 - Construction Cost: \$6.5 million
- Henderson and White Settlement Channel Piers
 - 90 42-inch dia drilled shafts
 - Construction Cost: \$3.2 mil
 - TRWD and Clear Fork Isolation Gate Design- 30% DDR/ Plans
 - Navigation Gate Opening: 24 ft (W) x 17 ft (T)
 - Pedestrian Gate Opening: 12 ft (W) x 12 ft (T)
 - Closure Gate Type: Vertical roller gate (fixed wheel)
 - Hoist Mechanism: Wire Rope Hoist
 - Estimated Construction Cost: \$10 million (each)

CDM Smith recently finalizing the DDR and P&S design for sites A&C



Your team did a wonderful job with this cost estimate. In my discussion with Jim [Cost Estimating Center of Expertise Lead - Walla Walla District], he state how impressed he was with your team's work ethic and ability to comprehend the requirements and provide a good product. Really appreciate all you have done."



Blind River Freshwater Diversion Feasibility Study and EIS Project

Louisiana Department of Natural Resources Office of Coastal Protection and Restoration Authority
in Association with the USACE - New Orleans District and US Fish and Wildlife Service

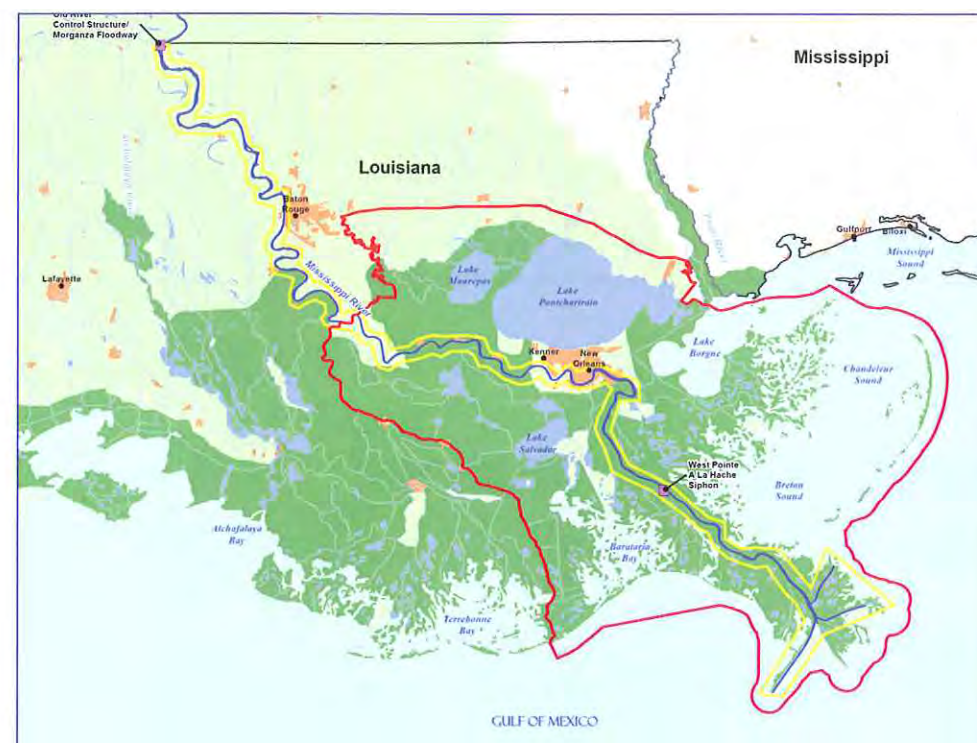
CDM Smith was the prime consultant in the development of a **concurrent FS, Conceptual Design, and EIS** for the Blind River Freshwater Diversion Project in St. James Parish, Louisiana under contract with the Louisiana Department of Natural Resources Coastal Protection and Restoration Authority (CPRA) and in support of the USACE - New Orleans District. The project was authorized in the Water Resources Development Act (WRDA), May 2007.

The project is proposed to be a **freshwater diversion of up to 5,000 cfs** with primary focus on reintroducing freshwater, sediment, and nutrients from the Mississippi River to the Maurepas Swamp and Blind River within Total Maximum Daily Load (TMDL) limits for nutrients, **while maintaining and improving flood control**.

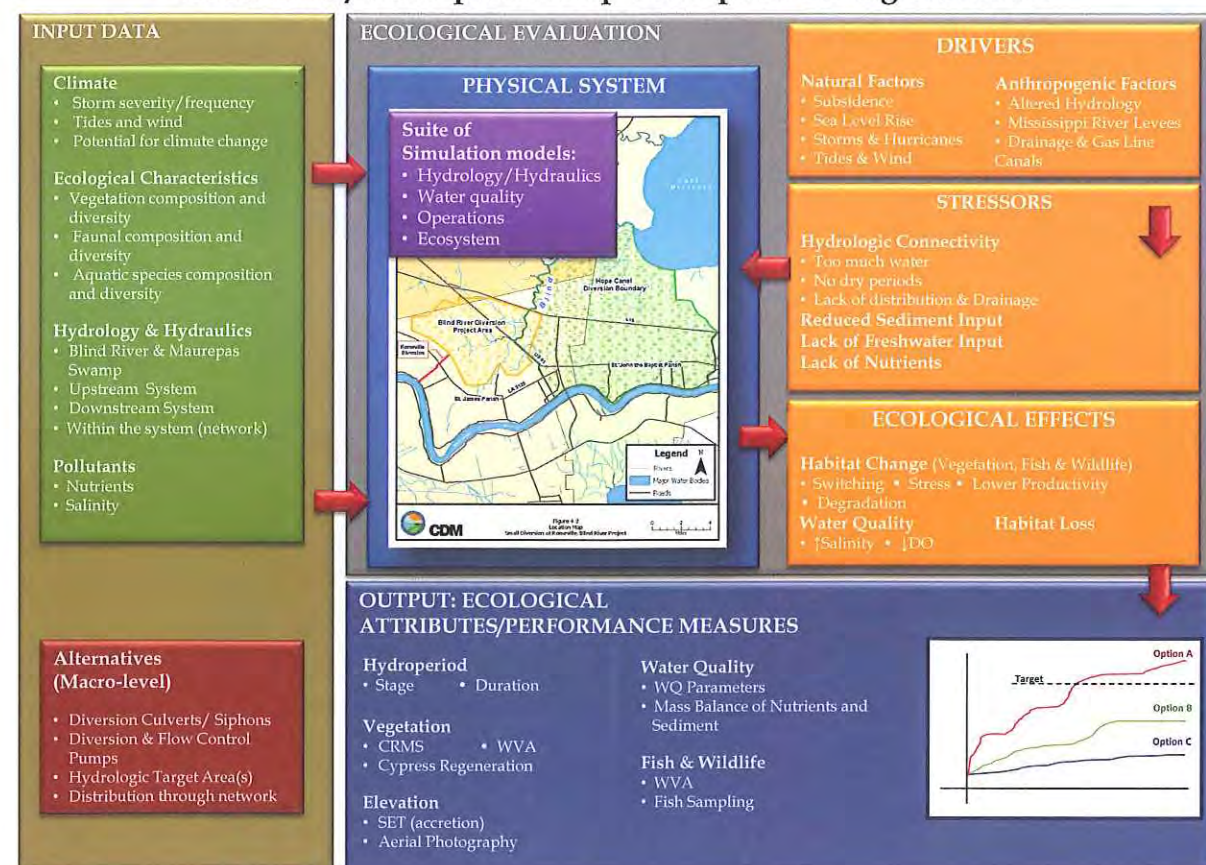
The Blind River is a state designated Scenic River, and the project area is approximately 36 square miles and almost wholly located within the Maurepas Swamp Wildlife Management Area.

The objectives of the project are: to promote water distribution in the swamp and improve water quality, establish hydroperiod fluctuation to improve productivity of bald cypress and tupelo, **maintain and enhance flood control, rebuild wetlands at a rate greater than the subsidence rate, improve biological productivity, and contribute to the protection of vital socioeconomic resources and flood protection features.**

Evaluation of alternatives to meet project objectives included three main components: diversion facilities to move water



Blind River/Maurepas Swamp Conceptual Ecological Model



Project Example #3

Blind River Freshwater Diversion Feasibility Study and EIS Project

Key Staff Members (see Table 2-2 for additional staff)

Mike Schmidt, Steve Whiteside, Tim Feather

Reference

CDM Smith:

Jammie Favorite, Project Manager
Louisiana Department of Natural Resources CPRA
P.O. Box 44027, Capital Station, Baton Rouge, LA 70804
Phone: 225.342.4119

Benefits to NJDEP

The Blind River project displays CDM Smith's ability to complete a concurrent FS/EIS for a flood mitigation/levee project involving restoration of 36 square miles of wetlands. This demonstrates success in large-scale, civil works flood control projects to save time and construction costs.

Relevance to Meadowlands

- Concurrent FS/EIS that produced numerous design alternatives to achieve project objectives while considering environmental concerns and stakeholder interests
- Water quality and ecosystem restoration in a 36-square-mile wetland system
- Dual use of flood control system as restoration distribution network
- Evaluation of flood control, water management, and ecosystem restoration alternatives using USACE Planning Guidelines
- Close coordination with multiple state and federal regulatory agencies and stakeholder groups
- Coordination and execution of an extensive data collection and hydraulic modeling effort

from the Mississippi River across or through the levee (culverts or siphons); transmission facilities to transport water from the levee to the swamp area (earthen channels or culverts); and distribution facilities to discharge water throughout the swamp (earthen channels, gravity flow culverts, gated control structures on existing channels).

The conversion of the existing drainage system to a dual use distribution and flood control system is expected to save between \$10 million to \$40 million.

The programmatic accomplishments included completion of a gap analysis of existing data and completion of interim and final feasibility documents in **compliance with the USACE planning guidance and plan formulation criteria. The FS, EIS, conceptual design, and modeling were expedited within an 18-month timeframe to support the Report of the Chief of Engineers required by the WRDA authorization.**

To achieve the project schedule, FS, and EIS, all activities were coordinated closely with state, USACE, USFWS, and local parish staff to ensure compliance with NEPA requirements, including public outreach meetings.

Project tasks included:

- Data collection, evaluation, and gap analyses
- Hydrologic, hydraulic, hydrodynamic, water quality, and decision support modeling (HEC HMS-RAS, EFDC, STELLA)



Blind River Freshwater Diversion Feasibility Study and EIS Project (Continued)

Louisiana Department of Natural Resources Office of Coastal Protection and Restoration Authority in Association with the USACE and US Fish and Wildlife Service

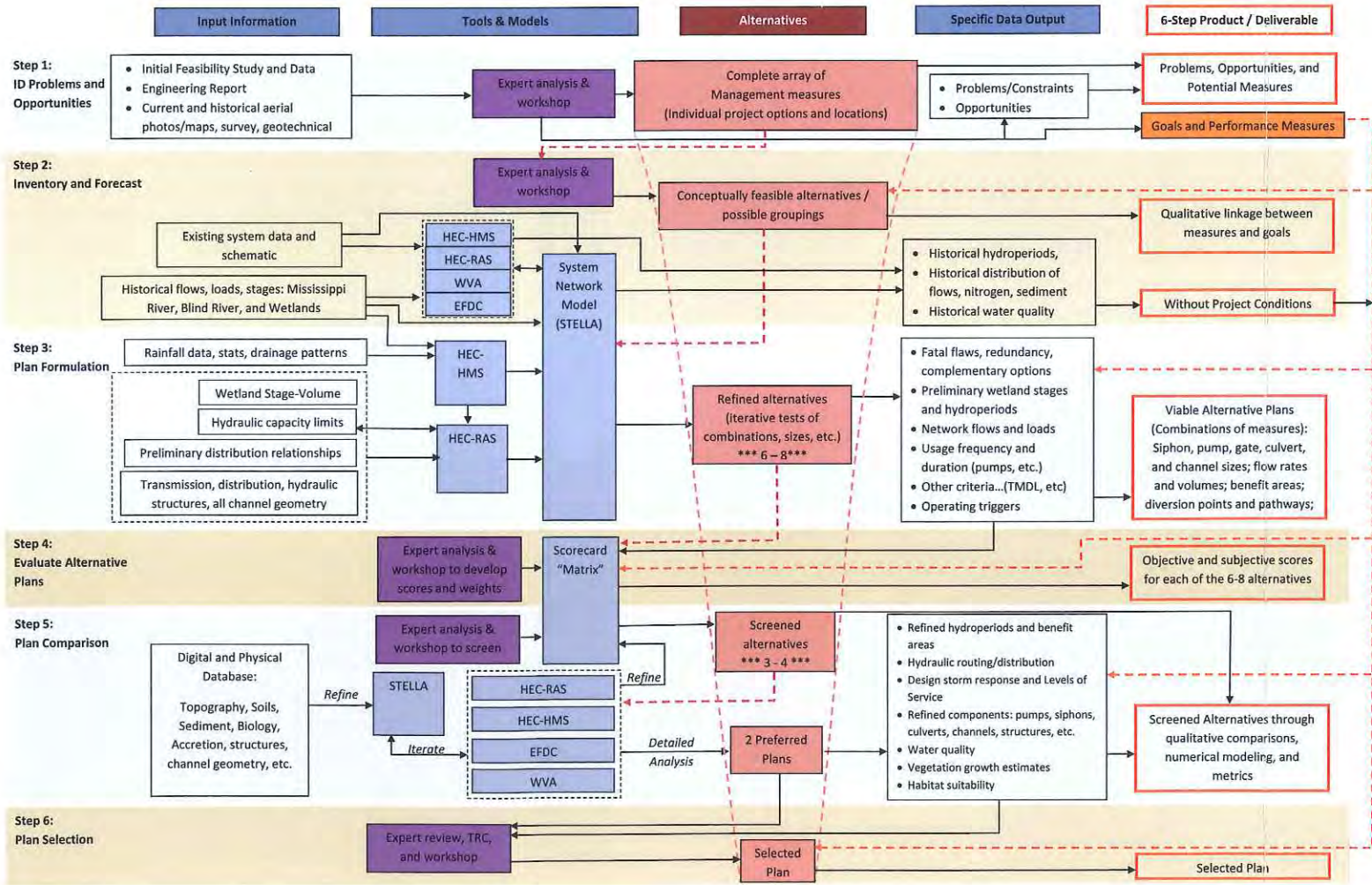
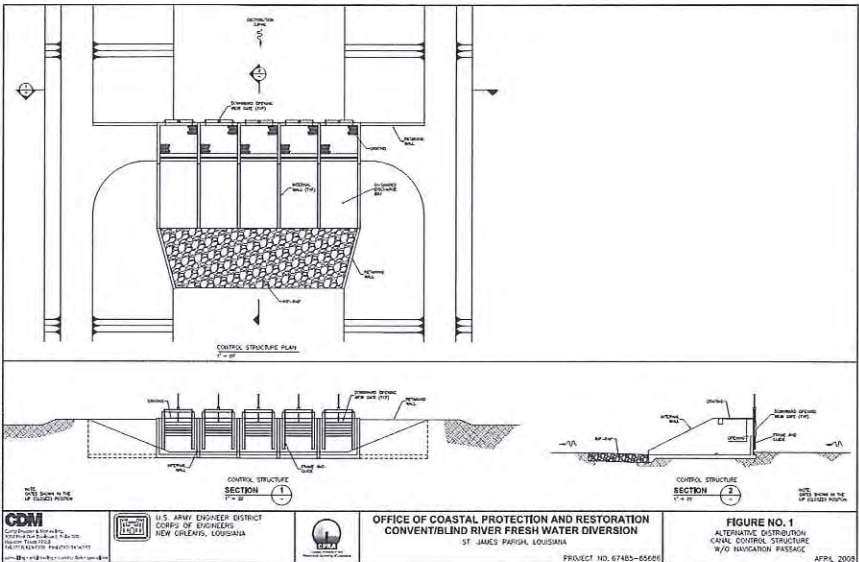
- High resolution aerial photogrammetry
 - Ground topographic and wetland surveys
 - Geotechnical analyses
 - Biological assessments, wetland value assessment (WVA) to evaluate wildlife resources, habitat, threatened and endangered species, and evaluation of viable project design alternatives in coordination with the LA Department of Wildlife and Fisheries, USFWS, and the National Marine Fisheries Service
 - Cultural and recreational surveys
 - Real estate and right-of-entry evaluations
 - Section 404b evaluations

- Coastal zone consistency determination
 - Conceptual design of the Mississippi River diversion (gated culverts were selected over pumps or siphons)
 - Conceptual design of inflatable dams to allow dual use of the flood control system for water distribution
 - Evaluation of potential sea level rise impacts for high, medium, and low rise projections for a 50-year planning horizon

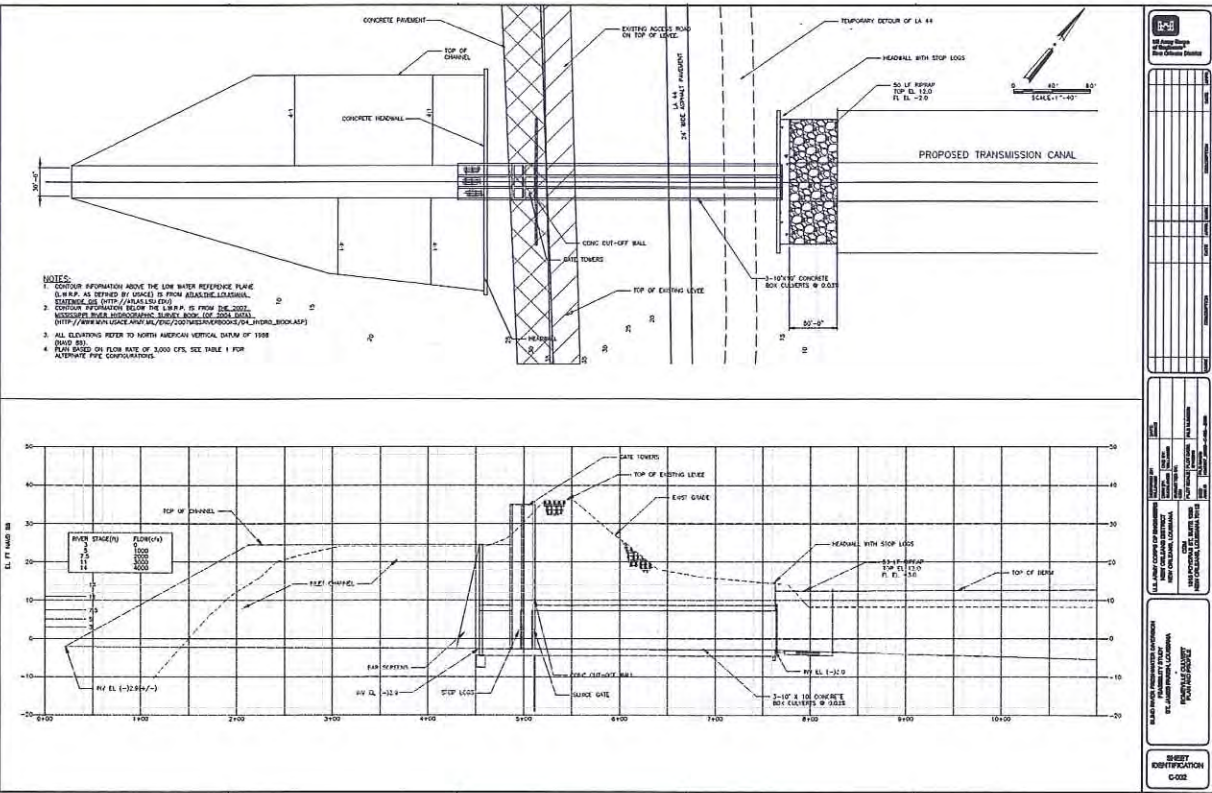
The final report includes recommendations for a preferred design and operational alternatives for freshwater diversion to the Maurepas Swamp area.



Blind River: Design of flood gates for distribution canals



Blind River: Design of gated culverts through Mississippi River flood levee



Remedial Investigation/Remedial Action Selection, Landfill Closure Design and Remedial Design (including Ecological Restoration) Statewide Term Contracts

NJDEP

CDM Smith has been providing remedial design (RD), procurement, and construction administration support for NJDEP's publicly funded RD 5-year term contract (renewed in 2012). We have prepared numerous **design and bid specification documents** under this contract for property remediation and restoration activities, well and tank abandonments and installations, and waste removal activities. Our **permitting, environmental oversight, and compliance management services** have included: construction/demolition permits, soil erosion and sediment control permits, site-wide soil reuse plans, boring permits, Discharge to Groundwater Permit By Rule compliance, utility clearances, other state and local permits, wetlands permits, and a waterfront development plan. We also have extensive New Jersey state and local regulatory compliance expertise in **demolition, historic preservation (both historic architecture and archeology), stormwater, and soil erosion and control**, solid and hazardous waste regulations, and well and tank abandonment.

On behalf of the NJDEP, **Louis Berger** has managed more than 150 environmental investigation and remediation sites since 1998 throughout the state of New Jersey as part of three consecutive task order contracts awarded for these services. To date, Louis Berger has been engaged to provide services on over 120 different projects to address contamination and owner non-compliance. The projects encompass the full breadth of **environmental assessment**, investigation, and remedial alternative development services, including: facility audits/assessments, required development of workplans (including detailed health and safety plans), fieldwork and investigations, preparation of remediation plans, **costs**



and specifications, file reviews, historical documentation, preliminary assessments, site assessment, environmental, geologic, and focused engineering field investigations, hydrogeological and underground storage tank (UST)/leaking underground storage tank (LUST) investigation, permitting services, and construction support services.

Under the RD Term Contract, Louis Berger and CDM Smith have managed several high-profile **ecological restoration and RI projects that involved comprehensive design and construction oversight**, and subsequent recommendations for adaptive management of project post-construction. Highlights from these projects follow.

Lincoln Park Wetland and Stream Restoration Project, Hudson County

Lincoln Park project was selected by the NJDEP in association with Hudson County and NOAA as a part of the innovative program to **restore wetlands** and redevelop a landfill for active recreational use. This project restored 42 acres of wetlands, streams, salt marsh habitat, and added additional anadromous fish spawning habitat to the Hackensack River. In addition to improving the environment, these efforts restored fisheries and supported more **resilient coasts in the face of climate change**. Louis Berger conducted environmental sampling data evaluation and geotechnical investigations for the proposed walkway and bridge, which provided additional information necessary for design. They helped NJDEP, NOAA, and Hudson County with permit application package submissions. Louis Berger developed draft and **final design plans** and specifications, as well as cost estimates and quantities, bid packages, and a site specific health and safety plan for the **restorative construction** of the site. In February 2009, NOAA

received \$167 million from the American Recovery and Reinvestment Act (ARRA) of 2009 to restore coastal habitat and help jumpstart the nation's economy. With assistance from Louis Berger, NJDEP submitted an application to NOAA requesting funds from ARRA to construct the project. This resulted in the Lincoln Park project being one of only 50 projects selected by NOAA out of 814 applications to be funded with ARRA funds. It also received the single largest allocation of all the 50 projects: \$10.6M. The project was selected to receive Coastal America's prestigious Coastal Partnership Award for 2011.

Mad Horse Creek Wetland Restoration, Salem County

Mad Horse Project was selected by NJDEP and NOAA to aid in the **restoration** of former agricultural lands and **degraded tidal marsh** adjacent to the Delaware Bay in Salem County, New Jersey. In coordination with NOAA, NJDEP, and the USFWS, Louis Berger characterized the existing **site ecological, hydrological, and geotechnical conditions and produced final design plans and specifications to restore these tidal and freshwater wetlands and coastal grasslands**. This site is located among one of the richest remaining reserves of wilderness in New Jersey and will provide a diverse mosaic of habitats for a wide variety of estuarine and terrestrial flora and fauna. The overall project goal is to restore 60 acres of degraded tidal marsh and 120 acres of coastal grassland, and will create 35 acres of freshwater wetlands and vernal pools. Additionally, forested habitat will be created to support the state-threatened bald eagle.

Municipal Sanitary Landfill Authority (MSLA) 1-D Landfill Site

The NJDEP Site Remediation Program is providing funding to remediate and properly close the approximately 94 acre MSLA 1-D Landfill in Kearny, New Jersey. This major project, located in USEPA Region 2 and performed under the NJDEP RD Term Contract, exemplifies long-term engagement of Louis Berger's HTRW expertise on behalf of NJDEP to take this project from site investigation through full design.



Project Example #4

Remedial Investigation/Remedial Action Selection, Landfill Closure Design and Remedial Design (including Ecological Restoration) Statewide Term Contracts

Key Staff Members (see Table 2-2 for additional staff)

Maria Watt, Niek Veraart, Peg McBrien, Tom Lewis, Gul Khan, Larry Pesesky

Reference

CDM Smith/Louis Berger:

David Bean, Project Manager

NJDEP, Office of Natural Resource Restoration

501 East State Street, Trenton, NJ

Phone: 609.984.0599

Benefits to NJDEP

Both CDM Smith and Louis Berger have decades of experience managing multi-million dollar Design Term Contracts for NJDEP. This experience is critical to ensuring the develop of high quality work products on an expedited basis that meet or exceed NJDEP standards.

Relevance to Meadowlands

- Projects encompass the full breadth of environmental assessment, investigation, alternatives development, design, and construction administration services
- Coordination and compliance with state and federal regulatory agencies, including USACE, USEPA, NOAA, and USFWS
- Construction of wetlands to mitigate future flooding and impacts from future storm events
- Restoration plans that employ public recreational features

Remedial Investigation/Remedial Action Selection (RI/RAS), Landfill Closure Design and Remedial Design (including Ecological Restoration) Statewide Term Contracts (Continued) - NJDEP

It also shows that the firm has the expertise to provide resident engineering, field inspection, and engineering during construction for an interim remedial action in preparation for the Louis Berger designed landfill closure that includes a slurry wall, **stormwater management system**, landfill gas and leachate collection/ treatment system. The design incorporated a multifaceted technical design team that developed specifications and plans to address the remedial actions associated with contaminated groundwater, soil, and air. Upon project completion, the **final restored area will create a wildflower habitat for wildlife in the New Jersey Meadowlands.**

Higbee Beach Wetland Restoration Project, Cape May County

Louis Berger is working on implementing this multi-phased tidal marsh restoration and redevelopment project along the Delaware Bay in Cape May County, NJ. The project is implemented through the Office of Natural Resource Restoration (ONRR), which coordinates restoration activities to offset natural resource damage claims and restoration settlements within the State of New Jersey. The project will result in the restoration of several hundred acres of salt marshes within the Pond Creek Salt Marsh, the restoration of approximately 35 acres of maritime forest, and the redevelopment of the former Harbison Walker magnesite plant site. Recreational and educational opportunities will be incorporated into the design. The principal project goal is to reestablish tidal inundation to a large portion of Pond Creek marsh without increasing the flood risk to the upper watershed or inundating the eastern marsh area, and allowing for habitat management of the northern marsh area.

Headgates Dam Feasibility Study, Somerset County

Louis Berger was contracted by NJDEP's Green Acres Program to complete a Fish Passage Feasibility Study for the establishment of fish migration passage beyond the Headgates Dam, located on the Raritan River in Bridgewater, Somerset County, New Jersey. The study was funded, in part, through an American Rivers- NOAA Community-Based Restoration Program grant. The main objective of the study is to evaluate fish passage options at Headgates Dam to allow native anadromous and catadromous fish populations to reach potential upstream areas in the Raritan River that are currently inaccessible due to the dam. Louis Berger quantitatively assessed and ranked each option for fish passage. The removal of Headgates Dam was the preferable option with the highest rankings. A potential limitation with the removal of Headgates Dam identified during the site investigation is the presence and location of a 54 in concrete encased sewer line about 90 ft upstream of the dam. Evaluation of designs and development of conceptual design will involve coordination with the local sewer authority to discuss potential options to address the sewer



line and coordination with state and federal cultural resource agencies to address the potential impacts to existing cultural resources from the use of the canal as a bypass channel and impacts to the floodplain.

Liberty State Park, Jersey City

One of CDM Smith's major design projects under this contract is the creation and restoration of tidal and freshwater wetlands within the interior portion of Liberty State Park (LSP). This phased restoration project includes: the creation of approximately 46 acres of salt marsh, the creation and enhancement of approximately 26 acres of freshwater wetlands, the creation of approximately 50 acres of warm weather grasslands, and the enhancement of approximately 100 acres of urban forest comprised of successional northern hardwoods and maritime shrub land. The restoration plan includes pedestrian walkways and bridge, bird blind observation walls, and granite benches. Additional planned recreational facilities will enhance overall park connectivity for increased public use and benefit. In 2014, this significant restoration project was awarded a Hurricane Sandy Coastal Resiliency Competition Grant to expedite the restoration of this critical coastal wetland area and restore the locally endangered ecological habitat and provide a resilient coast to withstand impacts of future storm events. CDM Smith was involved with submitting the design package to the New Jersey Treasury for bid solicitation. This project will involve extensive excavation, waste segregation and disposal, grading, and restoration activities. CDM Smith will provide all the construction administration and oversight once the final construction contractor has been selected.

Paulina Dam Removal Project, Blairstown Township

CDM Smith was contracted by the NJDEP to develop an application pursuant to the Safe Dam Act (N.J.S.A. 58:4-1) for the removal of the

Paulina Lake Dam located on the Paulins Kill River located in Blairstown Township, Warren County, New Jersey. We performed several tasks to develop a comprehensive understanding of the Paulina Lake Dam and the regulatory and permitting requirements associated with removal of the dam. CDM Smith conducted a visual assessment of the Paulina Lake Dam and adjoining properties as well as a comprehensive document review of NJDEP Bureau of Dam Safety and Flood Control and municipal records to examine history of the dam, learn its current condition, and categorize existing technical data, reports, studies, plans and surveys that would support the dam removal permit application. Through these efforts, CDM Smith developed a Data Gap Assessment report that identified missing data and information needed to support an application to remove a dam pursuant to N.J.A.C. 7:20, Dam Safety Standards, Section 7:20-1.7(h).

The Data Gap Assessment included an evaluation of primary application components, including: dam structure plans and appurtenant structure details; property, topographic, aerial and bathymetric surveys; sediment core depth and transport analysis;



channel and stream bank stability analysis; rainfall and runoff data; drainage area and hydraulic modeling; wetland delineation and vegetation survey; and threatened and endangered species and fisheries assessments. The next phase of work includes developing engineering design plans and specifications.

Harrison Landfill, Camden

CDM Smith conducted a pre-design investigation and alternative analysis on behalf of NJDEP for the Harrison Landfill site, an 85-acre municipal landfill located within a 200-acre brownfields development area. We were tasked with expediting the delineation of a source area within the municipal landfill to complete the remedial effort prior to construction of an urban civic center. Site investigation activities were expedited by utilizing the Triad approach via in situ screening in a dynamic sampling strategy. This approach reduced overall project costs and the environmental footprint of site activities, which expedited site redevelopment. A carbon footprint analysis was conducted for the investigation stage and was published in the *Remediation Journal*. In addition, an environmental footprint analysis was conducted on the proposed interim remedial measures for cleaning up the residual source area. The results of this analysis were presented at the Battelle Bioremediation and Sustainable Environmental Technologies Conference.

Journal Article Reference: Watt M, Burlingame M, Beattie J, Koberle M, and Carlson B. 2010. Sustainably Expediting Brownfields Redevelopment by Applying Triad Using the Membrane Interface Probe, Remediation Journal, Volume 20, Issue 4.



Disaster Recovery CDBG-DR NEPA Compliance and Resiliency Planning NJDEP and New York State Governor's Office of Storm Recovery

Leaders in disaster recovery and resiliency planning, CDM Smith and Louis Berger have the technical expertise to assist clients in navigating complex federal, state, and local requirements that must be satisfied before a project can be implemented. One of the most notable and far-reaching federal environmental laws is NEPA, which requires documentation of the environmental effect of a project as part of the decision process for funding or permit approval. For several decades, CDM Smith and Louis Berger have provided NEPA assistance on a wide variety of projects across the country and assisted NJDEP in disaster recovery support and performance of environmental reviews of HUD-funded programs. In addition, the Team has extensive resiliency planning experience to prevent subsequent impacts from our ever changing climate.

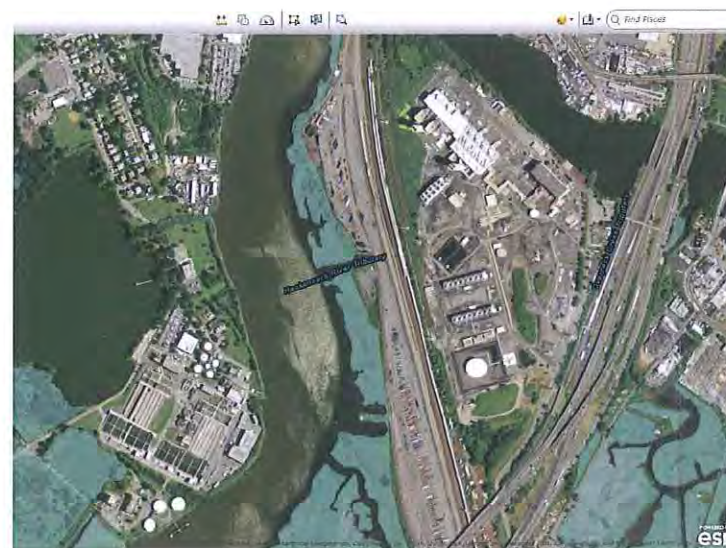
Superstorm Sandy NJDEP/NJDCA Disaster Recovery and Environmental Review Services

CDM Smith was awarded the Superstorm Sandy three-year term contract to fast track the development of the State of New Jersey's First Comprehensive Action Plan. We developed the necessary programs and policies required to expedite Superstorm Sandy recovery and to obtain the desperately needed \$1.8 billion HUD CDBG funding (first phase of funding). A high quality document produced on an expedited schedule rapidly received HUD approval. In addition, CDM Smith provided Subject Matter Experts that assisted NJDEP in performing environmental review of HUD-funded programs for recovery from Superstorm Sandy. We supported NJDEP in the preparation of the Tier 1 environmental assessments for nine impacted counties in the State of New Jersey for the Rehabilitation, Reconstruction, Elevation and Mitigation (RREM) Program for single-family homes and the portion of the Small Rental Properties Program for buildings with up to four residential units.

Superstorm Sandy NJDEP Environmental Review Services for HUD CDBG-DR Projects

CDM Smith supported programmatic execution of fast-turnaround environmental reviews, processing nearly 1,300 HUD recovery funding applications for Superstorm Sandy-impacted homeowners (Tier 2 environmental reviews) and several complex community-wide and infrastructure Environmental Assessments (EAs) within the first 24 months of this 3-year program. Each application review includes field and data evaluations to assess potential for hazardous materials and for historical architectural and archaeological significance. Specifically, CDM Smith has completed or is developing the following:

- Nearly 1,300 Tier 2 environmental reviews for rehabilitated or reconstructed homes throughout the nine most impacted counties in



New Jersey

- Two stand-alone EAs for community-wide buyout of storm-damaged homes
- Five stand-alone EAs for reconstruction of storm-damaged multi-family homes
- One stand-alone EA for improvements to a wastewater treatment plant

Louis Berger also provided on-call environmental review services to NJDEP to prepare Environmental Review Records in accordance with HUD 24 CFR Part 58 and NEPA regulatory requirements for the RREM Program. A key component of Louis Berger's work was to streamline the environmental review process such that reviews were "fast-tracked" to energize long term post-Sandy recovery, while complying with all applicable regulatory requirements. Louis Berger completed 42 task orders for Tier 2 reviews, 22 task orders for non-tiered reviews, and 23 task orders for categorical exclusions for the following programs:

NJDEP's Director, Donna Mahon, commended CDM Smith for its work on this program:

"CDM Smith is DEP's top performer in terms of quality and timeliness ... they have undertaken broader scope projects that are more difficult to coordinate and document [which] passed our quality assurance review without any required changes. Their HUD expertise has thus far outweighed the expertise of the competing contractors."

- Rehabilitation, Reconstruction, Elevation and Mitigation (RREM) Program
- NJDCA Neighborhood Enhancement Program
- New Jersey Economic Development Authority (NJEDA) Small Business Loan Program
- NJEDA Neighborhood and Community Revitalization Program
- NJDCA Landlord Rental and Repair Program.

Superstorm Sandy New York State Governor's Office of Storm Recovery (GOSR) Environmental Review, Management, and Testing Services for CDBG-DR Projects

Louis Berger is providing environmental planning and engineering services to the New York State Governor's Office of Storm Recovery (GOSR) to prepare NEPA/SEQRA coordinated environmental clearance documents for CDBG-DR funded resiliency projects. All reviews are conducted pursuant to 24 CFR Part 58, 40 CFR Parts 1500-1508, and 6 NYCRR Part 617, including compliance with 24 CFR 58.5 and 58.6 laws and authorities such as Section 1424(e) Safe Drinking Water Act of 1974 – Sole Source Aquifer Protection Program and the Coastal Zone Management Act. Projects span the entire geography of New York State, from Ulster County to Suffolk County, including New York City, and range from infrastructure to housing to community reconstruction projects, valued at less than \$1 million to greater than \$380 million in construction value.

Louis Berger's environmental planners and scientists are responsible for assisting with continuous interagency coordination among GOSR, the subrecipient, and cooperating agencies; we are producing the following deliverables: lead agency letters, involved agency letters, state environmental quality review act (SEQRA) environmental assessment forms, NEPA environmental assessments, draft early and final floodplain notifications per Executive Order (EO) 11988, negative declarations, and findings of no significant impacts, as well as EISs.

In addition to environmental reviews, GOSR utilized this contract vehicle to retain the unique expertise of Louis Berger's economists to prepare an assessment of unmet economic need for the CDBG-DR Action Plan and cost-benefit analyses for New York State's application to the National Disaster Resilience competition.

Living with the Bay: Rebuild by Design Mill River EIS Scoping and Alternatives Development

Within Louis Berger's contract for environmental review, management, and testing services, the firm is assisting GOSR with NEPA EIS scoping and alternatives development for the Rebuild by Design project in Nassau

Project Example #5

Disaster Recovery CDBG-DR NEPA Compliance and Resiliency Planning

Key Staff Members (see Table 2-2 for additional staff)

Maria Watt, Niek Veraart, Peg McBrien, Larry Pesesky, Tom Lewis, Arnie Bloch

Reference

CDM Smith:

Donna Mahon
Director, Sandy Recovery Environmental and Historic Preservation Review Program
NJDEP
401 East State Street, Trenton NJ
Phone: 609.341.5313

Louis Berger:

Thomas King, Director, Bur. of Environmental Review and Assessment Interim Asst. Gen. Counsel
GOSR
99 Washington Avenue Suite 1224, Albany, New York 12260
Phone: 518.473.0015

Benefits to NJDEP

Our team members have a proven track record of streamlining the environmental review process through custom SharePoint sites, innovative tools such as Trimble TerraFlex, and strategic environmental analysis approaches that allow for immediately advancing the reviews of easier project components while providing the rigorous analysis required for more complex components, coupled with a detailed cumulative impacts analysis.

Relevance to Meadowlands

- Development of the overall New Jersey HUD CDBG-DR Action Plan
- Development of EA tools that met both HUD and FEMA compliance requirements to streamline the overall process and maintain momentum on Sandy recovery efforts
- Fast-track programs with multiple concurrent activities and numerous subcontractors
- Integration with multiple state revitalization and repair initiatives
- Development of community rebuild strategies that limit exposure, build on existing stormwater management activities, increase community connections to physical infrastructure, and maintain or improve quality of life

Disaster Recovery CDBG-DR NEPA Compliance and Resiliency Planning (Continued)

NJDEP and New York State Governor's Office of Storm Recovery

County, New York. Similar to the New Meadowlands project, the Living with the Bay / Mill River RBD project seeks to address diverse and wide ranging water management problems through an integrated approach of localized and area-wide solutions that reduce the effects and/or frequency of flooding. However, due to the conceptual nature of the RBD process, the coastal protection components as originally conceived by RBD (sluice gate) were deemed infeasible by permitting agencies. Therefore, Louis Berger is working with GOSR to develop measures that work in conjunction with a suite of stormwater management and green infrastructure project components for stormwater flood mitigation, as well as other planned and proposed recovery projects in the Mill River watershed.

Superstorm Sandy Suffolk Sewers EAs

Within Louis Berger's contract for environmental review, management, and testing services, the firm completed a HUD/FEMA EA for the Village of Patchogue out-of-district sewer extension project and holds a task order for technical wastewater planning and engineering services. Similar to the Meadowlands, Suffolk County is particularly vulnerable to the effects of major storms given the dense population that resides at low-lying elevations situated on shallow groundwater along the Great South Bay. Due to shallow groundwater, on-site disposal systems are a constant source of nitrogen enrichment to the groundwater environment and surface waters. Nitrogen loading is exacerbated during flood events when inundated systems fail to remove nitrogen for extended periods of time, resulting in over-enrichment of the estuary. To remedy increasing nitrogen levels and increase the coastal protection provided by wetlands in the bay, \$383 million in CDBG-DR and FEMA Hazard Mitigation Grant Program funds will be utilized to implement resiliency and water quality projects to extend sewer infrastructure and establish new sewer districts in four areas of the county. Louis Berger was tasked with providing technical wastewater engineering expertise and developing an expedited environmental review process for four distinct sewer projects, two of which are treated by the same sewage treatment plant, with the potential for cumulative and indirect impacts such as induced growth. Due to a mix of FEMA, HUD, and Clean Water Act State Revolving Loan Funding, the environmental review approach needed will be conducted in a manner compatible with the requirements of these as well as county and local cooperating, interested, and involved agencies. Louis Berger is working



with the New York State GOSR, HUD, and FEMA as the lead agency to identify the most efficient environmental review process, resulting in separate environmental review documents, each with an assessment of potential direct, indirect, and cumulative effects.

Superstorm Sandy, Hurricane Irene and Tropical Storm Lee New York State GOSR New York Rising Community Reconstruction (NYRCR) Plans

For the past two years, CDM Smith and a teaming partner have led a multi-consultant project team through three rounds of the NYRCR Program, preparing Recovery and Resiliency Plans for more than 30 communities throughout New York State that were damaged by various storms, including: Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. These grassroots planning initiatives document storm damage, and risk to assets and systems and develop mitigation projects, programs, strategies, and actions to assist communities in becoming more resilient to future natural disasters.

The project team has completed recovery and resiliency plans for nine communities in Montgomery County, 10 municipalities in Ulster County, the Village of Bayville in Nassau County, the towns of Stony Point, Clarkstown, and Suffern in Rockland County, and the cities of Rye and Yonkers in Westchester County. Through the NYRCR Program, participating municipalities are eligible for up to \$3 million of CDBG-DR funds to implement projects developed by Planning Committees through the NYRCR Process. Louis Berger has worked closely with local communities to develop comprehensive and implementable plans to prepare for and implement measures to create stronger and more

resilient communities in the face of the increased risk of major storms.

Simultaneously, Louis Berger, Perkins Eastman, and FHI have been preparing Recovery and Resiliency Plans for more than 15 communities in Nassau County (the Five Towns, East Rockaway-Bay Park, and South Valley Stream), Staten Island (east and south shores), Brooklyn (Gravesend-Bensonhurst), and Queens (Idlewild Watershed communities).

Through an iterative planning process, the team guided Planning Committees in each community to develop effective reconstruction projects that creatively integrate risk reduction with actions to increase economic opportunity. A key challenge for the team was to develop projects that would provide the greatest risk reduction to critical assets and vulnerable populations, while meeting the strict cost-benefit and eligibility requirements of CDBG-DR funding. The team's planners and engineers identified the vulnerabilities and needs of each community, assessed risk, and developed projects that provide holistic, long range, and innovative approaches to resiliency. These projects ranged from stormwater management projects to reduce risk from heavy rain events to coastal protection projects that lessen impacts from tidal surge, as well as projects to improve emergency response and communications and opportunities to reduce economic losses associated with storm events.

To maximize public engagement in the planning process, Louis Berger

"Your team has done a wonderful job ushering the Staten Island committee through this planning process and the projects will have a huge impact on the lives of Staten Islanders. In particular, the housing program will offer so much hope to people who - right now - are running out of hope. So many other projects will allow this community to be more resilient in the future. You should be very proud."

Alex Zablocki, NYC Regional Lead, NY Rising - Community Reconstruction Program, New York Governor's Office of Storm Recovery (March 5, 2014 - via email)

developed a suite of online tools that collected public comments, including an asset inventory web map and public comment forms to gather input on community needs and opportunities and potential CDBG-DR projects.

With such a comprehensive menu of resiliency projects, the total cost of the projects exceeded the CDBG-DR allocation in every community. Therefore the team developed a project screening process that assisted the committees in prioritizing the most effective projects by screening risk reduction to cost ratio, co-benefits (e.g., sustainability, economic benefits), opportunities to leverage other funding sources, public support, feasibility, and eligibility. Louis Berger's deep experience in permitting and interagency coordination proved crucial in assessing project feasibility. Berger coordinated with state and federal permitting agencies and collaborated to achieve consensus with local agencies that would potentially become subrecipients of the CDBG-DR grants for project implementation. The team also assisted GOSR in assessing the eligibility of projects for CDBG-DR funding, evaluating such factors as duplication of benefits, restrictions on subrecipients and mobile equipment, and connection to the disaster.

NYRCR Plans produced by the Perkins Eastman-Louis Berger Team received three "Rising to the Top" awards for Best Use of Green Infrastructure, Best Approach to Resilient Economic Growth, and Best Inclusion of Vulnerable Populations, as well as a Meritorious Achievement award from the American Planning Association - NY Metro Chapter.



Environmental Review of Lower Manhattan Disaster Recovery Projects

Lower Manhattan Development Corporation, New York, New York

Louis Berger, under multiple consecutive on-call task order contracts, supported the Lower Manhattan Development Corporation with environmental review, planning, economic analysis, and sustainability services in support of HUD CDBG-DR funded projects for the recovery and redevelopment of Lower Manhattan following the 9/11 terrorist attacks. The services provided by Louis Berger covered a wide range of projects, including economic development, environmental engineering, environmental review, economic analysis, program compliance, and reporting. A description of key CDBG-DR related services is provided below.

World Trade Center Memorial and Redevelopment Plan GEIS

In coordination with HUD and other sponsors of the Lower Manhattan Recovery projects following the devastating terrorist attacks of September 11, 2001, Louis Berger developed an Environmental Analysis Framework and Environmental Performance Commitments to streamline the environmental review process and minimize impacts to the local community and businesses during the construction and recovery process. Louis Berger integrated the technical guidance and standards for various federal, state, and local regulations into this framework that harmonized all methodologies, standards, and criteria; this ensured that each agency could adopt the analysis for its own environmental review purposes, eliminating redundancy and inconsistency.

The environmental review approach included an overall GEIS for complex projects likely to generate significant environmental impacts (World Trade Center Memorial and Redevelopment Plan GEIS), EAs for more involved proposed improvements (e.g. South Ferry Terminal), and Categorical Exclusions for open space and other community improvements (e.g. Louise

Nevelson Plaza).

The Draft and Final GEIS for the World Trade Center were completed in a record time, culminating in a ROD within less than 12 months from the Notice of Intent. The Fulton Transit Center NEPA EIS process was completed in less than 18 months, and the South Ferry Subway Terminal EA in under 14 months. All these projects, as well as the PATH Terminal, were completed concurrently. Niek Veraart, proposed as EIS Task Lead for the New Meadowlands, served as NEPA EIS Project Manager for two of the concurrent projects (WTC and Fulton Transit Center) and contributed to four of the concurrent projects.

This approach ensured that the environmental impacts of the overall project (including construction and operational impacts) were comprehensively addressed at a generic level, even in cases where detailed design was not yet available, such as the World Trade Center Memorial, Fulton Street, Route 9A, and the South Ferry Subway Terminal; it also provided a single place where the potential indirect and cumulative effects of all alternatives were analyzed and disclosed. Douglas Pierson developed construction schedules and peak analysis years. Mr. Veraart also led the cumulative environmental impact analysis.

One of the key challenges of the project was the dearth of design information available for the EIS as none of the rebuilding projects had yet been designed. Louis Berger evaluated the designs for the WTC with regard to their environmental impacts and subsequently, in close coordination with the federal, state, and city agencies, project sponsors, the local community, and other stakeholders. Louis Berger also established a peak construction condition for different areas in Lower Manhattan so that impacts could be analyzed on a geographic basis. During and after the EIS process, the individual rebuilding projects proceeded on their individual, more detailed design tracks, avoiding bottlenecks in the NEPA approval process. Mr. Veraart led Louis Berger's team to develop the conceptual designs for environmental impact analysis and adjusted the direct, indirect, and cumulative environmental impact analyses as designs evolved while



the environmental review was ongoing.

This approach allowed for approval of the entire program as a whole and enabled certain actions and funding to proceed on a fast track. Each sub-project component was defined to have logical termini and independent utility in meeting the purpose and need. In recognition that the independent sub-projects are part of an "overall plan" for the recovery of Lower Manhattan, this approach demonstrated that the individual reviews are no less protective of the environment by completing a program-level alternatives analysis and cumulative impacts analysis prior to commencing sub-project environmental reviews. The alternatives analysis and cumulative

impacts analysis were referenced (but not repeated) in each sub-project component environmental document. An appropriately conservative approach was taken, so that the combined impacts at a generic level captured the range of potential impacts of the individual projects combined. This environmental analysis proved to be extremely robust and remained valued in subsequent years, despite changes in the General Project Plan. The analysis framework was also set up in such a way that the data collected could be re-utilized by each individual project, thereby creating consistency and avoiding redundancy, benefitting the schedules of all projects. Subsequent changes to the program only required minor reevaluation, with either memorandum to the file or a supplemental EA—all of which sailed through the environmental review process.

Under Niek Veraart's leadership, the Louis Berger Team developed more than 20 alternatives and options for the Fulton Transit Center, which were quickly and defensibly narrowed down to two variants analyzed in the DEIS, thereby streamlining the EIS process. The rigorous alternatives analyses were extensively visualized, winning praise from the American Association of State Highway and Transportation Officials (AASHTO) as a Best Practice example of transparent environmental review.

Under the leadership of Niek Veraart and Albert Racciatti, Louis Berger analyzed the economic benefits of the entire HUD program for the Rebuilding of Lower Manhattan. Louis Berger produced an Annual Report

Project Example #6

Environmental Review of Lower Manhattan Disaster Recovery Projects

Key Staff Members (see Table 2-2 for additional staff)

Niek Veraart, Peg McBrien, Larry Pesesky

Reference

Louis Berger:

William H. Kelley, AICP, Executive Director, Village Alliance (Previous position: Director of Planning, LMDC)

8 East 8th Street, New York, NY 10003

Phone: 212.777.2173

Lower Manhattan Development Corporation

One Liberty Plaza, 27th Floor, New York, NY 10006

Phone: 212.962.2300

Benefits to NJDEP

These projects demonstrate Louis Berger's ability to develop and implement regulatory streamlining approaches to successfully complete major, HUD-funded FS/EIS programs concurrently on accelerated timeframes. The team will draw from lessons learned to craft a transparent, rigorous, and efficient regulatory review strategy for the New Meadowlands project.

Relevance to Meadowlands

- Successful completion of a NEPA-compliant HUD CDBG-DR EIS in an accelerated schedule
- Creation of an environmental analysis framework that was adopted and implemented by other agencies throughout the General Project Plan
- Concurrent development of the FS and design alternatives included in the EIS preparation
- Close coordination with stakeholders
- Recognized transparency of environmental analysis and alternatives screening
- Environmental justice impacts analysis
- Coastal zone management
- Large-scale (multi-billion dollar) complex Infrastructure project
- Economic benefits analysis at local, regional, and national levels



Environmental Review of Lower Manhattan Disaster Recovery Projects (Continued)
New York, New York

that the firm later updated. We were subsequently retained by the 9/11 Memorial Foundation to conduct an economic analysis of the effect of the 9/11 Memorial on the local, regional, and national economy.

Louis Berger prepared the first ever widely disseminated progress report (akin to an annual report) and conducted an economic analysis of LMDC-funded initiatives. For the economic impact analysis, Louis Berger reviewed and mapped the agency's use of residential grant program funds, business recovery grant programs, and park improvement funds, among other programs. With the goal of making Lower Manhattan a more livable community for families, LMDC made a commitment to oversee the expansion of parks and public spaces. Louis Berger assisted LMDC in accounting for its progress toward this goal through the analysis of data and graphical mapping of the location, size, park features and functions, and status and value of park improvements. The assessment included consideration of the beneficiary populations and pattern of spending relative to residential populations, low and moderate income residents, and workers. Louis Berger's analytical results and mapping were used to prepare documents for the general public and quarterly reports for HUD.

Louis Berger was subsequently retained to prepare an updated economic impact report of HUD-funded projects and program initiatives for the 2001-2006 period. The report assessed the regional economic impacts of project and program investments in several categories including: parks, streetscapes, tourism, long-term redevelopment such as the museum and memorial, business retention, housing, educational facility investments, infrastructure and utility restoration, cultural events, and other investments. Louis Berger was also retained to develop performance measures, a survey, and a database to monitor and more effectively track and communicate the benefits of the Cultural Enhancement Fund (CEF) Program. Louis Berger's planners and economists designed the Annual Performance Survey to monitor the effectiveness and accomplishments of LMDC's CEF Program as identified by grant recipients. Prior to designing the survey, We identified potential

indicators to assess the economic benefits of specific expenditures. To perform this task, Louis Berger reviewed grant application materials and contracts to identify available data to support the assessment of performance indicators. Performance indicators were designed to be tracked over time to comply with HUD goals and reporting requirements as well as to assess the economic benefits of the funded projects. Performance measures and survey questions focused on the primary goals of the program, which included generating economic benefits, leveraging grants, creating a vibrant community, and promoting excellence. A database was designed to track funded programs on a monthly and annual basis. Using information from the survey, the database was used as a tool for documenting regional economic impacts. The database and information collected through surveying were used for both quarterly and annual reports to HUD.

Downtown Restoration Program Management Services

Louis Berger was retained by PANYNJ to serve as Program Manager for the Downtown Restoration Program, which involves major development projects at the 16-acre WTC site: Transportation Terminal (WTC Hub); Vehicular Security Center and Tour Bus Parking Facility; Retail Development; One World Trade Center Tower; and the WTC Memorial/Memorial Museum/Visitor's Orientation and Education Center (VOEC) as well as other development projects. Over the past 10 years Louis Berger has been responsible for comprehensive management support involving: the development of Project Management Plans; Critical Path Method scheduling, construction schedule analysis and integration; cost management, including related integration with over-arching program level capital budgeting and financial management; management of invoices, payments and cash flow; Electronic Information Management of extensive confidential documents, plans, and records, including administration of the Program's Enterprise Content Management database; and the development of customized applications and management tools. Most recently, as part of its Program Management role, Louis Berger has also been providing resiliency services to the PANYNJ to address the effects of Superstorm Sandy on the WTC site. A milestone was achieved with the delivery of One World

Trade Center, the site's new skyscraper, providing 2.6 million square feet of office space on 69 floors.

The cornerstone project of the program is the WTC Transportation Hub, which is nearing completion. The next project already partially opened is the PATH terminal, which when fully opened will serve as the focal point of an intermodal transportation hub at the WTC site, connecting several major destinations along a single axis, including PATH, New York City subways, and existing and planned future surrounding developments. The Hub will have 300,000 square feet of public space, is designed to accommodate 250,000 patrons daily, has platforms to accommodate 10 trains in lengths of up to 520 feet, and involves numerous multiple pedestrian connections to surrounding commercial, financial, and transportation destinations and centers. Other towers and development are also on their way to completion as Louis Berger continues its Program Management services to PANYNJ.

Lower Manhattan Recovery - Fulton Center NEPA EIS

Louis Berger was retained by the Metropolitan Transportation Authority (MTA) to complete on a fast-track schedule the federal NEPA environmental review for another large-scale complex infrastructure project – the \$1.4B Fulton Street Transit Center (later renamed the Fulton Center). The EIS for this project was completed by Louis Berger in less than 18 months and concurrent with the HUD CDBG-DR NEPA GEIS for the World Trade Center by Louis Berger and the NEPA EA for the South Ferry Terminal also by Louis Berger. The construction of the Fulton Center was completed in the spring of 2015. The EIS included a detailed analysis of economic impacts and developed mitigation measures to ensure the recovery of small businesses.

WTC Utility Restoration and Infrastructure Rebuilding Program HUD CDBG-DR NEPA Environmental Review

Through \$750 million in HUD CDBG-DR funding the World Trade Center Utility Restoration and Infrastructure Rebuilding (URIR) Program was designed to provide assistance to investor-owned utility service providers operating south of Canal Street in Lower Manhattan (URIR Program Zone). Louis Berger was retained to complete all HUD CDBG-DR environmental reviews for this multi-year program. Louis Berger provided services on short notice for Category Two projects which permanently replaced, restored, and enhanced the equipment and infrastructure in delivering energy and telecommunications utility services in Lower Manhattan. These projects served to increase the resiliency of utility service, increased the capacity of the utility service, and provided other benefits of improved technology and advanced service.



Table 2-3. The CDM Smith/Louis Berger team has extensive relevant experience.

Project Name/Location	FS, EIS, Both Concurrent (BC) or Equivalent (EQ)	Flood Mitigation/Protection	Hydraulic Studies/Modeling	Green Design/Green Infrastructure	Geotechnical Design	Site Investigation, Remediation and Restoration	State and Local Regulatory Compliance	HUD CDBG-DR, FEMA, USACE and USEPA Compliance	Stakeholder Outreach and Coordination	Land Use/Zoning/Buyout	Construction Administration Services
Six Project Examples											
Feasibility Studies, Environmental Impact Statements, Designs, and Construction Administration Services in the Hackensack Meadows, NJ Meadows Commission, New Jersey Sports and Exposition Authority, NJDEP, USEPA, New Jersey Department of Transportation, USACE – New York District	BC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trinity Uptown Program, Tarrant Regional Water District & USACE, Fort Worth District, TX	BC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blind River Freshwater Diversion Feasibility Study and EIS Project, Louisiana Department of Natural Resources and Office of Coastal Protection and Restoration Authority, USACE New Orleans District and US Fish and Wildlife Service	BC	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Remedial Investigation/Remedial Action Selection, Landfill Closure Design and Remedial Design (including Ecological Restoration) Statewide Term Contracts, NJDEP	FS	✓	✓	✓	✓	✓	✓		✓		✓
Disaster Recovery CDBG-DR NEPA Compliance and Resiliency Planning, NJDEP and New York State Governor's Office of Storm Recovery	EQ	✓		✓		✓	✓	✓	✓	✓	
Environmental Review of Lower Manhattan Disaster Recovery Projects, Lower Manhattan Development Corporation, New York, NY	BC						✓	✓	✓	✓	
Meadowlands Projects											
Marsh Resources Inc. (MRI) Meadowlands Mitigation Bank, Phases 1, 2 and 3	FS	✓	✓		✓	✓	✓	✓			✓
Secaucus High School Wetland Enhancement and Pedestrian Boardwalk Site		✓		✓	✓	✓	✓	✓			✓
Teterboro Airport Engineering Design, Construction Management & Environmental Services for Jet Aviation Teterboro		✓	✓		✓		✓	✓			✓
Meadowlands Xanadu Development, EIS Preparation and Environmental Support Services	EIS						✓	✓	✓	✓	
Meadowlands Railroad and Roadway Improvement Project, Environmental Consulting and Third Party Reviews	EIS					✓	✓	✓	✓		
Meadowlands Programmatic Environmental Impact Statement	EIS							✓	✓	✓	
Meadowlands Xanadu Development, Self-Implementing PCB Soil Clean-up (Lot 27)						✓	✓	✓	✓		✓
NJSEA Meadowlands Racetrack Self-Implementing PCB Transformers Removal and Cleanup Project, Remedial Investigation, Remedial Design, Oversight and Reporting						✓	✓	✓	✓		
Johnson Controls Teterboro Airport Forested Wetland Restoration						✓	✓	✓			
LSRP Services, Teterboro Airport						✓	✓				✓

Table 2-3. The CDM Smith/Louis Berger team has extensive relevant experience. (Continued)

Project Name/Location	FS, EIS, Both Concurrent (BC) or Equivalent (EQ)	Flood Mitigation/Protection	Hydraulic Studies/Modeling	Green Design/Green Infrastructure	Geotechnical Design	Site Investigation, Remediation and Restoration	State and Local Regulatory Compliance	HUD CDBG-DR, FEMA, USACE and USEPA Compliance	Stakeholder Outreach and Coordination	Land Use/Zoning/Buyout	Construction Administration Services
Flood Mitigation/Protection/Control Projects (including Green Infrastructure)											
North Atlantic Coast Comprehensive Study, U.S. Army Corps of Engineers	FS	✓	✓	✓			✓	✓	✓	✓	
Lincoln Creek Flood Control Project, Milwaukee Metropolitan Sewerage District, WI	EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Landscape Preservation Program, Boston and Brookline, Massachusetts	EQ	✓		✓				✓			✓
New York City Department of Environmental Protection Office of Green Infrastructure, and New York City Economic Development Corporation Area-wide Design		✓	✓	✓	✓		✓		✓		✓
Edenwald House Green Infrastructure Planning and Design, New York City		✓	✓	✓	✓		✓		✓		✓
Green Infrastructure, Philadelphia Water Department, PA	EQ	✓	✓	✓			✓	✓	✓		
Harvard University Allston Campus Sustainable Improvements, Cambridge, MA	EQ	✓	✓	✓	✓	✓	✓		✓		✓
Nova Road Canal Integrated Flood Control and Water Resource Management Plan, East Volusia Regional Water Authority (EVRWA), Volusia County FL	EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Stormwater Drainage Master Plan, City of New Orleans, LA and HUD	EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Snow Creek Stream Environmental Restoration North Lake Tahoe, California		✓	✓	✓	✓	✓			✓	✓	✓
Potomac Park Levee System Washington, DC	BC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Green Brook Flood Control Project, Bridgewater Township, New Jersey		✓	✓	✓	✓		✓	✓	✓		✓
Nantasket Beach Seawall Repair, Beach Nourishment, and Reservation Master Plan Services Hull, Massachusetts	EIS	✓	✓	✓			✓	✓	✓	✓	✓
Lower Passaic River Restoration Project Feasibility Study (lower 8 miles), EPA Region 2	FS	✓	✓			✓	✓	✓	✓		
Long Hill Flood Protection, New Jersey		✓	✓		✓		✓	✓	✓		
Highlands Flood Damage Reduction and Shoreline Protection Project, Highlands, New Jersey		✓	✓		✓			✓	✓		
Keyport Flood Damage Reduction and Shoreline Protection Project, Key Port, New Jersey		✓	✓		✓			✓	✓		
Hydrogeomorphic Functional Assessment Model and Guidebook			✓				✓	✓	✓		
Runway Drainage, Flood Control, and Water Quality Facility Design, Cleveland Hopkins International Airport	EIS	✓	✓		✓	✓	✓		✓		✓
Karruish Park Flood Control Facility Design, Cleveland OH	EQ	✓	✓		✓				✓		✓

Table 2-3. The CDM Smith/Louis Berger team has extensive relevant experience. (Continued)

Project Name/Location	FS, EIS, Both Concurrent (BC) or Equivalent (EQ)	Flood Mitigation/Protection	Hydraulic Studies/Modeling	Green Design/Green Infrastructure	Geotechnical Design	Site Investigation, Remediation and Restoration	State and Local Regulatory Compliance	HUD CDBG-DR, FEMA, USACE and USEPA Compliance	Stakeholder Outreach and Coordination	Land Use/Zoning/Buyout	Construction Administration Services
Pontilly Stormwater HMGP Project, New Orleans Redevelopment Authority, LA and FEMA	EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Big Creek Water Resource Management Plan, Fulton County GA	EQ			✓					✓		
Storm Surge Impact Reduction Studies, Design and Construction, Winthrop and Beverly, MA		✓	✓		✓						✓
FS/EIS Projects											
Goethals Bridge Replacement Environmental Impact Statement (GBR EIS), Elizabeth, NJ and Staten Island, NY	BC		✓	✓		✓	✓	✓	✓	✓	
Rouge River National Wet Weather Demonstration Program, Wayne County MI and US EPA	FS/EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lake Okeechobee Fast Track (LOFT) Project, South Florida Water Management District (SFWMD) and USACE Jacksonville District	FS/EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rindge Dam Removal and Malibu Creek Ecosystem Restoration Project, USACE Los Angeles District, CA	BC	✓	✓		✓	✓	✓	✓	✓	✓	
Wilmington Drain and Machado Lake, Los Angeles, CA	BC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Marina Barrage, Singapore	FS/EQ	✓	✓	✓	✓	✓	✓		✓	✓	✓
Environmental Consultant for Interchange 6 TO 9 Widening Program, New Jersey	EIS		✓	✓	✓	✓	✓	✓	✓	✓	
Supplemental Environmental Impact Statement for Designation of Dredged Material Disposal Site(s), Eastern Long Island Sound	EIS			✓		✓	✓	✓	✓	✓	
Missouri River Recovery Program NEPA Support and Analysis, Missouri River Basin, Multiple States	BC	✓	✓	✓		✓		✓	✓	✓	
Klamath River Dam Decommissioning EIS/EIR, Bureau of Reclamation	EIS	✓	✓		✓	✓	✓	✓	✓	✓	
San Luis Reservoir Low Point Study FS & EIS, Bureau of Reclamation	BC		✓		✓	✓	✓		✓	✓	
HUD CDBG Projects											
Illinois "IKE" Disaster Recovery Program, Multiple Environmental Assessments, HUD	EQ	✓					✓	✓			
Together North Jersey (HUD funded) Program Administration and Planning, Northern New Jersey				✓			✓	✓	✓	✓	
Together North Jersey (HUD funded) Hoboken Green Infrastructure Strategic Plan, Hoboken, New Jersey		✓		✓			✓		✓	✓	
Together North Jersey (HUD funded) Newark Green Infrastructure, Newark, New Jersey		✓	✓	✓		✓	✓	✓	✓		
Hewlett Harbor Stormwater Infrastructure Upgrades HUD Environmental Assessment, Nassau County, NY	EQ			✓				✓		✓	

Table 2-3. The CDM Smith/Louis Berger team has extensive relevant experience. (Continued)

Project Name/Location	FS, EIS, Both Concurrent (BC) or Equivalent (EQ)	Flood Mitigation/Protection	Hydraulic Studies/Modeling	Green Design/Green Infrastructure	Geotechnical Design	Site Investigation, Remediation and Restoration	State and Local Regulatory Compliance	HUD CDBG-DR, FEMA, USACE and USEPA Compliance	Stakeholder Outreach and Coordination	Land Use/Zoning/Buyout	Construction Administration Services
Raise Shorelines Citywide Study, New York, NY		✓	✓	✓				✓	✓		
Environmental Review of 9 Hazard Mitigation Grant Program (HMGP) Projects in California	EQ	✓					✓	✓	✓		
Section 106 Reviews (980) for Flood Recovery Projects, Cedar Rapids, IA	EQ						✓	✓		✓	
Wetland											
Mitigation and Restoration Strategies for Habitat and Ecological Sustainability (MARSHEs) Project, Staten Island, NY	EQ	✓	✓	✓		✓	✓	✓	✓	✓	✓
Tidal Restoration Plan and Environmental Impact Statement within the Herring River Floodplain, Cape Cod National Seashore, Massachusetts	BC	✓	✓	✓		✓	✓	✓	✓	✓	
Kane Wetland Mitigation Bank and Freshwater Wetland Mitigation Site	FS	✓	✓	✓	✓	✓	✓				✓
Marsh Resources, LLC Station 240 Tidal Exclusion Berm Permitting		✓	✓		✓		✓	✓			
Mill Creek Wetland Enhancement Site		✓				✓	✓	✓			✓
Lake Okeechobee Fast Track (LOFT) Project, South Florida Water Management District (SFWMD) and USACE Jacksonville District	FS/EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
C-44 Reservoir and Stormwater Treatment Area Conceptual Design, Aquacalma and South Florida Water Management District	FS	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Devils Garden Wetland Restoration Plan of Operation, Design and Permitting, USACE Jacksonville District and NRCS	FS	✓	✓	✓	✓	✓	✓	✓	✓	✓	
ABC-Flaghole Ranch Wetland Restoration Plan of Operation, Design and Permitting, USACE Jacksonville District and NRCS	FS	✓	✓	✓	✓	✓	✓	✓	✓	✓	
South Platte River Segment 15 Studies and Improvements, Metro Wastewater Reclamation District, Denver, CO		✓	✓		✓	✓			✓		✓
Oritani Marsh Wetland Enhancement Feasibility Studies	FS			✓	✓	✓	✓				
Site Remediation											
USEPA Region 2, Horseshoe Road and Atlantic Resource Corp, Sayreville, NJ	FS	✓	✓	✓		✓	✓	✓		✓	✓
USEPA Region 2, Raritan Bay Slag Superfund Site, Old Bridge and Sayreville, NJ	FS		✓	✓		✓	✓	✓		✓	
USEPA Region 2, Newtown Creek RI/FS Oversight Brooklyn and Queens, NY	FS		✓			✓	✓	✓	✓	✓	
USEPA Region 2, Zschiegner Refining Superfund Site, New Jersey	FS	✓			✓	✓	✓	✓	✓		✓
USEPA Region 2, Lower Passaic River Superfund Site, New Jersey	FS		✓		✓	✓	✓	✓	✓		
McGirts Creek Remediation, US EPA and Jacksonville FL	EQ	✓	✓	✓	✓	✓	✓	✓	✓		✓

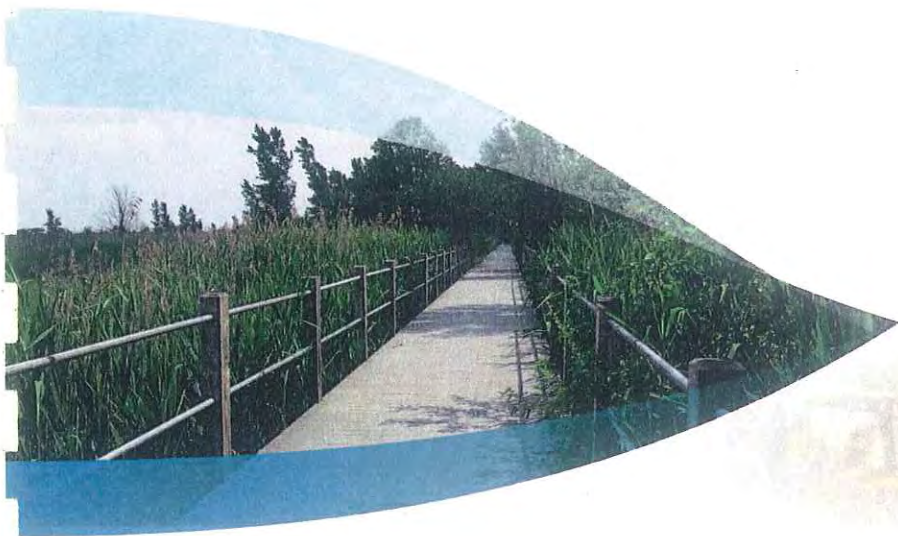
Table 2-3. The CDM Smith/Louis Berger team has extensive relevant experience. (Continued)

Project Name/Location	FS, EIS, Both Concurrent (BC) or Equivalent (EQ)	Flood Mitigation/Protection	Hydraulic Studies/Modeling	Green Design/Green Infrastructure	Geotechnical Design	Site Investigation, Remediation and Restoration	State and Local Regulatory Compliance	HUD CDBG-DR, FEMA, USACE and USEPA Compliance	Stakeholder Outreach and Coordination	Land Use/Zoning/Buyout	Construction Administration Services
Anacostia River Facility Plan, Washington, DC	FS		✓		✓	✓	✓	✓	✓		
Deer Creek Brownfields Support, Jacksonville FL	EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cedar and Ortega River Contamination Source Identification, Assessment, Feasibility Study, and Regional Stormwater Treatment Facility Design and Permitting - St Johns River Water Management District and City of Jacksonville, Florida	EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Downtown Watershed Regional Facility and Mangrove Walk Park, Boynton Beach FL	EQ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Living Shoreline and LSRP Services, Nereid Boat Club				✓	✓	✓	✓		✓		✓
NJDEP Syncon Resins Superfund Project Remedial Design Services						✓	✓	✓	✓		✓
NJDEP, Liberty State Park, Chrome Site 015 Remedial Design Services						✓	✓	✓	✓		✓



Section 2

Experience on Large Scale Projects



KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: AmyMarie Accardi-Dey, PhD

Title: Water & Sediment Quality

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Berry Creek RI/FS Oversight, Bergen County, New Jersey Cost or Fee: \$425,000 (Task Order 0012) and \$417,000 (Task Order 0005)	Task Order 0012 and 0005 for USACE-KS	RI/FS Oversight for EPA	Project Manager	138 Months	10%	2004 - 2015	
Newark Bay RI/FS Oversight, Newark, NJ Fee: Unavailable	Task Order 0006 for USACE-KS	Data evaluation of Super Storm Sandy sediment data	Deputy Project Manager	128 Months	25%	2005 - 2015	
Lower Passaic River Restoration, Newark, NJ Fee: \$25 Million	Task Order CE01 and CE02	Restoration Planning	Project Manager	60 Months	25%	2008 - 2012	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Santiago Alfageme

Title: Coastal Engineering

Firm: Moffatt & Nichol

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Raise Shorelines Citywide Study, NYC Economic Development Corporation (NYCEDC) Fee: \$1.109 Million	Moffatt & Nichol	Feasibility Study	A/E Project Manager / Senior Coastal Engineer	5 Months	25%	2/2015 – Present	
North Atlantic Coast Comprehensive Study (NACCS), USACE Fee: \$1.889 Million	Moffatt & Nichol	Study	A/E Project Manager / Senior Coastal Engineer	20 Months	50%	4/2013 - 2/2015	
Rockaway Beach Coastal Storm Damage Reduction Feasibility Study, New York, NY Fee: \$1.558 Million	Moffatt & Nichol	Feasibility Study	A/E Project Manager/Senior Coastal Engineer	24 Months	20%	9/2013 - Present	
South Shore of Staten Island Storm Damage Reduction Project, New York Fee: \$1.499 Million	Moffatt & Nichol	Feasibility Level Planning, Design, and Cost Estimates	A/E Project Manager/Senior Coastal Engineer	72 Months	15%	9/2010 – Present	
Fire Island To Montauk Point Reformulation Study, Long Island, NY Fee: \$4 Million	Moffatt & Nichol	Feasibility-Level Study	Senior Coastal Engineer / AE Project Manager	180 Months	20%	9/2000 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Sharon Bailey, P.E.

Title: Water & Sediment Quality

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Kansas City USACE, Lower Passaic River: Focused Feasibility Study, NJ Fee: \$25 Million	Louis Berger	Feasibility study with focus on dredged materials mgmt conceptual design, cost estimates	Principal Environmental Engineer	60 Months	0 to 100% depending on phase of work	3/2008 - 9/2009 3/2012 - Present	
Kansas City USACE, Cornell Dubilier: Feasibility Study, New Jersey Fee: \$17.5 Million	Louis Berger	Feasibility study, conceptual design, cost estimates,	Principal Environmental Engineer	36 Month	50 to 100% during draft and final FS prep (4 to 6 month each); less than 15% remainder of time	7/2012 - 7/2015	
NYCDEP, Gowanus Canal Superfund Site Remediation Assistance and Feasibility Study Review, NY Fee: \$5 million	Louis Berger	Regulatory assistance, conceptual design, cost estimates	Principal Environmental Engineer	40 Months	10 to 50 percent	4/2012 - Present	
NYCDEP, Newtown Creek Remediation Assistance, NY Fee: \$8 Million	Louis Berger	Review and evaluation of documents, CSO and SWO discharges	Principal Environmental Engineer	3 Months	<10%	2013	
H2M/Blackacre Partners, BICC Cables Site: Remedial Action Work Plan (RAWP) and Design/Construction Documents, NY Fee: \$1 Million	Malcolm Pirnie	Design, permitting and construction services	Senior Environmental Engineer/Project Manager	30 Months	15 to 100% (varied by phase of work)	3/2009 - 10/2011	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Dana Boyadjian, P.E., LSRP

Title: Environmental Engineering

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
DPMC, Demolition Consultant Term Contract, NJ Fee: \$500,000 (to date)	CDM Smith	Engineering design/cost estimating/construction administration, and individual property assessments	Project Manager	17 Months	Varies from 0 to 20%	3/2014 - Present	
NJDEP, Superstorm Sandy Disaster Recovery Support Term Contract, NJ Contract Value: \$9.6 Million Fee: \$1 Million (awarded to date)	CDM Smith	Residential site Inspections, environmental assessments and environmental review record development	Project Engineer	1 Month	15%	12/2013 - 6/2015	
Wilkins American Service, Delran, NJ Fee: \$250,000	ECC Horizon	LSRP-based remedial investigation, in-situ treatment remedial plan and cost estimate	Project Manager	57 Months	Varied from 0 to 60%	3/2009 - 11/2013	
NJDEP Remedial Design Term Contract, NJ Contract Value: \$4 Million Fee: \$2 Million (awarded to date)	CDM Smith	Scoping Documents, Environmental Assessments, Design Documents, Bid Specification, Procurement Support, Construction Administration Services	Project Manager	18 Months	Varied from 0 to 35%	2/2014 - Present	
Brownfield Investigation and Remediation, Whippany, NJ Fee: \$1.2 Million	Shaw Environmental	Soil excavation & disposal plus groundwater treatment plant construction, operation and maintenance	Project Manager	28 Months	Varied from 0 to 80%	5/2005 - 9/2007	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Jennifer Brunton, P.E., CFM

Title: Ecosystem Restoration

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Higbee Beach Wetland Restoration Project, Cape May County, NJ (NJDEP) Fee: \$400,000 (awaiting PO for \$1.5 Million)	The Louis Berger Group, Inc.	Baseline Studies and Conceptual Design Development	Project Manager	20 Months	55%	2014 - Present	
Mad Horse Creek Wetlands Restoration Project, Salem County, New Jersey (NJDEP) Fee: \$600,000	The Louis Berger Group, Inc.	Baseline Studies, Restoration Design Development	Project Manager (current role), Civil and Environmental Engineer (previous role)	20 Months	15 – 70% during active periods	Intermittently from 11/2006 to present (project has not been continuous)	
Lincoln Park Wetland Restoration, Hudson County, New Jersey (NJDEP) Fee: \$1.4 Million	The Louis Berger Group, Inc.	Restoration Design Development, Bid Document Preparation, Office-Based Support During Construction and ARRA Reporting	Civil and Environmental Engineer		20%		
NYS GOSR, NY Rising Community Reconstruction Plans Contract Value: \$844,150/Fee: \$67,532		Disaster Recovery, Resiliency Planning, Green Infrastructure, Coastal Defenses, Economic Development	Civil and Environmental Engineer	18 Months	30%	7/2013 - 1/2015	
NYS GOSR, On-Call Contract for Environmental Review and Management (Rebuild by Design Mill River EIS Scoping and Alternatives Development, Suffolk Sewers EA) Contract Value: \$900,000/Fee: \$72,000	The Louis Berger Group, Inc.	EIS Scoping, Alternatives Development, Environmental Assessments, Categorical Exclusions	Civil and Environmental Engineer	Ongoing (10 months)	20%	10/2014 – Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Robert Bunting, P.E.

Title: Geotechnical Engineering

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Cape May Waterfront Reconstruction, Cape May, NJ Fee: \$10 Million	CDM Smith	Designer of Anchored Bulkhead and Armor Stone Revetment, Construction Oversight.	Geotechnical Designer	12 Months	50%	8/2014 - Present	
Right of Way Bioswales (BB-005), Queens, NY Fee: \$4 Million	CDM Smith	Oversaw drilling program, data presentation and report preparation.	Geotechnical Project Manager	6 Months	20 - 25%	2/2015 - Present	
On-Call Contract, New York City, NY Fee: \$3 Million	CDM Smith	Coordinated drilling, field staff, and Soil Report Production.	Geotechnical Project Manager	2 Months	20 - 25%	6/2015 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Rafael Canizares

Title: Coastal Modeling

Firm: Moffatt & Nichol

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Lower Passaic River Restoration, NJ Fee: \$6 Million	Moffatt & Nichol	Modeling program associated with the Remedial Investigation/ Feasibility Study	Project Manager/Principal Investigator Hydrodynamics	70 Months	25%	6/2008 - 6/2014	
Fire Island To Montauk Point Reformulation Study, Long Island, NY Fee: \$4 Million	Moffatt & Nichol	Feasibility-Level Study	Senior Coastal Modeler	180 Months	20%	9/2000 - Present	
Whiskey Island West flank and Marsh Restoration. LA Fee: \$335,104	Moffatt & Nichol	Coastal Engineering and Preliminary Design	Senior Coastal Modeler	27 Months	25%	11/2005 - 2/2008	
New York Comprehensive Citywide Ferry Study, New York, NY Fee: \$144,930	Moffatt & Nichol	Comprehensive Study	Senior Coastal Modeler	10 Months	5%	9/2013 - 6/2014	
Canal del Dique, Bogotá, Colombia Fee: \$5.2 Million	Moffatt & Nichol	Studies and Final Designs	Hydrodynamic, Sediment expert	24 Months	40%	10/2013 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Wing Yan Vivian Chan

Title: Geotechnical Engineering

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Right-of-Way Green Infrastructure Design, BB-008, Flushing Bay, Queens, NY Fee: \$6 Million	CDM Smith	Subsurface investigation planning, geotechnical evaluation and design for bioswales and other GIs	Geotechnical Engineer	30 Months	Varies from 0 to 60%	3/2013 - Present	
Right-of-Way Green Infrastructure Design, BB-005, Queens, NY Fee: \$6 Million	CDM Smith	Geotechnical review for bioswales planning	Geotechnical Engineer	4 Months	0 to 5%	4/2015 - Present	
Ping Tom Park, Chicago, IL Fee: \$436,000	CDM Smith	Shoreline protection design, steel sheet pile, anchor and bulkhead design, foundation design for partial submerge terrace and bridge, construction support	Geotechnical Engineer	21 Months	Varies from 0 to 80%	6/2009 - 1/2011, 12/2011	
Lincoln Creek 32 nd Street and Hampton Flood Management Facility Repair Fee: \$53,000	CDM Smith	Segmental block retaining wall design, channel revetment evaluation and repair, construction support	Geotechnical Engineer	8 Months	Varies from 0 to 30%	5/2012 - 12/2012	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Peter Chenevey, P.E.

Title: Civil Engineering

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Blind River Freshwater Diversion Feasibility Study and EIS, Convent, LA Fee: \$4.7 Million	CDM Smith	Development of FS and EIS	Technical Reviewer	8 Months	5% (average)	9/2008 - 1/2010	
SFWMD LRSTA Design, Martin County, FL Fee: Unavailable	CDM Smith	Detailed Design	Task Manager	60 Months	50% (average)	1/2007 - 12/2011	
SFWMD LOFT Taylor Creek Reservoir – Temporary Test Cell Program, Okeechobee County, FL Fee: \$1 Million	CDM Smith	Detailed Design	Project Engineer	9 Months	40% (average)	8/2006 - 4/2007	
Environmental Remediation at Danang Airport, Vietnam Fee: \$4.5 Million	CDM Smith	Detailed Design	Engineer-of-Record, Chief of Party	38 Months	30% before 06/2011; 90-100% after 06/2011	12/2009 - 1/2013	
Environmental Assessment at Bien Hoa Airbase, Vietnam Fee: \$3.3 Million	CDM Smith	Environmental Assessment	Project Manager and Chief of Party	20 Months	90%	12/2013 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Christopher Corliss, P.E.

Title: Environmental Engineering

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
MSLA 1-D Landfill Closure Project. Kearny, NJ Fee: \$7.7 Million	Louis Berger	Design Documents, Bid Specification, Procurement Support, Construction Administration Services	Project Manager	120 Months	Varies based on project needs. When project is active, 50%	2005 - 2015	
Fenimore Landfill – Partial Landfill Closure Project. Roxbury, NJ Fee: \$2.9 Million	Louis Berger	Design Documents, Bid Specification, Procurement Support, Construction Administration Services	Project Manager	24 Months	60%	7/2013 - Present	
Kingsland Redevelopment Area Project Quality Assurance Engineering Services. Bergen County, NJ Fee: \$1.5 Million	PS&S, Sadat Associates, and Maser	Construction QA/QC Services, Monitor and Estimate Project Expenses, Evaluate Project Schedule and Funding, Technical Engineering Support,	Project Manager	48 Months	30%	2010 - Present	
Meadowlands Railroad and Roadway Improvement Project. East Rutherford, NJ Fee: \$2 Million	Edwards and Kelcey and Louis Berger	Design Documents, Bid Specifications, Remedial Design, Construction Submittal Review Engineering Support	Principal Engineer	48 Months	30%	2006 -2010	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Teresa Doss

Title: Ecosystem Restoration

Firm: BioHabitats

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Teaneck Creek Park Wetland and Riparian Restoration, Teaneck, NJ Fee: \$235,000	Biohabitats	Wetland Restoration, Site Assessment, H&H Analysis, Engineering, Design, Permitting, Public Outreach, Construction Management	Project Manager, Field Ecologist	8 Months	50%	1/2015 - 6/2016	
Freshkills Wetland and Living Shoreline Restoration, Staten Island, NY Cost or Fee: \$150,000	Biohabitats	Wetland Restoration, Site Assessment, Hydrologic and Hydraulic Analysis, Engineering, Design, Permitting	Project Manager, Field Ecologist, Design, Permitting, Construction Management	70 Months	50%	3/2008 - 7/2013	
Jamaica Bay Ecological Pilot Projects, New York, NY Fee: \$18 Million	Joint Venture – Biohabitats/ HDR/Hazen & Sawyer	Habitat Restoration, Site Assessment, Water Quality Analysis, Design, Permitting, Construction Management, Monitoring	Project Manager, Habitat Restoration, Site Assessment, Water Quality Analysis	79 Months	1 st 3 yrs - 50% Remaining - 10%	4/2009 - 10/2015	
Berry's Creek Study Area – Evaluation of Marsh Production, Functions and Values, Hackensack Meadowlands, NJ Fee: \$53,355	Geosyntec Consultants Inc.	HASP Development, Wetland Inventory and Assessment, Functional Analysis, GIS, Reporting	Project Manager, Field Ecologist	8 Months	Varies from 20% – 100%	6/2010 - 12/2010	
Meadowlands Site Sampling, Hackensack Meadowlands, NJ Fee: \$15,000	Louis Berger Group	Wetland and Soil Assessment and Analysis	Project Manager, Field Ecologist	5 Months	50%	7/2009 - 10/2009	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Michael Dunn, P.E.

Title: Regulatory Compliance

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
New Jersey Turnpike Widening Interchange 6-9, Environmental Consultant Fee: \$17.2 Million	Louis Berger	Reviewed the Flood Hazard Area Applications and stormwater management designs	Task Leader	30 Months	60% for first 6 months and 10-25% for remaining months	2007 - 20014	
New Jersey Turnpike Authority, Garden State Parkway Interchange 9, 10 & 11 Improvements, Cape May NJ Fee: \$14.9 Million	Louis Berger	Flood Hazard Area Permit Applications, Stormwater Management Designs and SESC Plans	Task Leader	120 Months	30% during design and 80% before a submission	2004 - Present	
Somerset County / New Jersey Department of Transportation, Interchange at U.S. Route 22 and Chimney Rock Road, Bridgewater, NJ Fee: \$3.4 Million	Louis Berger	Flood Hazard Area Permit Applications, Stormwater Management Designs, Drainage and SESC Plans	Project Manger	108 Months	20% during design and 80% to prepare for submission	2005 - Present	
Route I-287, M.P. 61.8 Glaser's Pond, Franklin Lakes, NJ Fee: \$600,000	Louis Berger	Flood Hazard Area Permit Applications	Deputy Project Manager	36 Months	40% during the 1 st 6 months, 20% for remaining months.	2012 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Dincer Egin, Ph.D., P.E., PG

Title: Geotechnical Engineering

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
New Jersey Department of Environmental Protection, Lower Passaic River Source Control Dredge Plan, Essex and Hudson Counties, NJ Fee: \$3 Million	Louis Berger	Geotechnical site characterization, subsurface evaluations with respect to clean up design	Lead Geotechnical engineer	18 Months	10%	2007 - 2008	
U.S. Army Corps of Engineers – New York District (USACE), Geotechnical Investigation and geotechnical design for the proposed Saints Field Pier and Port Reading Avenue Pier, at Woodbridge Creek, Woodbridge, New Jersey Fee: \$50,000	Louis Berger	Geotechnical investigation and both deck and foundation design	Lead geotechnical Engineer and Lead Foundation Designer	4 Months	10%	2012 - 2013	
MSLA 1-D Landfill Closure Project. Kearny, NJ Fee: \$7.7 Million	Louis Berger	Design Documents, Bid Specification, Procurement Support, Construction Administration Services	Geotechnical Engineer	120 Months	< 5%	2005 - 2015	
Fenimore Landfill – Partial Landfill Closure Project, Roxbury, NJ Fee: \$2.9 Million	Louis Berger	Design Documents, Bid Specification, Procurement Support, Construction Administration Services	Geotechnical Engineer	24 Months	< 5%	7/2013 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Patricia Forgang, CHMM

Title: Regulatory Compliance

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCE D PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
DPMC, Demolition Consultant Term Contract, NJ Fee: \$500,000 (to date)	CDM Smith	Environmental permitting and compliance related to demolition activities	Project Manager and Environmental Compliance/Permitting Task Leader	12 Months	Less than 1%	3/2014 - Present	
NJDCA, Superstorm Sandy Disaster Recovery Support Term Contract, NJ Contract Value: \$9.5 Million Fee: \$1.8 million awarded to date Total CDBG funding \$1.8 billion (First Allocation)	CDM Smith	Development of Action Plan	Project Manager (Internal)	6 Months	5%	2/2013 - 8/2013	
NJDEP, Superstorm Sandy Disaster Recovery Support Term Contract, NJ Contract Value: \$9.6 Million Fee: \$1 Million (awarded to date)	CDM Smith	Residential Site Inspections, Environmental Assessments, Environmental Review Record Development	Deputy Program Director	24 Months	25%	8/2013 - Present	
Decommissioning and Demolition Services, Birmingham, NJ Fee: \$2.45 Million	CDM Smith	Decommissioning, Decontamination, Dismantlement, and Final Demolition	Permitting Specialist	6 Months	5%	9/2008 - 9/2009	
County Open Space Program, Burlington County, NJ Fee: \$700,000	CDM Smith	Environmental Site Assessment and Site Remediation Services	Project Manager	60 Months	10%	2002 - 2007	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: William Friers, P.E.

Title: Structural Engineering

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Dam Safety/Engineering Assessments, Rehabilitation Design, Troy, NY Fee: \$700,000	CDM Smith	Engineering Assessment, Dam Break Analyses, Emergency Action Plans, Design and Construction Services	Project Manager and Structural Task Leader (Internal)	42 Months	10%	6/2010 - 12/2013	
Engineering Services, Multiple Dams, Springfield, M Fee: \$497,000	CDM Smith	Safety Inspection, Engineering Assessment, Preliminary Construction Planning	Project Manager and Civil/Structural Task Leader (Internal)	24 Months	10%	8/2013 - Present	
Engineering Services for West Point Lake Dam (Georgia), and Robert F. Henry Dam (Alabama) Fee: \$394,000	CDM Smith	Develop Restricted Reservoir Operation (RRO) Plans; Evaluate Project Constraints, and Emergency Actions to Maintain Flood Control	Structural Task Leader	6 Months	5%	1/2011 - 7/2011	
Condition Assessment and Structural Evaluation – Germantown and Englewood Dams, Dayton, OH Fee: \$130,000	CDM Smith	Field Investigation Program, Structural Analyses to Determine the Nature of Observed Cracking of Twin Unreinforced Outlet Conduits	Project Manager and Structural Task Leader (Internal)	8 Months	15%	8/2012 - 3/2013	
Levee Inspection and Condition Assessment, Council Bluffs, IA Fee: \$452,000	CDM Smith	Inspection, Condition Assessment Report, Recommendations for Remedial Actions, Cost Estimates.	Civil/Structural Task Leader (Internal)	7 Months	15%	9/2011 - 3/2012	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Craig Gadberry, P.E.

Title: Project Controls

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Hurricane Sandy Recovery Program Work, New Jersey Fee: \$9.6 Million	CDM Smith	Providing Engineer's Opinion of Probable Cost (OPCC) for the development of planning level	Chief Estimator/ Manager of Cost Estimators	6 Months	5%	2/2013 - 7/2013	
Lake Okeechobee Fast Track (LOFT) Project Basis of Design Report (BODR) Fee \$3.985 Million	CDM Smith	Basis of Design Report (Feasibility Study), EA, and Conceptual Design	Chief Estimator/ Manager of Cost Estimators	2 Months	5%	4/2006 - 7/2007	
Mass Burn Waste-to-Energy Facility Design-Build-Operation, Palm Beach County Solid Waste Authority, West Palm Beach, FL Cost: \$124 Million	CDM Smith	Design-Build Proposal, Bidding, Cost trending during design, Value engineering, Change order pricing	Chief Estimator/ Manager of Cost Estimators	39 Months	5%	4/2012 - 7/2015	
Roanoke Island Water Treatment System Expansion, Dare County, NC Cost: \$22 Million	CDM Smith	Design-Build Proposal, Bidding, Cost trending during design, Value engineering, Change order pricing	Chief Estimator/ Manager of Cost Estimators	24 Months	5%	7/2010 - 7/2012	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Solomon Gbondo-Tugbawa, Ph.D, P.E.

Title: Water/Sediment Quality

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Newtown Creek Superfund Investigation, Brooklyn/Queens, NY Fee: \$8 Million	The Louis Berger Group, Inc.	Design studies for point source, sediment and surface water and NAPL migration sampling; Quantifying loads, background chemical concentrations, sediment transport, contaminant fate and transport, bioaccumulation.	Technical Leader	36 Months	35%	2012 - Present	
USACE Kansas City District for USEPA Region 2, Lower Passaic Superfund project, New Jersey Fee: \$25 Million	The Louis Berger Group Inc.	Engineering evaluation, Feasibility Study, sediment and contaminant transport, sampling design and implementation, development of conceptual site model.	Technical Task Leader	120 Months	20%	2005 - Present	
USACE, Kansas City District for USEPA Region 2, Hudson River PCBs Superfund Site Remedial Design/Remedial Action Oversight, Fort Edward, NY Fee: \$17 Million	The Louis Berger Group Inc.	Technical Oversight of treatability studies, remedial design documents, dredging area delineation, sampling work plan for baseline water quality, numerical modeling of dredging resuspension, capping design requirement, statistical analysis of anticipated residual, chemical fate and transport during dredging.	Technical Task Leader	72 Months	35%	2005 - 2011	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: John Hasselmann, P.E., CCM

Title: Construction Administration

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
17th Street Levee, Potomac Park, Washington, DC Fee: \$3 Million	Louis Berger, Tetra Tech, Haley & Aldrich, Olin	Project and Design Management, Design	Project Manager	18 Months	40%	2/2010 - 8/2011	
National Park Service (NPS) Various Locations Fee: \$5 Million	Various	Construction Management	Program Manager	36 Months	60%	8/2008 - 8/2011	
George Washington Bridge Bus Station Redevelopment, New York, NY Fee: \$4.5 Million	STV Inc.	Program Management	Program Manager	48 Months	100%	8/2011 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Ajay Kathuria, P.E.

Title: Regulatory Compliance

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Former Colloid Chemical, Hanover Township, NJ Fee: \$400,000	Louis Berger	Environmental Cleanup and Redevelopment	LSRP of Record	36 Months	8-10% throughout the project duration	2012 - Present	
43-47 Broadway, Newark, NJ Fee: \$400,000	Louis Berger	Environmental Investigation and Cleanup	LSRP of Record/ Project Manager	48 Months	5-8% during year 1, 10-15% year 3 and 4, 5% year 5 to present	2011 - Present	
Meadowlands Sports Complex (East) PCB cleanups/ Groundwater Investigation Oversight, East Rutherford, NJ Fee: \$300,000	Louis Berger	PCB Cleanups and Ongoing Groundwater Investigation Oversight	Project Manager/ LSRP of Record	48 Months	10-15% year 1 and 2, 5-10% year 2 to present	2011 - Present	
Leaking UST Removal/ Remediation, JPMorgan Chase Sussex Branch, Sussex, NJ Fee: \$100,000	Louis Berger	Removal and Environmental Cleanup Related To Leaking Underground Storage Tank (UST)	Project Manager/ LSRP of Record	24 Months	10-15%	2010 - 2012	
Environmental Remediation Services at Fort Rucker, AL Fee: \$900,000	CAPE/ Louis Berger	RCRA Facility Investigations and Corrective Measures Study	Regulatory Specialist/ Louis Berger Project Manager	48 Months	15-20%	2013 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Brian Kearney, P.E.

Title: Construction Administration Services Task Leader

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Canoe Brook Generator Replacement Project, Short Hills, NJ Construction Cost: \$2 Million Fee: \$300,000	CDM Smith	Construction Administration	Manager of Design Services During Construction, Manager of Resident Services	6 Months	10%	3/2015 - Present	
City of Newark, Phase V and VI Brick Sewer Rehabilitation Project, Newark, NJ Contract Value: Phase V \$3.3 Million Phase VI \$4.7 Million	CDM Smith	Construction Administration	Manager of Design Services During Construction, Manager of Resident Services	54 Months	25% to 50% depending on number of ongoing contracts	1/2007-11/2008 and 1/2013 - Present	
NYCDEP Catskill/Delaware Ultraviolet Disinfection Facility, Valhalla, New York Construction Cost: \$1.4 Billion Fee: \$30 Million (CDM Smith Portion of the Joint Venture)	CDM Smith / Hazen & Sawyer JV	Construction Administration	Manager of Design Services During Construction, Shop Drawing Coordinator	61 Months	100%	11/2008-12/2013	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Robert Klein, P.E.

Title: Construction Administration

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Brookfield Avenue Landfill Remediation, Staten Island, NY Cost: \$250 Million Fee: \$16 Million	CDM Smith	Design Services During Construction	Design Liaison	72 Months	95% during first 48 months, 25% during last 24 months	9/2009 - Present	
Edenwald Housing Green Infrastructure Improvements, Bronx, NY Cost: \$8 Million Fee: \$1.6 Million	CDM Smith	Construction Management	Resident Engineer	12 Months	30%	9/2014 - Present	
MCLF Landfill Gas Engine Installation, East Brunswick, NJ Cost: \$7.5 Million Fee: \$500,000	CDM Smith	Construction Management	Resident Engineer	24 Months	30%	9/2013 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Peg McBrien, P.E., PWS

Title: Regulatory Compliance Task Leader

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Final Design and Construction Administration of Secaucus High School Wetland Enhancement Site and Pedestrian Boardwalk for NJ Meadowlands Commission (NJMC), Hackensack Meadowlands, NJ Construction Cost: ~\$4.5 Million Louis Berger Fee: ~\$250,000	The Louis Berger Group, Inc.	Design Studies; Construction Plans, Specifications, Cost Estimate and Bid Package; Permit Acquisition; and Construction Administration	Project Manager	18 Months	35%	2005 - 2007	
USACE New York District, Meadowlands Comprehensive Restoration Implementation Plan (MCRIP), Hackensack, NJ Fee: ~\$1 Million	Louis Berger	Engineering, environmental, and economic FS, baseline data collection, Programmatic EIS	Project Manager	14 Months	20%	2008 - 2010	
New York City Economic Development Corporation (NYCEDC), Saw Mill Creek Wetland Mitigation Bank, Staten Island, NY Construction Cost: ~\$10 Million Louis Berger Fee: ~\$1 Million	The Louis Berger Group Inc.	FS; NEPA Environmental Assessment; Permit Acquisition; Design Plans, Specifications and Cost Estimate; and Construction Administration Services	Project Manager	30 Months	35%	2013 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Sean McGonigal, P.E.

Title: Assistant Program Manager

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
NJDEP Remedial Design and Remedial Investigation Contracts, Statewide Fee: \$50 Million	Louis Berger	RI through RD and Construction Administration	Program Manager, Project Manager	190+ Months	20%	1998 - Present	
NJ Treasury, Division of Property Management & Construction (DPMC) Statewide Fee: \$3.5 Million	Louis Berger	Due Diligence, RI through RD and Construction Administration, LSRP Services	Program Manager, Project Manager	168+ Months	2%	2001 - Present	
NJ Sports And Exposition Authority Fee: \$2 Million	Louis Berger	EIS, Due Diligence, RI through RD, Permitting, Construction Administration, LSRP Services	Project Manager	120+ Months	5%	2004 - Present	
NJDEP Landfill Projects (MSLA 1-D, Kingsland Redevelopment Area Project, Fenimore Landfills), Statewide Fee: \$13 Million	Louis Berger	FSs, Landfill Closure Design, Permitting Construction Administration	Program Manager; QA/QC	96+ Months	1%	2005 - Present	
Environmental Reviews for Post-Sandy HUD CDBG-Funded Recovery Fee: \$1.8 Million	Louis Berger	Tier 2 Environmental Assessments, Environmental Assessments	Program Support	24+ Months	1%	2013 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Kirit Mevawala, P.E.

Title: Transportation Engineering

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
63rd Street Line Tunnel, Manhattan, NY Fee: Approx. \$500 Million	MTA- New York City Transit Staff	Construction Administration	Resident Engineer	50 Months	100%	04/1983-06/1987	
63rd Street Line Connection, Long Island City, NY Fee: Approx. \$900 Million	Parson Brinkerhoff	Construction Administration	Project Engineer	150 Months	100%	07/1987-01/2000	
Second Avenue Subway Project, Manhattan, NY Fee: Approx. \$950 Million	AECOM	Construction Administration	Design Manager	84 Months	100%	02/2000-02/2007	
Second Avenue Subway Project, Manhattan, NY Fee: Approx. \$400 Million	AECOM	Construction Administration	Construction Manager	54 Months	100%	03/2007-09/2011	
Second Avenue Subway Project, Manhattan, NY Fee: Approx. \$300 Million	AECOM	Construction Administration	Program Manager	15 Months	100%	10/2011-01/2013	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Ian Miller, MS, MAFF

Title: Socioeconomics & Environmental Justice

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Raise the Shorelines Citywide Study, New York, New York Fee: \$237,305	Louis Berger	Ecosystem services, economic benefit valuation	Economist	1 Month	10%	7/2015 - Present	
Comprehensive Everglades Restoration Plan (CERP), North Palm Beach Project Fee: Unavailable	Ecology & Environment	Socio-economic and regional economic impact analyses, Environmental Justice, cost effectiveness analysis (CEA) - Work completed as part of FS/EIS	Lead Economist	12 Months	25%	6/2004 - 6/2005	
Lower Snake River Wind Energy Project, Garfield County, WA Fee: Unavailable	Ecology & Environment	Socio-economic impact analysis – Environmental Justice – Work completed as part of EIS	Lead Economist	6 Months	30%	2/2009 - 8/2009	
Ruby Natural Gas Pipeline-EIS, Wyoming to Oregon Fee: Unavailable	Ecology & Environment	Socio-economic impact analysis, environmental Justice, fiscal impact analysis. – Work completed as part of EIS	Lead Economist	12 Months	12%	2008 - 2009	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Seth Nehrke, P.E., D.WRE

Title: Civil Engineering

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
USACE/NRCS: Devil's Garden Slough Wetland Restoration Plan, Hendry County, FL Fee: \$1 Million Construction Cost: \$3.98 Million	CDM Smith	Development of Design Report; Development of Construction Plans and Specifications	Task Manager: H&H Modeling and Permitting Civil Design Lead and Engineer of Record	24 Months	Varies from 30% - 60%	7/2013 - Present	U.S. Army Corps of [REDACTED]
City of Jacksonville Trail Ridge Landfill Construction Phase 6 Class I Cell Expansion, Jacksonville, FL Fee: \$5.8 Million Construction Cost: \$27.8 Million	CDM Smith	Development of Design Report; Permitting; Development of Construction Plans & Specifications; Constr. Administration	Task Manager: H&H Modeling and Permitting, Civil Design Lead and Engineer of Record	72 Months	Varies from 10% - 40%	8/2009 - Present	
Brevard County US 192 Solid Waste Management Facility, Brevard County, Florida Fee: \$1.8 Million (since inception over numerous phases)	CDM Smith	Modeling, Design, Permitting, and Litigation Support	Project Manager, Stormwater Design Lead and Engineer of Record	106 Months over numerous phases	Varies from 10% - 70% depending on phase	11/2006 - Present	
USACE/NRCS: ABC Ranch - Flaghole Wetland Restoration Plan, Hendry County, FL Fee: \$554,000 Construction Cost: \$599,000	CDM Smith	Development of Design Report; Development of Construction Plans and Specifications	Task Manager: H&H Modeling and Permitting, Civil Design Lead and Engineer of Record	24 Months	Varies from 30% - 60%	7/2013 - 6/2015	
City of Jacksonville Upper Deer Creek Regional Stormwater Facility Expansion, Jacksonville, FL Fee: \$152,000 Construction Cost: \$1.28 Million	CDM Smith	Modeling, Design, and Permitting	Task Manager: H&H Modeling and Permitting, Civil Design Lead and Engineer of Record	22 Months	40%	4/2008 - 2/2010	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Warren Newman, Jr., P.E.

Title: Construction Administration Services

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
NJDEP Remedial Design Term Contract, NJ Contract Value: \$4 Million Fee: \$2 Million (awarded to date)	CDM Smith	Construction Administration Services, Scoping Documents, Environmental Assessments, Design Documents, Bid Specification, Procurement Support	Project Manager/Resident Construction Engineer	48 Months	Range between 20-30% depending on how many simultaneous Work Orders issued.	2011 – Present (Two 5-year term contracts)	
DPMC, Demolition Consultant Term Contract Fee: \$500,000 (to date)	CDM Smith	Engineering Design, Cost Estimating, Construction Administration and Bid Specification on Residential Home Demolitions.	Lead Engineer / Construction Inspector	17 Months	Range between 0% and 25%	3/2014 - Present	
Standard Motor Products, Queens, NY Fee: \$2.6 Million (to date)	CDM Smith	Construction Administration Services, Scoping Documents, Environmental Assessments, Design Documents, Bid Specification, Procurement Support	Project Manager/ Construction Administrator	48 Months	Range between 20% and 25%	8/2011 - Present	
Industrial Client National Account Former Electronics Manufacturer North Plainfield, NJ Program Fee: \$12 Million (annual) Project Fee: \$500,000 (to date)	CDM Smith	Remedial Technical Operations Oversight, Construction Administration and Oversight, Regulatory Compliance	Project Manager / Construction and Demolition Oversight	48 Months	Range between 20% and 25%	8/2011 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Michael Oleson, P.E.

Title: Civil Engineering

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
USACE/ TRWD, Riverside Oxbow Site A and C Valley Storage Project Construction Value: \$27 Million Fee: \$1.5 Million	CDM Smith	Final Design, Bidding Documents, Geotechnical Investigation, Survey Construction Office Engineering Support	Project Manager	46 Months	25%	7/2011-Present	
USACE/ TRWD, Bypass Channel Design Construction Value: \$100 Million Fee: \$4 Million	CDM Smith	50% Design, Geotechnical Investigation, Hydraulic Study, Survey	Project Manager	36 Months	75% to 100% depending on other simultaneous Task Orders	12/2011-12/2014	
USACE/ TRWD, Samuels Avenue North/ South Phase I and II, Fort Worth, TX Construction Value: \$7.2 Million Fee: \$300,000	CDM Smith	Final Design, Bidding Documents, Geotechnical Investigation, Survey, Construction Office Engineering Support	Project Manager	32 Months	25%	7/2009 - 2/2012	
USACE/ TRWD, Trinity River Vision Project SFEIS, Fort Worth, TX Fee: \$1 Million Project Value: \$700 Million	CDM Smith	Preliminary Design, Air and Noise Studies, Environmental Impact Statement Assistance	Project Manager	24 Months	90%	2007 - 2008	
USACE/ TRWD, Trinity River Vision Project EIS, Fort Worth, TX Fee: \$6.8 Million Project Value: \$435 Million	CDM Smith	Feasibility Study, Preliminary Design, Hydraulic Modeling, Environmental Impact Statement Assistance	Project Engineer	18 Months	90%	2004 - 2006	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Virginia Roach, P.E., BCEE

Title: Green Design/Green Infrastructure

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
NYC DEP Office of Green Infrastructure – Area-Wide Green Infrastructure Design, New York City, NY Cost or Fee: \$6.8 Million	CDM Smith	Planning, Design and Construction of Right-of-Way and On-Site Green Infrastructure Practices in Queens, NY	Project Manager	30 Months	40% During Design, 10% During Construction	2/2013 - Present	
NYCDEP Edenwald Houses Green Infrastructure Planning, Design and Construction Services, New York City, NY Cost or Fee: \$2.7 Million	CDM Smith and URS Joint Venture	Planning, Design and Construction of On-Site Green Infrastructure Practices at 50-acre Housing Development Site in the Bronx	Project Manager	49 Months	40% During Design; 10% During Construction	7/2011 - Present	
Harvard University Allston Campus Sustainable Improvements, Boston, MA Cost or Fee: \$11.7 Million	CDM Smith	Planning, Design and Construction of Utilities to Support a New Harvard University Allston Campus	Stormwater Technical Lead, Project Manager	108 Months	10% to 50% (Varied Over Time)	2007 - Present	
NEORS D East 140th Street Consolidation and Relief Sewer Project, and Union Buckeye Green Infrastructure Project, Cleveland, OH Cost or Fee: Unavailable	CDM Smith	Planning and Design of Storm Drains and Green Infrastructure Basins to Reduce CSOs	Technical Lead	22 Months	10%	11/2013 - Present	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Edward Samanns, PWS, CE

Title: Natural Resources

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Richard P. Kane Natural Area, Wetland Mitigation Bank, Rutherford, NJ Construction Cost: ~\$25 Million Fee: ~\$1 Million	Louis Berger Group, Inc.	Baseline Studies, Concept and Preliminary Design, MBI Development/ Negotiation, Permitting and Permit Compliance, Construction Support	Project Director	34 Months	15%	2009 - 2012	
Marsh Resources Inc., Design/Build Services for Marsh Resources Wetland Mitigation Ban Construction Cost: ~\$6 Million Fee: ~\$2 Million	Louis Berger Group, Inc.	Baseline Studies, Concept and Preliminary Design, MBI Development, Permitting, Permit Compliance, Construction Management, Post-Construction Monitoring, Long Term Adaptive Management	Project Task Leader/Project Director	10 Months	5%	1998 - Present	
New York City Economic Development Corporation (NYCEDC), Saw Mill Creek Wetland Mitigation Bank, Staten Island, NY Construction Cost: ~\$10 Million Fee: ~\$1 Million	Louis Berger Group, Inc.	Baseline studies, Concept and Preliminary Design, MBI Development/ Negotiation, Permitting and Permit Compliance, Construction Support	Project Director	8 Months	15%	2013 - Present	
Port Authority of New York and New Jersey, Goethals Bridge Replacement Project EIS and Permitting, Staten Island and Elizabeth, NJ Construction Cost: ~\$1.5 Billion Fee: ~\$1 Million	Louis Berger Group, Inc.	Natural Resource Surveys and EIS Document Preparation; Permits Preparation and Mitigation Coordination	Project Task Leader	8 Months	10%	2005 -2011	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Michael F. Schmidt, P.E., BCEE. D.WRE

Title: Feasibility Study Task Leader

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Blind River Freshwater Diversion Feasibility Study and EIS, Convent, LA Fee: \$4.7 Million	CDM Smith	Feasibility Study, EIS, Conceptual Design	Technical Manager	34 Months	25%	2/2008 - 12/2010	
Lake Okeechobee Fast Track (LOFT) Project Basis of Design Report (BODR) Fee \$3.985 Million	CDM Smith	Basis of Design Report (Feasibility Study), EA, and Conceptual Design	Technical Manager, Engineer of Record	15 Months	35%	4/2006 - 7/2007	
Nova Canal Flood Control and Integrated Water Resource Program Fee: \$662,000	CDM Smith	Feasibility Study and Conceptual Design	Project and Technical Manager	14 Months	30%	10/2009 - 12/2010	
Devils Garden Wetland Reserve Plan of Operation - USACE and NRCS Fee \$1.1 Million	CDM Smith	Feasibility Study, EA, Design, and Permitting	Project and Technical Manager	22 Months	35%	9/2013 - Present	
ABC-Flaghole Ranch Wetland Reserve Plan of Operation - USACE and NRCS Fee: \$550,000	CDM Smith	Feasibility Study, EA, Design, and Permitting	Project and Technical Manager	20 Months	30%	8/2013 - 3/2015	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: David Spector, LEED AP, ENV SP

Title: Urban Planning and GIS Visualization

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
NJDEP, Superstorm Sandy Disaster Recovery Support Term Contract, NJ Contract Value: \$9.6 Million Fee: \$1 Million (awarded to date)	CDM Smith	Residential Site Inspections, Environmental Assessments and Environmental Review Record Development	Project Manager	4 Months (Ongoing)	30%	9/2013 - Present	
HUD NEPA Oversight for CDBG Long-Term Workforce Housing Program, Mississippi Development Authority Fee: \$1.5 Million	CDM Smith	Environmental Compliance	Deputy Program Manager	8 Months	30%	6/2008 - 12/2010	
HUD NEPA Oversight for CDBG Public Housing Program, Mississippi Development Authority Fee: \$1 Million	CDM Smith	Environmental Compliance	Logistical Support	6 Months	10%	11/2006 - 11/2009	
HUD NEPA Compliance for MDEQ Water/Wastewater and HUD CDBG Infrastructure Katrina Recovery Program Fee: \$750,000	CDM Smith	Environmental Compliance	Project Director	8 Months	40%	2007 – 2008	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Kate Stenberg, Ph.D.

Title: Planning

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Tillamook Southern Flow Corridor EIS, OR Fee: \$1.39 Million	CDM Smith CCPRS - a JV partnership	Scoping Documents, Environmental Impact Statement, Public Involvement, Record of Decision, Biological and Cultural Resources Surveys	Project Manager	17 Months	Range from 25% to 90% depending on project phase	2014 - Present	
Eufaula Lake Master Plan and Shoreline Management Plan Update EIS, OK Fee: \$2.75 Million	CDM Smith	Environmental Impact Statement, Public Involvement, Biological and Cultural Resources Surveys	Project Manager	21 Months	Range from 25% to 90% depending on project phase	2011-2013	
Klamath River Dam Decommissioning EIS/EIR, OR and CA Fee: \$7.2 Million	CDM Smith	Environmental Impact Statement, Public and Stakeholder Coordination, Biological Assessment, Secretarial Determination Report, Tribal Trust and Environmental Justice	Task Lead	23 Months	25%	2010 - 2012	
Illinois "IKE" Disaster Recovery Program, Environmental Assessments, IL Fee: \$11 Million	CDM Smith	Multiple Environmental Assessments	Task Lead	11 Months	40%	2011 - 2012	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Jeff Tabar, P.E., D.CE

Title: Coastal Engineering

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Post Hurricane Sandy Storm Damage Assessment and Dune Restoration Project Construction Cost: \$18 Million Fee: \$550,000	Louis Berger	Modeling, Plans, FS, and Design	Project Manager/Senior Coastal Engineer	48 months	50%	2011 - Present	
Prime Hook National Wildlife refuge Marsh Restoration Plan and Feasibility Study Construction Cost: \$16 Million Fee: \$750,000	Louis Berger	Planning, Permitting Design and Construction Plans and Specifications	Project Manager/Senior Coastal Engineer	48 months	50%	2011 - Present	
Round Hill Tidal Marsh Restoration Project and Modeling Study Fee: \$350,000	Louis Berger	Planning, Design, Analysis, Design Plans and Specifications	Senior Coastal Engineer	8 months	25%	2014 - Present	
Alligator Bend Marsh Restoration and Shoreline Protection Project Consulting Fee: \$800,000	Atkins, N. A.	Design and Construction Plans and Specifications	Project Manager/ Senior Coastal Engineer	30 Months	60%	2009 - 2013	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Nicolaas Veraart, AICP, ASLA, ASCE

Title: Environmental Review / Permitting

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
World Trade Center Memorial and Redevelopment Plan GEIS and Lower Manhattan Redevelopment Program (LMDC- HUD CDBG-DR) Contract Value: \$3 Million Fee: \$2.3 Million	Louis Berger	EIS (HUD CDBG-DR NEPA), Recovery Planning, Environmental Review, Economic Analysis	Project Manager (EIS), Program Manager	12 Months (EIS); 96 Months (on-call)	80% (EIS); 20% (Program)	10/2002 - 1/2011	
Meadowlands Mills EIS Contract Value: \$500,000 Fee: \$500,000	Louis Berger	EIS (USACE-NEPA)	Project Manager	48 Months	25%	12/1999 - 9/2003	
USACE New York District, Meadowlands Comprehensive Restoration Implementation Plan (MCRIP) Fee: ~\$1 Million	Louis Berger	Environmental Planning	Principal Environmental Planner, QA/QC	12 Months	10%	2008 - 2010	
New York State Governor's Office of Storm recovery (GOSR), On-Call Contract for HUD CDBG-DR NEPA Environmental Review and Management (Incl. Rebuild by Design Mill River EIS; Suffolk Sewers EA) Contract Value: \$900,000 (on-call) Fee: \$400,000	Louis Berger	EIS Scoping, Alternatives Development, Environmental Assessments, Categorical Exclusions	Project Manager	10 Months	15%	10/2014 - Present	
New Jersey Transit, Hoboken Green Infrastructure Strategic Plan, Hoboken, New Jersey Contract Value: \$30,000 Fee: \$30,000	Louis Berger	Green Infrastructure, Stormwater Management, Transit Resiliency	Project Manager	5 Months	15%	6/2013 - 10/2013	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Nancy Vigneault, P.E., BCEE

Title: Green Design/Green Infrastructure

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Stormwater Conveyances Evaluation and Green Infrastructure Evaluation and Demonstration, Plattsburgh, NY Fee: \$130,000	CDM Smith	Study, Design and Construction services for bioretention basin and bioswale demonstration project	Project Manager	23 Months	5 to 10% during study and 20 to 25% during design	7/ 2013 - 7/2015	
GI Planning Document and CSO LTCP, Glens Falls, NY Fee: \$800,000	CDM Smith	Study, Flow Metering, Modeling, Sampling, BMP and Alternative Evaluations, Public Participation	Project Manager	36 Months	50% during active work periods	2010 - 2012	
Program Management for CSO Control Program, Task to Review Modeling performed by others, Syracuse, NY Fee: \$50,000	CDM Smith	SWMM modeling	Project Engineer	6 Months	10%	2011 - 2012	
North Beverly Brook Drainage Study, Beverly, MA Fee: \$200,000	CDM Smith	Study	Project Manager	9 Months	20%	2006 - 2007	
Stormwater Permitting and Drainage Projects, Town of Groton, CT Cost or Fee: \$500,000	CDM Smith	Developed stormwater plans and design of drainage improvements	Project Engineer and Project Manager	60 Months (phased)	30% during active work periods	2002 - 2007	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Thomas Waldron, PG, LSRP

Title: Site Investigation

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Nereid Boat Club, 350 Riverside Avenue, Rutherford, NJ Fee: \$60,000	Louis Berger	RI and RA Design, Construction Monitoring RA Reports	Project Manager/LSRP of Record	51 Months	<5% up to 50% depending on project phase	1/2009 - 10/2014	
LCI Holding, Inc. (aka Kate Spade) 5901 West Side Avenue, North Bergen, NJ Fee: \$150,000	Louis Berger	RI and action design, engineering controls design, Permits, Bid Documents, Reports	Project Manager/LSRP of Record	40 Months	<5% up to 60% depending on project phase	5/2012 - 8/2015	
Caven Point USACE Marine Terminal, 3 Chapel Avenue, Jersey City, NJ Fee: \$210,000	Louis Berger	Soil, VI and Groundwater Investigations, Reports and Remedial Action Workplan	LSRP of Record	36 Months	<5% up to 50% depending on project phase	2012 - Ongoing	
Jet Aviation – Hangar 122 Spill Teterboro Airport, Teterboro, NJ Fee: \$30,000	Louis Berger	Post-Remediation Soil and Groundwater Investigations	Project Manager/ LSRP of Record	4 Months	<5% up to 80% depending on project phase	4/2012 - 8/2012	
Interchange 6 to 9 Widening Program Burlington, Mercer, and Middlesex Counties, NJ Fee: \$3 Million	Louis Berger	Preliminary Assessments, LBP and ACM Surveys, Soil and Groundwater Investigations, Specifications	Task Manager Lead	48 Months	<5% up to 100% depending on project phase	2007 - 2011	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Chris Watt, PG, LSRP

Title: Site Investigation

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
NJDEP Remedial Investigation & Remedial Action Selection Term Contract, State-Wide Fee: \$5 Million (last 20 months, \$40 Million over 15 year contract)	Louis Berger	Scoping Documents, Environmental Assessments including Site Investigations and Remedial Investigations	Program Manager	20 Months	Range from 10-20% depending on number of active projects	12/2013 – 6/2015	
MSLA Landfill, Kearny NJ Fee: \$500K task order, \$30 Million overall project	Louis Berger	Site Investigation of PCB contaminated sediments in ponds and wetlands	Task Order/Project Manager	24 Months	Range from 5% to 90% depending on stage on investigations	2009 - 2011	
Former Chemical Components Inc. (CCI), East Hanover, NJ Fee: \$1.5 Million	Louis Berger	Site and Remedial Investigations of former industrial Site	Project Manager	100 Months	Range from 0% to 100% based on stage of investigations	2004 - 2012	
Former Lawrence Road Service Center, Lawrence, NJ Fee: \$1.5 Million	Louis Berger	Site and Remedial Investigations of former service station expanding into residential areas	Project Manger	60 Months	Range from 20% to 100% based on stage of investigations	2008 - 2013	
New Jersey Meadowlands Commission and New Jersey Sports and Exhibition Authority, East Rutherford, NJ Fee: \$250,000	Louis Berger	Site Investigations of PCB contaminated sediments at various sites throughout the Meadowlands	Project Geologist	24 Months	50% to 90% depending on stage of investigation	2005 - 2006	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Maria Watt, P.E.

Title: Program Manager

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
DPMC, Demolition Consultant Term Contract, NJ Fee: \$500,000 (to date)	CDM Smith	Engineering design/cost estimating/construction administration, and individual property assessments	Program Manager	17 Months	Varies from 0 to 10%	3/2014 - Present	
NJDCA, Superstorm Sandy Disaster Recovery Support Term Contract, NJ Contract Value: \$9.5 Million Fee: \$1.8 Million awarded to date Total CDBG funding \$1.8 Billion (First Allocation)	CDM Smith	Development of Action Plan, RFPs for intake, construction oversight. Environmental Review Tier 1 Environmental Assessments	Principal-in-Charge	31 Months	Varies from 10 to 50%	2/2013 - Present	
NJDEP, Superstorm Sandy Disaster Recovery Support Term Contract, NJ Contract Value: \$9.6 Million Fee: \$1 Million (awarded to date)	CDM Smith	Residential Site Inspections, Environmental Assessments, Environmental Review Record Development	Program Director	25 Months	Varies from 10 to 30%	8/2013 - Present	
NJDEP Remedial Design Term Contract, NJ Contract Value: \$4 Million Fee: \$2 Million (awarded to date)	CDM Smith	Scoping Documents, Environmental Assessments, Design Documents, Bid Specification, Procurement Support, Construction Administration Services	Program Manager	97 Months	Range between 10-20% depending on how many simultaneous Work Orders issued.	2007 - Present (Two 5-year term contracts)	
Department of Energy, Brookhaven National Laboratory, Environmental Assessment, Design, Demolition, and Construction Services Fee: \$15 Million (awarded)	CDM Smith	Scoping Documents; Environmental Assessments, Design, Demolition and Construction Administration	Program Manager	120 Months	50%	1992 - 2002	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Mary Weber, P.E.

Title: Green Design/Green Infrastructure

Firm: Louis Berger

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Community Reconstruction Zone Plans, New York Rising Community Reconstruction Program, New York City, NY Fee: Unavailable	Louis Berger	Study	Stormwater Engineer	2 Months	25%	11/2014 - 12/2014	
Living with the Bay: A Comprehensive Regional Resiliency Plan for Nassau County's South Shore, Nassau County, NY Fee: Unavailable	Louis Berger	Study	Stormwater Engineer	2 Months	25%	11/2014 - 12/2014	
SE Redmond Regional Stormwater Facilities Plan, Redmond, WA Fee: \$200,000	Louis Berger (predecessor firm R.W. Beck)	Study	Project Engineer	44 Months	15%	7/2008 - 2/2012	
SE Regional Ponds, Redmond, WA Fee: \$400,000	Louis Berger	Design and Construction Management	Project Engineer	33 Months	25%	2/2013 - 10/2015	
SR 167 Valley Corridor 60% Design to Contract Ad, Auburn to Pacific WA Fee: \$1 Million	Louis Berger (predecessor firm SAIC)	Design	Project Engineer	36 Months	25%	2008 - 2011	

KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

Name: Stephen Whiteside, P.E.

Title: Design Task Leader

Firm: CDM Smith

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTACT PERSON AND PHONE NUMBER
Glenville Lake Dam Rehabilitation and Spillway Replacement, Fayetteville, NC Fee: \$900,000	CDM Smith	Evaluation, Design, and Construction Administration	Project Director/Lead Practitioner	108 Months	20%	2006 -Present	
Industrial Park Levee Evaluation, Upgrade Design, and FEMA Certification Council Bluffs, IA Fee: \$700 Million	CDM Smith	Evaluation, Design, and Construction Administration	Project Director/Lead Practitioner	24 Months	10%	2013 - Present	
Raw Water Impoundment Design for Savannah Harbor Expansion Project, Savannah, GA Fee: \$2 Million	CDM Smith	Geotechnical Investigation, Analysis, and Design	Engineer of Record	24 Months	30%	2012 - 2014	
Cannonsville Dam Emergency Response, Deposit, NY Fee: \$36,000	CDM Smith	Consultation, Expert Opinions	Member of Board of Consultants appointed by Federal Energy Regulatory Commission	2 Months	40%	7/2015 - Present	



Section 3

Project Approach to Services



Section 3

Project Approach to Services

3.1 Introduction to the CDM Smith/Louis Berger Approach

As illustrated in Section 1, the CDM Smith/Louis Berger team is organized to efficiently respond to the seven potential work assignments outlined in the RFP. Each of the work assignments, or tasks, will have designated leaders, all of whom will fall under the direction of our program management team. Both programmatic and technical resources will be available to the various task leaders throughout the project lifecycle, ensuring consistent delivery and the high

level of inter-team coordination required to concurrently complete the FS and Draft Environmental Impact Statement (DEIS) by May 2017. Our team has unparalleled experience with fast-track, concurrent FS/EIS/design efforts, including the Trinity Uptown Plan and World Trade Center Redevelopment projects highlighted in Section 2, which share many similarities with the New Meadowlands Pilot Area No. 1 project.

Our experience has taught us that the integrated, multi-system approach shown in **Figure 3-1** will accomplish the concurrent delivery of the FS, the DEIS, and community outreach work. As we describe in the following section, these processes are closely connected and by integrating them, the FS and DEIS will be refined in response to the information from the ongoing outreach work. Our overall services and approach will be informed by the key project success factors introduced in Section 1 of this proposal.

New Meadowlands Pilot Area No. 1 Goals & Objectives

- Flood control
- Wetland restoration and creation
- Climate change resiliency (sea level rise, precipitation patterns)
- Water quality protection and enhancement
- Social (parks and greenways) and economic redevelopment benefits
- Environmental protection and remediation (contaminated sediments, groundwater)
- Sustainable, maintainable, and operable facilities/infrastructure
- Compliance with applicable state and federal laws and policies



Figure 3-1. The CDM Smith/Louis Berger Team's Integrated Approach to Concurrent FS/EIS Development.

In the following sections, we detail our approach to meet your program goals and objectives through the seven potential work assignments in the scope of work. Throughout the document, we note which specific key success factors are informing our approach to the tasks.

Though the description of the approach in the subsequent sections does not incorporate a discussion of work order development, review, and approval followed by purchase order issuance, it is understood that the program management team will shepherd this process in accordance with contract terms.

Benefits of Our Approach

Our integrated approach will enable us to complete this complex project on an accelerated schedule, as demonstrated in **Figure 3-2**. (A detailed schedule is provided under separate tab at the end of this section.) Rather than approaching the project in a sequential manner, we will kick-off all three of the following activities at the project outset:

1. *Feasibility Study/Design*
2. *EIS/Regulatory Compliance*
3. *Community Relations/Stakeholder Support*

These processes will exchange and integrate information on a continuous basis, as well as at key milestones. Each task will generate its own interim deliverables, which will ultimately be brought together in integrated deliverables that address all tasks in an integrated manner.

The data gathering and development of an implementation plan informs all of these activities. During the development of the implementation plan and schedule, we intend to work closely with NJDEP and other project stakeholders to confirm project goals and objectives, as well as the key project success factors.

An initial task will involve generating the “Project Definition,” which includes the initial Problem Statement, Purpose and Need, Goals and Objectives, and general Project Description. This initial Project Definition will be informed by available data, past public and stakeholder input, new public and stakeholder data available through agency and public scoping processes, and technical

The Benefit of Clearly Defining the Project

A clear Project Definition that will keep team members focused on goals and objectives, involves the following activities:

- Creation of a clear and focused **Problem Statement**
- Establishment of a clear **Purpose and Need (P&N)** for the project
- Identification of **Goals and Objectives** to achieve the Project Purpose
- Determination of initial **Budget Range** and factors affecting the budget
- Development of **Evaluation Criteria** based on the Project Purpose and Goals and Objectives
- Development of **Preliminary Alternatives and Options** that address the Project Purpose and Goals and Objectives
- **Evaluation of Alternatives and Options**, progressively narrowing down the range of alternatives to a single Preferred Alternative to move into Final Design and Construction

guidance from regulatory agencies, such as forthcoming data on Executive Order 11998 Floodplain Management, and revised preliminary FIRMs from FEMA.

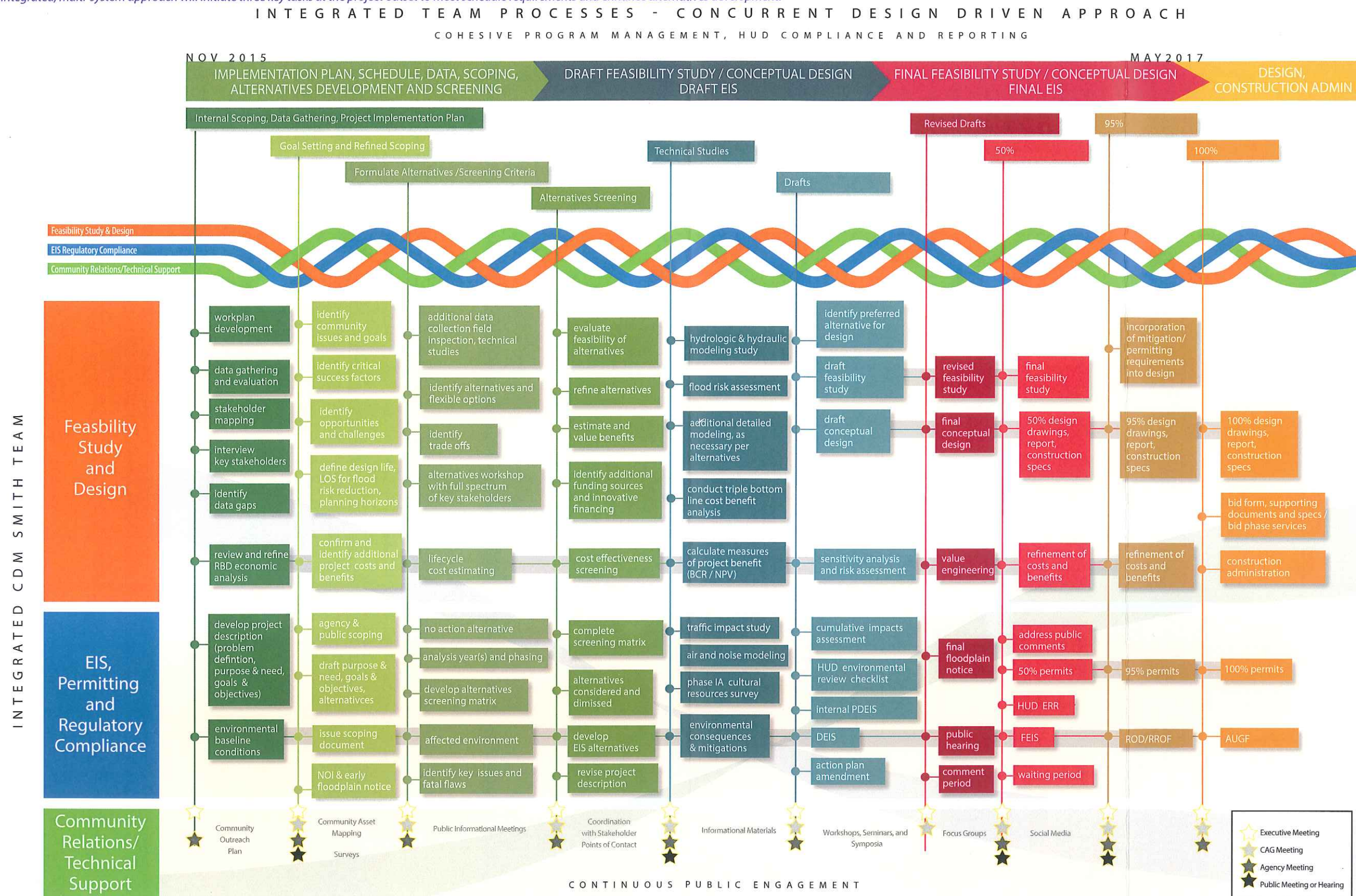
Should it be necessary at this stage, we will engage some, or all, of the members of the original RBD team to ensure continuity with the original project vision.

Feasibility Study/Design

The FS activities will identify key issues from the RBD concept that require further analysis and/or data collection, such as additional modeling requirements for both fluvial and tidal flood conditions and their interaction under different weather and tidal scenarios.

During this process we will also work with NJDEP to define design life, planning horizons, and initiate the Alternatives Analysis (AA). To avoid burdening the NEPA process with extensive time-consuming alternatives analysis, the AA will initially identify a focused list of alternatives and options that will be systematically evaluated for potential fatal flaws, opportunities and constraints, with the purpose of progressively screening down to a limited set of alternatives and contingency options in the EIS. Models will be used to analyze the performance of the AAs under different stormwater, fluvial, and tidal conditions. The AA in this phase will highlight the differences

Figure 3-2. Our integrated, multi-system approach will initiate three key tasks at the project outset to meet schedule requirements and enhance alternatives development.



among the alternatives and options to solicit meaningful input.

The AA process will be thoroughly documented in a Preliminary AA deliverable that will support the regulatory and NEPA process. The rapid generation and analysis of clearly visualized options and alternatives from the start of the project has several advantages:

- Solicits more immediate and more useful feedback from both technical experts and stakeholders and decision makers
- Drives more focused, cost-effective, and expeditious data acquisition, specific to the potential solutions
- Provides for a robust documented underpinning of NEPA and permitting alternatives requirements (such as Section 404(b) of the Clean Water Act)
- Provides flexibility in combining and recombining different options throughout the process of internal alternatives development and coordination/negotiation with stakeholders and regulators
- Provides flexibility in adjusting the project by adding or deleting components and options to reflect changes in implementation budget

The FS team will incorporate the feedback received during the community and stakeholder meetings, including information received during EIS scoping to further develop the AA and recommend the Build Alternatives to be analyzed for potential environmental benefits and impacts in the EIS. While the EIS team analyzes the impacts of the Build Alternative(s), the FS team further refines the alternatives, and incorporates input received from the EIS and economic analysis and outreach activities to arrive at a preferred alternative identified in the DEIS.

After completion of the DEIS, the FS activities will further refine the Preferred Alternative based on feedback during the post-DEIS comment period and additional impact and mitigation analyses by the EIS team during the preparation of the FEIS and Draft Record of Decision. The FS team will also fast-track the design of any independent project elements that have been approved by NJDEP and accepted by regulatory agencies as

Our team has successfully deployed this approach on the HUD CDBG-DR-funded New York Rising Community Reconstruction Projects in New York, in particular on Staten Island and on Long Island, which resulted in several additional funding awards for the subject communities.

appropriate for early construction and funding. During the completion of the FEIS, the FS activities will develop the Preferred Alternative to a level adequate to support the permit applications to be finalized upon completion of the Record of Decision (ROD).

Post-ROD, the FS team will prepare final designs. During this phase the FS team will coordinate with the economic, engagement, and environmental activities to ensure incorporation of mitigation and permitting requirements in the bid documents and construction administration, as well as evaluation of cost-benefit and funding opportunities.

Economic Activities


Economic activities will be initiated at the beginning of Task 2, rather than in a later stage, and will be updated and refined as more detailed information is developed from the FS through the implementation phase. Projected costs and benefits will be updated and refined throughout this process.

The team will review and refine or calibrate the economic analyses conducted for the RBD concept, as well as any identified funding mechanisms. The team members will identify where more data is needed, and whether specific RBD assumptions need to be evaluated. In addition, the economics activities will identify any other costs and benefits not identified in the RBD concept that might affect the Cost Benefit Analysis (CBA). During this process, the economic studies will not only include standard FEMA CBA parameters (which will be separately calculated), but will be broadened to include other social and environmental costs and benefits compatible with the guidance by HUD and others to document the widest range in the CBA.

The economics activities conducted under the FS development will identify how each alternative developed

in the FS would score on the both the FEMA-based CBA and the broader CBA, and determine the sensitivity of each CBA score to specific project components. We will also focus on how costs and benefits of other planned projects may be leveraged to greater mutual benefit and how this project could tie into those other projects without affecting their “independent utility” (i.e., not pulling those other projects into the NEPA process for this project).

DEMONSTRATED EXCELLENCE



An Integrated Approach Saves Millions

As an example our integrated approach to complex projects, for the South Florida Water Management District (SFWMD) and US Army Corps of Engineers (USACE) Jacksonville District, CDM Smith fast tracked a design process for a 4.5 sq. mi. constructed wetland treatment system with over 20 miles of levees, 10 major control structures, seepage management systems, and a 250 cfs pump station to support Everglades restoration. Our methodology identified operational synergies in the existing water management system that saved the state nearly \$140 M in construction costs.

EIS/Regulatory Activities

The EIS activities will establish the initial Existing Conditions baseline and methodologies for the various resource sections of the EIS. The EIS team will also provide feedback to the FS activities with regard to any NEPA or permitting fatal flaws or key issues associated with both the RBD concept and the preliminary alternatives and options generated by the FS. Options or alternatives with regulatory fatal flaws (e.g., superfund, wetland, or property issues), will be flagged and, if warranted, dismissed. This will help focus the AA on those alternatives that both address the P&N and are permissible.

Internal working documents generated during this effort will serve as the basis for the Preliminary Draft Scoping Document. Depending on the definition of the project at this time, the NEPA Notice of Intent may be initiated for publication within the next 3 months while the project is further developed.

After completion of the Draft Scoping Document and the receipt of input during the scoping process, the EIS team will organize and analyze the comments received and, together with the FS team members, revise the alternatives to provide NJDEP with Build Alternatives to be analyzed for impacts (and any associated mitigation requirements) in the DEIS.

Throughout the preparation of the DEIS, the CDM Smith/Louis Berger team will coordinate the EIS activities with the alternatives development and economic activities

being completed for the FS to refine the alternatives and options to minimize overall environmental impacts and maximize potential benefits, and ultimately identify a Preferred Alternative.

During the preparation of the DEIS draft, approval documents will be developed for the Preferred Alternatives so they can be reviewed during the same NEPA public review cycle. For example, a Draft Programmatic Agreement for cultural resources may be included with the DEIS to satisfy the Section 106 public requirements concurrently with the NEPA public review requirements. Any public meetings required under Section 106 will also be integrated with public meetings required under NEPA and Section 404(b).

After receiving public comments on the DEIS (including during the post-DEIS Public Meeting), the EIS team will organize and analyze the comments by resource category and develop appropriate responses, as well as a plan to collect any necessary additional data to support the responses. The EIS team will also identify any refinements the FS team will need to make to the Preferred Alternative. The EIS team will then update the DEIS impact and mitigation analyses for the Preferred Alternative in the FEIS, based on the more detailed designs developed by the FS team. These designs will also support the draft permit applications and other discretionary approvals that will be finalized during the preparation of the FEIS.

Upon publication of the FEIS and after the requisite waiting period, the EIS team will develop a draft ROD, which will address all impacts and mitigation requirements and agreements and regulatory requirements pertinent to NEPA, as well as other relevant statutes and regulations, including the National Historic Preservation Act and the Clean Water Act. The draft ROD will be developed to support the separate NEPA requirements of other federal agencies, such as USACE and the associated permit application process, including those for wetland mitigation.

Community/Relations Technical Support

Our team will be prepared to support NJDEP with its selected outreach initiatives from the start of the project development process. Working with our subconsultants, Millennium Strategies and FHI, we will commence stakeholder identification and issues identification.

We recommend initiating community outreach prior to the start of the formal NEPA process, to inform the FS and the development of the Purpose and Need. Doing so would alert our team to key concerns from community members and stakeholders regarding the RBD concept and other questions that may have emerged. The outreach activities will also help identify other planned projects and initiatives that may be leveraged to increase the benefits of this project, and/or should be taken into consideration.

The outreach activities will include a series of public meetings where the preliminary results of the FS would be presented and discussed, including the Project Description (including the Draft Problem Statement, Draft Purpose and Need, and Draft Goals and Objectives) and the Analysis Framework for the systematic evaluation of options and alternatives with draft evaluation criteria. Preliminary alternatives and/or options and initial CBA and environmental screening results may also be presented to the extent appropriate. The feedback



Initiating outreach activities prior to the start of the NEPA process would inform our team of public concerns related to the RBD concept and allow us to address other questions that have emerged. It will also help to identify planned projects and initiatives that may be incorporated in the alternatives development.

from stakeholders and the public will feed into the FS. Separate focused engagement meetings will be held with stakeholders, including the NJMDC, municipalities and the County, elected officials, infrastructure asset owners and operators, regulatory agencies, NGOs, and other stakeholders.

Our outreach for this project will be coordinated with the NEPA process, in which lead agency status will be established, as well as cooperative and interested agency status for various federal and state agencies. Engagement across federal agencies subject to consultation with NJDEP will be coordinated with the federal SRIRC established for the purpose of streamlining the environmental review process across federal agencies.

General public engagement meetings will be held during key milestones, including prior to the NEPA Notice of Intent and the NEPA Scoping Meeting, during the Feasibility Study and preparation of the DEIS, prior to the NEPA DEIS Public Meeting, during preparation of the FEIS, and during the Final Design and Construction Stages. The content of the public meetings will increasingly evolve from more general information about multiple options and alternatives to more detailed information about a Preferred Alternative, Project Design, and Construction Process.

The engagement process and feedback approach developed for Pilot Area No. 1 will serve as a blueprint for future pilot areas and regional flood mitigation projects that NJDEP may initiate.

Detailed Task Approaches

Task 1. Development of Implementation Plan and Schedule

During the development of the implementation plan and schedule, our team will acquire, aggregate and analyze all available data necessary for completion of the Feasibility Study and EIS, identify data gaps and develop a comprehensive implementation plan to collect the data required to fill these gaps. The implementation plan is critical to ensuring that the analyses for the FS and EIS can proceed.

Data Gathering & Evaluation

The CDM Smith/Louis Berger team will efficiently assemble, review, and evaluate all information related to the Pilot Area No. 1 area, including available GIS data, reports, studies, plans, drawings, maps, and local ordinances or regulations. The objective of this task is to aggregate the data required to complete the FS, EIS, and design. The data gathering process and database design developed for Pilot Area No. 1 will serve as a blue-print for future Pilots and regional flood mitigation projects that NJDEP may initiate in other areas.

We will build on the considerable set of data and solutions previously generated for the project and/or related issues. In addition to the RBD New Meadowlands concept, these include the subsequent analyses by NJIT, as well as site- or subject-specific past studies and data sets that have relevance for the Project. As the RBD competition was conceptual, more detailed data will be required to

thoroughly develop and evaluate alternatives. Further, the competition originated at a regional level, and therefore data needs to be collected at a

local level with refinement for the proposed Pilot Area No. 1. The team will develop a detailed implementation plan that will identify the additional data collection, field inspection and technical studies required to complete the EIS, schedule milestones, and scopes of work. This plan will be coordinated with NJDEP and other stakeholders to ensure the data is acquired and evaluated in the most efficient manner possible.

Potential Data Sources

This data gathering effort will mine the many reports and studies and information gathering activities done for the Meadowlands Pilot Area No. 1 project area and the greater Tri-State Area. A preliminary list of sources is provided at the end of this section, under tab "Potential Data Sources." We have already compiled several of the sources into figures that are referenced throughout the technical approach.

A preliminary list of data sources for the Pilot Area No. 1 project is provided at the end of this section, under the "Potential Data Sources" tab.

Key Factors Addressed - Task 1



Concurrent FS/EIS by May 2017



Alternative solutions



Flood protection



HUD/FEMA funding



Regulatory approval



Additional funding



O&M



A Blueprint for Resiliency

Rebuild By Design – Mill River, Nassau County, New York



DEMONSTRATED EXCELLENCE

Louis Berger is undertaking a similar data gathering effort for the **Rebuild by Design Mill River: Living With the Bay** project in Nassau County, New York. As a result of this work, our team has a direct understanding of the types of data necessary to complete the FS and EIS. In addition, our strong relationships and experience in the Meadowlands will facilitate the data gathering process.

Capital Projects

In addition to published studies and reports, the team will conduct an inventory of any ongoing or proposed capital projects in the project area, some of which are already being managed by team partners. This inventory of projects will include a review of planned projects included in local master plans, as well as the existing plans, reports, and studies discussed above. Ultimately, the team will ensure all current and future projects within the purview of the RBD goals and objectives are coordinated efforts that complement, rather than duplicate or contradict, Federal and State efforts to improve the region.

Land Use Plans & Growth Scenarios

The team will identify existing infrastructure plans, ecosystem restoration plans, transportation plans, master plans, and other plans for the project area and the region. In addition, the team will identify future growth projections for the region in coordination with the New Jersey Transportation Planning Authority (NJTPA), NYMTC, and others. This is critical because future growth may be constrained by flood conditions. This will also affect the CBA due to the avoided loss represented by the project. The team will draw heavily on Louis Berger's experience helping NJTPA, NYMTC and Rutgers University with regional growth forecasts and studies analyzing the effects of climate change on growth over the past decade.

Our team members have conducted similar inventories of ongoing and planned projects for the Raise Shorelines Citywide Study in New York City, the Rockaway Crossings Master Plan in Jamaica Bay, and nearly one dozen New York Rising Community Reconstruction Plans. Our subconsultant, Millennium Strategies, recently started several significant projects in the region (specifically Moonachie) to redevelop flood zones in which Manufactured Housing Units suffer Severe Repetitive Loss.

Key Stakeholders

Key stakeholders that will be engaged as part of data collection efforts include local, county, state, and federal agencies, authorities, property owners, private utility companies, and non-governmental organizations, such as environmental or community advocacy groups. All data collection taking place at the stakeholder-level will be conducted openly and during public meetings to provide key stakeholders and community members a direct opportunity for input at the beginning of the planning process. These meetings will be coordinated with other community and stakeholder outreach activities in Task 7.

Unmatched Insight on Regional Demographics



DEMONSTRATED EXPERTISE

Louis Berger is the prime consultant for the current 2050 Socioeconomic and Demographics Forecasts for both the North Jersey Transportation Planning Authority and the New York Metropolitan Transportation Council. These are the official forecasts for long-range transportation planning in Northern NJ, NYC, and downstate New York. Our unique and detailed familiarity with the approved demographic forecasts provides NJDEP with a consultant team that has the credentials and expertise to evaluate the project alternatives and validate or adjust them as needed.

Data Management

A password-protected, cloud-based data library will be developed to document and securely store all files and share them with NJDEP. At the discretion of NJDEP, the team will provide access to HUD or other agency representatives. An example of a project-based site is provided in **Figure 3-3**.

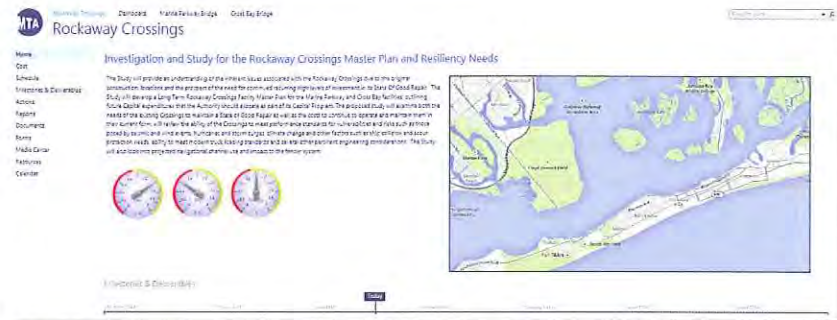


Figure 3-3. Sample Project Data Storage Site. The CDM Smith/Louis Berger team will create a secure, Cloud-based site to store data related to this effort.

Data Gap Analysis

Once data gathering and evaluation is complete, the CDM Smith/Louis Berger team will identify potential gaps in the data required to complete the FS, EIS, and design. We will also recommend activities and tasks to resolve data gaps within the defined budget and required schedule.

A spreadsheet of all data sources will be exported from the project data storage site and turned into a matrix and appropriate GIS coverages for NJDEP's use on this and future projects. As all documents will be coded by resource area, the matrix will clearly illustrate what resource areas are lacking sufficient information. Additional columns will be added to the matrix for identified data gaps and needs, and a summary of the data gap analysis matrix will be provided in narrative form. The team anticipates that data gaps will fall into two categories:

- **Additional data collection**—We anticipate the need to collect specific data, including bathymetric and topographic survey data, geotechnical/soils characterization, seasonal groundwater table elevations and wetland delineations. The data gap analysis will identify additional data needs, such as specific locations for surveys, geotechnical borings and test pits, piezometers, sediment and/or water quality samples, and installation of stream gauges at strategic locations.
- **Additional technical studies**—The team understands the gap analysis will identify additional needs for technical studies, such as a Phase I Environmental Site Assessment, Phase IA Cultural Resources Survey, and H&H modeling.

Existing Data Gaps in the Meadowlands



DEMONSTRATED LOCAL INSIGHT

Through our experience in the Meadowlands, our team is acutely aware of the lack of accurate, up-to-date mapping of underground utilities in the region. The lack of this information can lead to costly issues during construction if unmapped utility lines are encountered, or post-construction if the infrastructure is not linked as anticipated. Developing an accurate picture of the existing flood risk to Pilot Area No. 1 will also rely on an understanding of the interconnections within the region through underground infrastructure. As local stakeholders are intimately aware of this data gap, and the impact this lack of information can have on the development of flood control measures, it will be prudent to address this issue early in the process and delineate the scope of information needed to support the project and differentiate data that, though a gap, may not offer significant benefit to understanding current conditions and assessing proposed solutions.

Implementation Plan & Schedule

The team will utilize the data gaps matrix and narrative summary as the foundation to formulate and submit an Implementation Plan and Schedule that outlines the needs for additional data collection, technical studies, and field inspection. The Implementation Plan will include a scope of work and schedule for completing each task. Most importantly, it will illustrate how these efforts can be seamlessly integrated into the larger FS and EIS schedule without causing schedule delays, avoiding the need for additional data collection that could inhibit the delivery of a DEIS on May 30, 2017.



For the Meadowlands Environmental Site Information Compilation (MESIC) Project, Louis Berger, with the assistance of the NJMC and USACE, cataloged a large amount of data pertaining to ecosystem restoration for 50 sites within the Meadowlands.

Task 2. Feasibility Study, Hydraulic Studies/Flood Risk Assessment, Alternatives Analysis, and Conceptual Design for Recommended Alternative(s)

The FS will focus on the development and analysis of practical, sustainable alternatives for further refinement, and we will build on our extensive knowledge of available data and models, model support and cost-benefit analyses to analyze the performance of possible alternatives and contingency options under different hydrologic and sea level rise conditions.

The CDM Smith/Louis Berger team has developed over 300 successful retrofit flood management strategies, and we have developed and applied dynamic modeling methodologies for varying rainfall and tidal conditions to identify the range of flood risks, mitigation costs, and priorities to protect public safety and infrastructure.

Much of our project experience has been with similar fast-track efforts involving integrated, concurrent FS and EIS completion. We know from experience that this project will require close coordination between the team, NJDEP, and the review agencies for the acquisition, review, and development of key data and model results in a sequence that facilitates the project without duplication.

The CDM Smith/Louis Berger team will develop and prepare a detailed feasibility study of viable flood control management alternatives that includes the No Action (base condition), the RBD concept, and a up to two refined alternatives for Pilot Area No. 1 (Little Ferry, Moonachie, Carlstadt, South Hackensack and Teterboro). The alternatives will consider both fluvial and tidal flooding scenarios as individual and joint rainfall and tidal flood events to guide facility sizing and operations of gates and control structures. As shown in **Figures 3-1 and 3-2**, the team will perform this concurrently with the EIS in Task 3, a process that we have successfully delivered in other large-scale civil works projects to expedite schedule.

Key Factors Addressed - Task 2



Concurrent FS/DEIS by May 2017



Alternative solutions



Flood protection



HUD/FEMA funding



Resources



Regulatory approval



Additional funding



O&M



A Blueprint for Resiliency

The detailed schedule is provided in the first sub-tab in this section.

Meadowlands Issues & Hydrology

The CDM Smith/Louis Berger team understands that the hydrology of the Hackensack Meadowlands, including the Pilot Area No. 1 communities, has been repeatedly altered, studied, managed and transformed over the past two centuries, often with unintended consequences, including the extensive environmental contamination. Most of the wet salt meadows along the Hackensack River were originally freshwater Atlantic Cedar swamps cut for lumber and other purposes that the large cedar stumps still visible today.

Construction of the Oradell Dam in the upper Hackensack River forever altered the hydrology of the Hackensack Meadowlands from freshwater to brackish by effectively cutting off the headwaters and freshwater source. The Hackensack River, running 11.5 miles within the Meadowlands, is influenced by tidal flow, precipitation, discharges, and the release or detainment of freshwater in the Oradell Reservoir. The Hackensack River has been dredged and ditches and canals have been dug to control the flow of water. Currently, the USACE maintains a shipping channel at an average depth of 12 feet. The annual average freshwater flow in the Hackensack River (controlled by the overflow from Oradell Dam) is relatively small, only about 100 cfs. This is nearly 3 orders of magnitude smaller than the average tidal exchange flow rate at the mouth of the Hackensack. As a result, the flow and circulation patterns in the Hackensack and Meadowlands are predominantly dominated by the tidal exchange at the mouth of the Hackensack and by large rainfall events in the watershed.

Much of the Meadowlands is or was subject to the twice-daily, flood and ebb of the tides. The tidal range within the Meadowlands is about 3.9 feet, but tidal flow in the Meadowlands is such that the system is never completely flushed. By the

time the tide in the upper reaches begins to recede, the next incoming tide has begun to enter the lower reaches. The system acts as a trough in which the tidal waters slosh back and forth, only slowly getting flushed to the sea. Tidal exchange with the Hackensack and Meadowlands system accounts for approximately 50 percent of the tidal prism (which is a measure of the flow moving in and out of a given water body by tidal exchange) at the Kill van Kull and Arthur Kill. However, due to the phase differences in tidal currents (differences in the timing of the tidal currents) between the Hackensack River and the adjacent Lower Passaic River, a portion of the tidal exchange flow entering the Hackensack River originates from the Lower Passaic River, with the remainder originating in Northern Newark Bay (although ultimately originating from NY Harbor with some residence time within Newark Bay). This is of relevance to the New Meadowlands project because both the Lower Passaic River and Newark Bay are Superfund sites currently under investigation by the EPA due to significant levels of sediment contamination from dioxins, PAHs, PCBs, pesticides, and several heavy metals. Contaminants from the sediment bed may be eroded during both high freshwater flow conditions such as during storms, as well as normal freshwater flow and normal tidal conditions and subject to transport beyond its area of origin. Berry's Creek, which is another Superfund site with significant sediment mercury contamination, is also located within

Meadowlands Hydrology



DEMONSTRATED LOCAL INSIGHT

Through the design and construction inspection of over 500 acres of wetlands in the Meadowlands, our team has first-hand experience with the complex hydrology of the Meadowlands and will apply our many lessons learned to the Pilot Area No. 1 project. We are aware of the hidden but partially functioning historic tide gates that have, at times, been the cause of flooding. We have found old functioning but forgotten culverts under the New Jersey Turnpike in Carlstadt that moved tidal waters in unexpected patterns. The CDM Smith/Louis Berger team's familiarity with the multiple hydrologic studies and flood planning documents combined with this on-the-ground experience will save NJDEP time and budget.

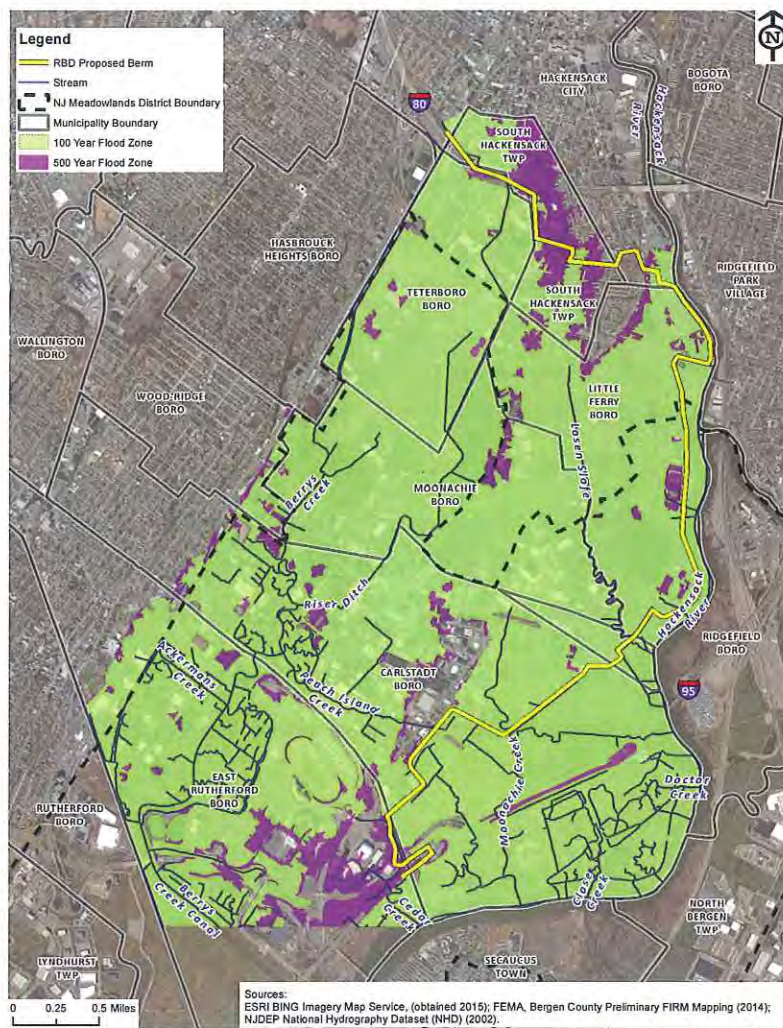


Figure 3-4. Updated Meadowlands Floodplain Map. Much of the Meadowlands is so low that it is inundated by the 100-year flood.

the Meadowlands. In addition, the USEPA is also currently conducting a study to determine if the contamination in the sediments of the Hackensack River warrant its inclusion in the Superfund program for additional study and potential remediation and restoration activities. Given its proximity to such contaminated sediment sites, the design of the proposed flood protection and redevelopment needs to consider the potential for any adverse effects due to changes in the hydrologic regimes, hydrodynamic processes, and sediment transport processes in the Hackensack River and the Meadowlands.

Tidal flow has also been permanently restricted or completely obstructed by structures designed to control flooding (e.g., culverts, tide gates, and levees/dikes) and

by fill used for infrastructure (e.g., roads and pipelines) and development (e.g., buildings and parking lots). Much of the floodplain area in the Meadowlands has been developed and most of the land in the Meadowlands is so low in elevation that it is inundated by the 100-year flood as shown in **Figure 3-4**. Within Pilot Area No. 1, the majority of the area is in the 100-year flood zone, and the 500 year flood zone inundates additional area including portions of I-80.

In addition to the Hackensack River, one of the most predominant features of the Meadowlands is its wetlands. Most of these wetlands are estuarine and influenced by the tide with the largest concentration of estuarine wetlands located in Carlstadt. The CDM Smith/Louis Berger team has supported projects that restored the large swaths of saline wetlands located in the southeast portion of Pilot Area No. 1. Prior to restoration, these areas supported expanses of Phragmites, similar to what exists today in the other large wetland tracts in the region.

Due to frequent flooding, multiple hydrologic and flood studies have been completed in the Meadowlands. The CDM Smith/Louis Berger team is familiar with and will build upon the various applicable studies and reports identified in Task 1 with a focus on the following:

- The 2014 Final Report of the Flood Mitigation Engineering Resource Center completed by the New Jersey Institute of Technology for NJDEP.
- The joint NJMC and USACE Flood Control and Environmental Restoration Modeling Project.
- For the Meadowlands Environmental Site Information Compilation (MESIC) Project, Louis Berger, with the assistance of the NJMC and USACE, cataloged a large amount of data pertaining to ecosystem restoration for 50 sites within

the Hackensack Meadowlands District. The data compilation and review process necessitated the familiarization with the collected data, including the 1998-2004 Hackensack Meadowlands Flood Control Study by the Engineer Research and Development Center (ERDC) and USACE. Louis Berger gained a basic knowledge of the development of the parent model (one-dimensional hydrologic) developed for the Hackensack River Basin and the child models (two-dimensional hydrologic) developed for four of its tributaries (Berry's Creek, Penhorn Creek, Sack Creek, and the Cayuga Dyke), as well as other flood control analyses completed for the study.

- The 2000 Flood Control Survey by the ERDC, NJMC, and USACE, that included the collection of cross-sectional survey data along the Hackensack River and its major tributaries; the identification of 30 flood control structures along the Hackensack River; the location of all bridges and piers within the study area; and the creation of geo-referenced digital aerial maps.
- Reconnaissance Report for Flood Control Measures, Hackensack River Basin, Hudson and Bergen Counties, New Jersey. January 1981. U.S. Army Corps of Engineers – New York District.
- Flood Control Study Reconnaissance Report, Hackensack River Basin, New Jersey. June 1993. U.S. Army Corps of Engineers – New York District.
- Hydrologic Feasibility of Storm Surge Barriers to Protect the Metropolitan New York-New Jersey Region. November 2004. Marine Sciences Research Center, State University of New York

Tidal barrier designs in multiple forms go back to 1981, and both the 1981 USACE Recon study for the Hackensack River basin and 1993 USACE Recon Studies show positive cost-benefit ratios (2.4 and 2.8 respectively) for the magnitude of \$138 million to \$202 million project cost estimates in 1981 and 1993.

Alternatives Development & Analysis

Under this task, our team will develop and prepare a detailed feasibility study of viable flood control management alternatives that includes the No Action (base

condition), the RBD concept, and up to two refined alternatives for Pilot Area No. 1. The alternatives will consider both fluvial and tidal flooding scenarios as individual and joint events to guide facility sizing and operations of gates and flood control structures.

As identified in the RFP, attributes to be considered in this study and alternatives will include the following:

- Terraced edges, berms, levees, sheet pile flood walls, bulkheads or other flood control barriers with integrated environmental and recreational features
- Project tie-backs to uplands
- Tide control structures (backflow preventers, tide gates, inflatable dams, etc.)
- Green design and green infrastructure
- Bioswales and permeable paving
- Constructed, enhanced or restored wetlands and waters
- Bioretention basins
- Various stormwater management features
- Rain gardens
- Reclamation of previously paved areas
- Creation/modification/landscaping of open space
- Buyouts (for repetitive loss structures that are not cost-effective to protect and for structures in the footprint of planned flood protection structures, stormwater management systems, and created restored wetlands)
- Biodiversity

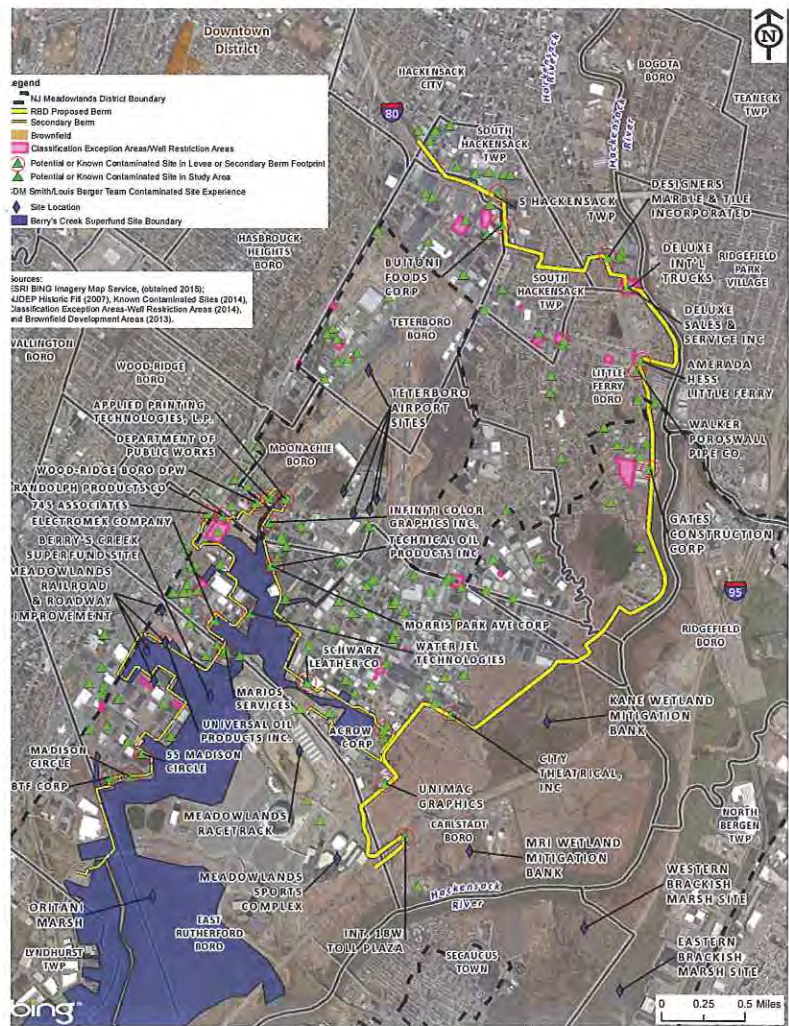
In addition to these features, it may be appropriate to consider raising and/or re-locating vulnerable infrastructure as part of this project or as part of planned rehabilitation or capital improvement projects.

Over the past 40 years, the CDM Smith/Louis Berger team has successfully applied and implemented each of these features in various projects locally, as well as across the U.S. and the world. The team has used them in various Best Management Practice (BMP) Treatment

Trains, which provide multiple benefits by cumulatively functioning to deliver the following: cost-effective flood control level of service (LOS), water quality protection and improvement, groundwater recharge (where desirable), saltwater intrusion barriers, wetland habitat and storage, and aesthetic public amenities such as greenways, trails, and parks. We will identify the most cost-effective blend of these components to maximize multiple benefits and manage costs to demonstrate a good business case and cost-benefit ratio.

We will also identify potential unintended consequences of these features, including:

- Potential groundwater mounding with wetland restoration.
- Associated groundwater mounding impacts on infrastructure and known contamination areas (levees, contamination plumes and potential mobilization, landfills, septic tanks, Turnpike and road bases, pipes, foundations, fiber optic cables, gas, etc.). As one example, approximately 14 contamination sites are in the current RBD levee footprint with another 30 within 0.5 mi. These plumes would likely be affected and may be mobilized by higher water table elevations for the wetlands and for rising sea levels.
- Increased head loss effects and greater small event flooding from tidal gates, valves and weirs on storm-water outfalls and channels. We understand that several areas currently experience frequent flooding from smaller storms, and we will work to resolve these and not exacerbate the flooding problems.
- Changes to hydrologic processes by affecting the tidal prism of the system (hard engineering measures, such as a berm for flood protection), thereby reducing the sediment supply to the system, and altering the tidal currents. In addition, a hard structure, such



RBD New Meadowlands concept levee alignment and contamination areas.

as a berm, can also act a hard boundary, serving to reflect the tidal wave and potentially altering the existing tidal circulation patterns.

- Altered the hydrodynamic circulation within the Hackensack and the Meadowlands if new flow control structures, such as tidal gates, are not appropriately sized, which could constrict the tidal channel and reduce flows downstream of the gate.

Level of Service, Facility Design Life, & Planning Horizons

An important consideration will be the desired level of service (LOS) for flood control (e.g., 100 year, Superstorm Sandy, 500 year), facility design life, and associated

design standards of the project, which will drive the costs of facilities and determine the level(s) of sea level rise conditions. Our team proposes to evaluate cost and benefits at different planning horizons to confirm the project is sustainable and a good value at each phase or point in time. It is also important to note that longer term projections are inherently less certain, and additional risk protection is built into an adaptable strategy to allow adjustments and enhancements as necessary in phases.

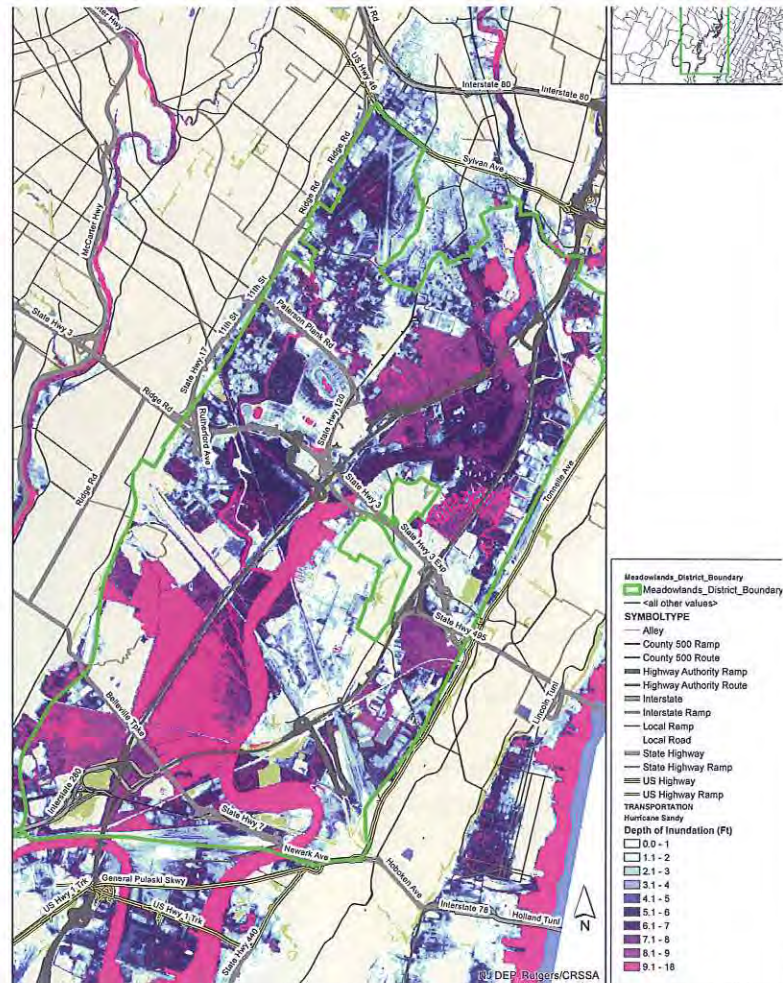
This planning horizon should include a short-term implementation Phase 1 horizon of 5 years, as well as longer term horizons of 20 years, 50 years (for standard USACE Civil Works guidance for consistency with federal funding opportunities), 100 years (for consideration of potential for sea level rise scenarios), and 500 years for more extreme sea level rise protection).

A 2,000-year standard was recommended in the RBD plan for major infrastructure, and ultimate heights of the proposed flood protection measure may not be necessary until later year horizons. As one option, the necessary footprint and foundation can be evaluated, sized, and implemented in initial phases to ensure the ultimate solution can be built as needed. NJDEP could acquire the land, rights-of-way, and easements, and establish the major infrastructure footprints/foundations to expand in an adaptable and resilient manner over time, as needs arise and additional funds become available. This will support adaptable contingency plan options to manage risk outlined in Section 3.3.

H&H Studies and Modeling Support

For the feasibility study, we will build upon the existing available surface and groundwater hydrologic, hydraulic, water quality, and hydrodynamic data and models to refine and extend them as necessary to evaluate the full range of rainfall events, sea level rise, and tidal surge conditions.

We will apply the refined/developed models for existing and proposed conditions to evaluate the behavior of the



The New Meadowlands - Super-storm Sandy Depth of Inundation

Superstorm Sandy Depths of Inundation.

project alternatives and the impacts in relation to surface and groundwater hydrology, hydraulics (tidal, storm surge, estuarine), water quality, and geomorphology.

Stormwater H&H Models

We will delineate the watershed and sub-basins using existing LiDAR topographic survey, GIS data, problem area locations and maps, and potential project features. As discussed in the gap analysis, we will identify areas where additional survey information for the analysis will be required. As part of this task, we will also identify areas of common land use patterns, areas of land use changes and identify flow path patterns to verify the modeling completed to date. This information will be complemented with a field reconnaissance/photo survey to verify details of the available information and specific surveys that will be proposed as part of the project, if they are required.

We propose to apply the either USEPA SWMM or XP-STORM for the H&H evaluations. XP-STORM offers 2D capability although the great majority of stormwater modeling can be completed accurately with 1D overland flow channels in multiple directions as needed.

This approach offers the flexibility of including both open and closed hydraulic systems in the same model and has the advantage over other tools of having pipe network hydraulics and loss coefficients built-in. It also offers a 1D/2D linkage as needed to more accurately model overland flow within the watersheds (upstream of the proposed flood protection measures), as well as accurately tie the pipe system to the receiving waters within the Hackensack River and the Meadowlands, and account for 2D/3D effects within the river. Boundary conditions for this model will be obtained from the 3D model described below. A project specific coupling between the two models will be developed for this project to ensure the right passing of information between the two models. For example, to include the impact of the inflows from the stormwater into the 3D model, and the interaction of the increased water levels, tides and surges on the stormwater model.

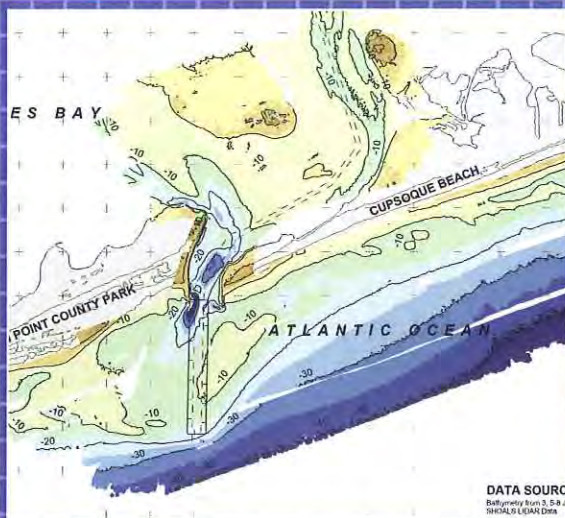
This modeling approach addresses the circulation in the Meadowlands and Hackensack River, and accurately simulates the stormwater flow and inundation in the land side. This approach will also properly address areas of the existing stormwater system controlled by both tidal (outlet control) and rainfall/stormwater (inlet control) flooding. This information is critical in designing infrastructure to be placed behind the flood protection measure.

We propose to apply the H&H models for a wide range of hydrology to ensure proper function, flood control level of service (LOS), and additional benefits (flood damage reduction, hydrologic restoration, saltwater intrusion barriers, etc.). This would include the 2-, 5-, 10-, 25-, 50-, 100-, and 500-year events for 1-, 10-, 100-, and 500-year tidal stillwater conditions, and for Superstorm Sandy tidal surge conditions, to consider the range of variation and identify thresholds for cost-benefit value.

Meadowlands-Hackensack River Model

The implementation of a hard engineering measure, such as a levee/berm for flood protection, has the potential for changing the hydrologic processes by changing the tidal prism of the system, thereby reducing the sediment

Regional H&H Modeling Experts



DEMONSTRATED EXPERTISE

Our team member Moffatt & Nichol has extensive experience developing and applying models for projects in the area in relation to coastal protection and inundation. Examples of their local experience include:

- USACE New York District NACCS
- NY/NJ Harbor Deepening EIS
- Lower Passaic River and Newark Bay Superfund sites RI/FS Modeling program
- USACE Fire Island to Montauk Point Reformulation Study for Barrier Island and Back Bay Protection Against Storms, South Shore of Long Island, NY
- NYCDEC Raise Shorelines Citywide Study
- Avalon Coastal Protection and Beach Restoration, Borough of Avalon, New Jersey
- Naval Weapons Station, Earle, New Jersey, Repair and Design Utilities for Post-Sandy Conditions

supply to the system, and altering the tidal currents. The proposed flood protection measure can also act a hard boundary, serving to reflect the tidal wave and potentially altering the existing tidal circulation patterns. Conversely, expanding the area of the wetlands from current conditions, as proposed for certain areas in the vicinity of Berry's Creek, can also increase the tidal prism, leading to more water and potentially contaminated sediments from the Lower Passaic River and Newark Bay entering the Hackensack River and the Meadowlands. In addition, the implementation of flow control structures such as tide gates also has the potential to alter the hydrodynamic circulation within the Hackensack and the Meadowlands if the gates are not sized appropriately leading to a constriction in the tide channel and reduced flows downstream of the tide gate.

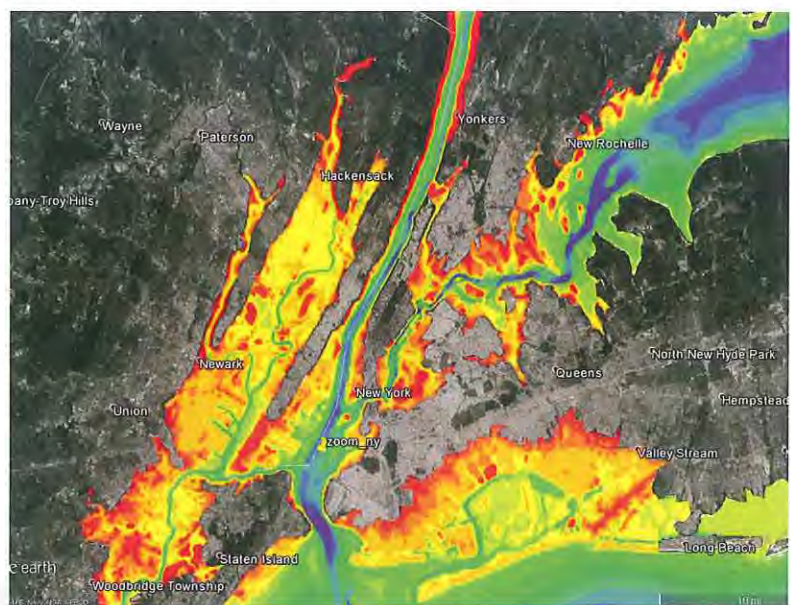
Therefore, the focus of the hydrodynamic and sediment transport analysis will be to ensure that the proposed flood-protection and development activities in the Meadowlands do not significantly alter the Hackensack River and the Meadowlands from its current condition with respect to the following aspects:

- Hydrodynamic circulation patterns (including those associated with tides, storm surge, and estuarine conditions in the Hackensack and Newark Bay/Passaic River system)
- Sediment transport processes (which in turn will control the potential for contaminant fate and transport)

In addition, the analyses and modeling tools developed as part of this process will also support design elements such as the sizing of the tide gates, berm heights, the area of the tidal and freshwater wetlands, etc. Therefore, the model should have enough resolution to be able to correctly define the project alternatives and the conditions of the impacted areas, and at the same time the model domain should expand to all the areas that have an impact on the water exchange in the Meadowlands-Hackensack River system.

Team member Moffatt & Nichol has developed as part of different projects in the area several regional numerical models that include the New York/New Jersey Region. For example, as part of the NY/NJ Harbor Deepening EIS project, a three-dimensional model of the NY/NJ region was developed using the DHI MIKE suite of models with high resolution at the project area. The model was used to evaluate the impacts on hydrodynamics as well as water quality parameters that the deeper channel will have in Newark Bay and the Passaic and Hackensack rivers. As part of the Lower Passaic River and Newark Superfund sites Moffatt & Nichol developed and applied hydrodynamic, sediment transport, contaminant fate and transport and wave models in the area of interest so all the processes that affect the transport of contaminants in the system could be considered. This modeling effort included the evaluation of the impacts of large storms to the system and included the simulation of storms, such as Irene and Sandy.

This experience and the already available models will be used by the team to optimally develop a numerical model for the project that at the same time can simulate the development and propagation of storms from offshore, and propagation into the area of interest, that will be defined in much higher detail. These large models require a significant computer power to be able to combine the required extent, processes and resolution and therefore



Bathymetry Example.

has to be run in supercomputers that make use of parallel computation capabilities. Moffatt & Nichol has its own cluster supercomputer to perform computer intensive simulations like those needed for this project. The team has experience with comprehensive modeling packages (EFDC, DHI MIKE, Delft3D, ADCIRC, etc.) and will develop the model for the project using the most appropriate and efficient package for the needs of the project.

Most of the required data to be used in the model development it is publicly available or will be obtained from the available models. Model specific information will be required including detailed bathymetry and topography of the project area, and additional detail information of currents and water levels. A secondary data review will be carried out at the beginning of the project and a data collection program specific for the modeling efforts proposed.

Another important component to be evaluated using numerical modeling tools is the overtopping and flooding both under existing conditions and also as part of the basis of design for the flood protection works. For example, Moffatt & Nichol designed the barrier island protection of the South Shore of Long Island between Fire Island and Montauk Point as part of a USACE project. Overtopping and potential overwash and breaching conditions were evaluated using a state-of-the-art model that combined the effects of storm surge, tides, waves and morphology. By combining all these processes for this particular project, we were able to obtain the most accurate solution and values for the basis of design of the barrier island flood protection. We do not anticipate that morphology will be necessary to simulate for the New Meadowlands project, but all the other process (storm surge, tides and waves) will have to be considered and simulated in order to have the correct design.

The Pilot Area No. 1 project has been envisioned including areas where flood mitigation measures will be designed to protect the pilot communities from tidal surges and wave action. Moffatt & Nichol has developed wave atlas models that consider multi decadal simulations of wave conditions in Newark Bay and the South Hackensack areas most vulnerable to waves, and has a complete knowledge of the wave climate for these areas. As part of the New York City project raising the shorelines, Moffatt & Nichol developed a wave atlas of the

whole NYC shoreline estimating the wave conditions for the required project life conditions to avoid sea level rise flooding. This waves atlas also included a unique analysis of the vessel navigation to estimate the ship generated waves at the shoreline, which in some cases could be more important than the wind generated waves. Estimating the correct processes affecting shoreline protection is crucial to carry out the right design for the areas that might be affected by wind waves and ship generated waves.

The CDM Smith/Louis Berger team will use these existing and project specific models to estimate the correct design conditions for the flood protection measures.

Flood Risk Assessment

As discussed above, the CDM Smith/Louis Berger team will evaluate a range of riverine (rainfall) and tidal flooding conditions to evaluate individual and joint event flood risk. This will include the 2-, 5-, 10-, 25-, 50-, 100-, and 500-year design rainfall events for 1-, 10-, 100-, and 500-year tidal stillwater boundary conditions and for Superstorm Sandy tidal conditions.

The team will develop flood summary tables of peak flood stages at key locations in the system along with inundation maps for the 10-, 25-, and 100-year events.

Cost-Benefit Analysis

As mentioned in the approach overview, Task 2 will also initiate the Cost-Benefit Analysis (CBA). CDM Smith/Louis Berger team members have done extensive work for FEMA and are very familiar with both the FEMA Hazard US (HAZUS) and CBA tools to screen and provide detailed evaluations of benefits and costs to identify a favorable cost-benefit ratio.

We also have great success with additional factors to further support these analyses for multiple and enhanced benefits, including triple bottom line (TBL) considerations of social, environmental, and economic factors, as well as risk-based considerations to confirm and provide sustainable and reliable levels of service for the project. Team member Binera has developed an enhanced, transparent CBA method that is transparent and factors in the various TBL components for refinement through the process. This method is discussed in the following and will be made available to NJDEP.

Our team will conduct a CBA of each mitigation project alternative using the FEMA BCA Toolkit Version 5.1. Typically, assessments using the BCA toolkit use the standard FEMA flood maps or Flood Insurance Studies for the area to determine the annualized losses from flood and tropical cyclone hazards before and after mitigation. The CDM Smith/Louis Berger team can conduct the CBA in this manner or the team has the ability to incorporate a fully probabilistic tropical cyclone methodology into the BCA toolkit, using the Flood Mitigation module and/or the Damage Frequency Assessment Mitigation module.

The fully probabilistic methodology employs a synthetic storm set generated using a physics-based model of hurricane behavior in response to environmental conditions, which allows for an evaluation of the full range of possible consequences and more accurate frequency (threat) estimates. The assessed consequence and threat results are used to calculate more precise annualized losses or

damages (risk results). The results from this methodology can then be used to conduct a cost benefit analysis of potential mitigation options or alternatives. A sample is provided in **Figure 3-5**.

Employing the synthetic storm database and the fully probabilistic methodology for assessing losses takes into account many uncertainties inherent to tropical cyclone analysis (e.g., track magnitude, wind pattern) and allows risk and project options to be assessed against the full range of possibilities and climate profiles. The synthetic database allows for the development of frequency projections that incorporate climate change and sea level rise. With this ability, the team can conduct a sensitivity analysis of a range of future climate profiles and sea level rise cases, which is critical given the range of existing estimates. These abilities allow stakeholders to fully understand the risk profile and cost-benefit ratio of

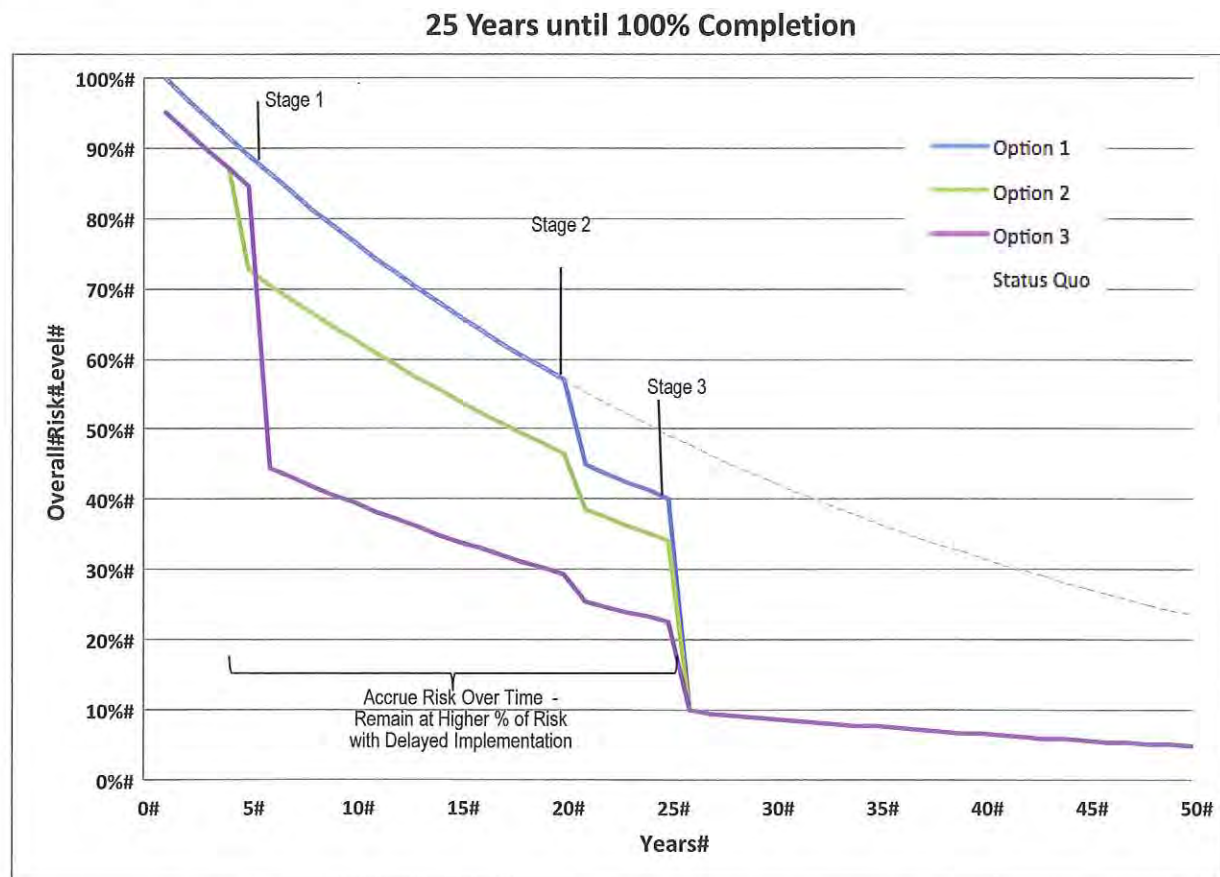


Figure 3-5. Sample CBA of Alternative Mitigation Options. Delayed implementation of a mitigation option leads to accrued risk. Our team can integrate risk over time to reflect implementation timelines and delays.

mitigation projects across a broad spectrum of uncertain conditions.

The results of this type of analysis are better suited for long-term investments because they are based on an analysis of a synthetic storm set spanning several thousand hurricane seasons, rather than an analysis of a small number of historic events. Additionally, the flood analysis is not limited to the 100-year and 500-year floodplains shown on traditional flood maps. The return period that corresponds to a specified critical flood depth can be derived from the synthetic storm database and the corresponding floodplain can be mapped through hydrologic modeling and analysis. **The team has employed CBA for a number of jurisdictions and agencies, including implementing the fully probabilistic tropical cyclone methodology for PANYNJ. This experience and expertise can be leveraged to streamline the New Meadowlands Project.**

As part of the CBA, the team will assess and monetize losses or impacts that are often considered difficult to quantify. These values will specifically cover the three primary HUD categories: social, environmental, and economic. The team's past experience conducting detailed economic analysis for PANYNJ, including impacts on GMP and on the tax base from reductions in office capacity and loss of transportation capability, as well as past experience conducting social and environmental impact analysis for Hazardous Material Transport risk assessments will serve as a basis of knowledge for the New Meadowlands CBA.

In developing the CBA, the team will pay special attention to the low- to moderate-income (LMI) and vulnerable populations, as these reflect specific policy, funding, or regulatory parameters for key agencies. Our team will work toward optimizing these parameters to maximize funding and benefits. We will also consider any indirect benefits associated with critical infrastructure protection.

The CBA will evaluate ranges of risk and benefit scenarios, enabling NJDEP to identify both near- and long-term benefits and their associated probabilities and loss reduction. This effort will also consider future long-term regional growth scenarios that will determine the risk exposure based on future conditions in the

region. Binera, has directly applicable experience from their risk and CBA work for the PANYNJ's asset management and resiliency prioritization. In addition, Louis Berger contributes experience from multi-year services (recently renewed) to the NJTPA and NYMTC for regional growth projections, as well as collaboration with Rutgers University on the effects of climate risk on regional growth scenarios.

Investigating & Identifying Funding Sources

The CDM Smith/Louis Berger team has extensive experience identifying and supporting grants and state revolving fund (SRF) loan application programs to leverage funding from multiple sources (private, public, federal, state) to successfully complement and expand the benefits of flood mitigation, redevelopment, ecosystem restoration, remediation and disaster recovery projects. Our existing knowledge and ability to navigate through the complexities of grant programming related to flood mitigation, sustainable infrastructure development, and critical infrastructure repair and resiliency will be necessary to the long-term success of communities impacted by the proposed flood protection project.

We also have significant successful experience coordinating with various agencies in the joint implementation of capital projects for mutual benefits and cost savings. In one project **for the City of Rockledge and Florida DOT, CDM Smith innovation saved the City \$10M and FDOT nearly \$10M on a 60 acre regional stormwater facility and wetland mitigation project.**

For this project, this could include NJDOT and NJTA for some of the stormwater and flood mitigation facilities, since their transportation corridors can be combined where practical with the proposed flood protection measures.

Our team can extend its overarching knowledge of disaster recovery and infrastructure grant funding in consultation with the various stakeholders to apply for, leverage, and complement project funds. We have extensive knowledge of the following grant programs, as well as the capacity to easily find and research new funding opportunities:

- US Department of Housing and Urban Development
 - National Disaster Resilience Competition (NDRC)
 - Community Planning and Development
 - CDBG
 - CDBG-DR
 - CDBG-Section 108 Loan Guarantee Program
- US Department of Homeland Security
- FEMA
 - Urban Area Security Initiative (UASI)
 - Hazard Mitigation Grant Program
 - Elevation
 - Flood Mitigation
 - Pre-Disaster Mitigation (PDM)
 - Repetitive Flood Claim (RFC) Grant Program
 - Severe Repetitive Loss (SRL) Grant Program
 - Public Assistance (PA) Grant Program
 - Nonprofit Security Grant Program
 - Port Security Grant Program
 - Homeland Security Grant Program
 - Transit Security Grant Program
 - Intercity Passenger Rail Grant Program
 - Intercity Bus Security Grant Program
- US Department of Commerce
 - NOAA
 - Resiliency Grant Program
 - Economic Development Administration
 - Investments for Public Works and Economic Development Facilities
- USEPA
 - Brownfields and Land Revitalization
 - Office of Sustainable Communities
 - Smart Growth Implementation Assistance Program

- US Department of the Interior
 - National Park Service
 - Land and Water Conservation Fund State Grant Program
 - Historic Preservation Fund Grant Program
- General Services Administration (GSA)
 - Public Buildings Service (PBS)
 - Disposal of Federal Surplus Real Property Program
- New Jersey Department of Environmental Protection
 - Green Acres Grant Program
 - Blue Acres Grant Program
 - Combined Sewer Overflow Planning & Design Grant Program
 - Water Quality Management Planning/Pass-Through (604B) Grant Program
 - Flood Hazard Risk Reduction and Resiliency Grant Program
 - Nonpoint Source Pollution (319H) Grant Program
 - Sustainable and Resilient Coastal Communities Grant Program
 - Hazardous Discharge Site Remediation Fund
 - Coastal Engineering Grants
 - Community Stewardship Incentive Program (CSIP) Grant Program
- The National Fish and Wildlife Foundation
 - Five Star Urban Waters Restoration Grant Program
 - Wells Fargo Environmental Solutions for Communities Grant Program
- USACE
 - Water Resource Development Act (WRDA) Funds

Task 3. Environmental Impact Statement

The team will draw on Louis Berger's ongoing efforts guiding the RBD Mill River project through the HUD/NEPA environmental scoping and alternatives development process. This will enable us to craft an approach to environmental review that is nimble enough to allow for refinement as the project progresses, yet structured enough to complete the environmental review concurrently with the FS, with the DEIS completed no later than May 30, 2017. Our team's substantial, locally based team of scientists, engineers, and planners will assimilate data acquired over decades of working in the Meadowlands with supplementary data to expedite the development of the environmental documentation and integrate into the FS.

Environmental Review Strategy

The ultimate strategy for environmental review will be developed with NJDEP, as well as HUD and other agencies with funding or discretionary approvals. Several strategies may be considered for the environmental review, depending on the proposed RBD concept alternatives being analyzed, and potential project phasing. While a conventional EIS may be an appropriate strategic approach, the possibility of a Generic EIS (GEIS) pursuant to NEPA 42 USC Section 4321 et seq. and HUD 24 CFR Part 58 may be evaluated, especially if certain project components differ substantially in terms of detail, concurrence, or regulatory constraints.

A GEIS could serve as an "umbrella" environmental review and would be driven by the components of the project most likely to generate significant environmental impacts, such as the proposed RBD berm or other hard engineering measures. This document and the associated review process would ensure the environmental impacts of the overall project (including construction and operational impacts) are comprehensively addressed at a generic level, even in cases where detailed design is not yet available and certain assumptions need to be made. It would also provide a single place where the potential indirect and cumulative effects of all alternatives are analyzed and disclosed. As a potential alternative or complement to a single large environmental document for the Pilot Area No. 1, individual project-level environmental documents

could be developed for each of the sub-project components.

This approach would demonstrate that the individual reviews are

no less protective of the environment. With a GEIS, the level of environmental reviews for sub-projects would vary from a Categorical Exclusion (CE) to Environmental Assessment (EA) and EIS, dependent on the sub-project's potential for significant impacts.

The key benefit of individual project-level reviews for each sub-project component is implementation speed and flexibility. Each component can be advanced on its own schedule and delays due a controversial aspect of one component will not impact the completion of other components. This strategy could allow construction to begin on the first component project while other components are still undergoing environmental review and permitting, and maintain greater flexibility for the design of more complex sections that may require deeper analysis and input from agencies, the local community, and other stakeholders.

Louis Berger employed this approach on the WTC Redevelopment, also funded in accordance with by HUD CDBG-DR and in compliance with 24 CFR Part 58. This included CEs for open space and other community improvements (e.g., Louise Nevelson Plaza), EAs for more involved proposed improvements (e.g., Chatham Square), and an EIS for complex projects likely to generate significant environmental impacts (e.g., WTC Memorial and Redevelopment Plan GEIS).

Agency Engagement

As the project is federally funded through a grant from HUD, the environmental review is expected to be conducted under NEPA, with HUD as the federal lead agency and the NJDEP as its local counterpart. Other federal agencies that may be involved through discretionary

Key Factors Addressed - Task 3



**Concurrent
FS/DEIS by
May 2017**



**Alternative
solutions**



**Flood
protection**



**HUD/FEMA
funding**



Resources



**Regulatory
approval**



O&M



**A Blueprint
for
Resiliency**

approvals and/or funding may include the Federal Highway Administration (FHWA), due to the presence of federal highways, and USACE, due to wetlands and waters. In addition to the federal lead agency, several of these agencies may function as “Cooperating Agencies,” meaning that they may adopt the environmental review process for their agency-specific environmental review compliance. State and local agencies that will be engaged as key organizational and governmental stakeholders include, but are not limited to, NJDOT, NJTPA, the Meadowlands Commission, and local municipalities.

Alternatives Screening

For the project to be successful and realize a positive cost-benefit ratio, it needs to create adequate flood protection for each sub-project or project alternative. Within Pilot Area No. 1 there will be different measures of realizing such level of protection. Each measure will have a combination of elements, some of which are essential to flood protection, while others enhance and work in conjunction with flood protection and provide other benefits, or mitigate the effects of flood protection measures.

The alternatives analysis, which will be initiated during the FS in Task 2, is the heart of the environmental review process, as it provides opportunities to avoid or realize the project with less environmental impacts. Because the existing plan is still relatively conceptual, the more detailed evaluation and design of the interventions through the FS is expected to generate several different alternatives to be screened through an alternatives screening process in accordance with NEPA and 24 CFR Part 58. This early environmental evaluation of the alternatives will also be critical to satisfying permitting requirements

during implementation, such as the Section 404(b)(1) Guidelines, under which USACE may only permit the “least environmentally damaging practicable alternative.”

The alternatives will be coordinated with the FS team and will be developed and screened through the use of a criteria framework that ties back to the Purpose and Need, Goals and Objectives, and Project Principles, and will be part of the public and stakeholder engagement process. The team will take advantage of prior planning processes by generating alternatives that are fundamentally different to address different impacts. This screening will be completed and thoroughly documented at the program level during the FS and the design process. Therefore, the AA and associated public outreach efforts could be incorporated by reference into environmental documents for each sub-project component, avoiding the need for a duplicative alternatives analysis during the environmental review process (40 CFR 1502.21).

To ensure this approach will be successful, the team will fully integrate environmental concerns into the evaluation of the FS alternatives, including preparation of an Environmental Screening Report providing a comparative evaluation of the impacts of the different alternatives on the various environmental disciplines, as part of the Preliminary AA deliverable. The Environmental Screening Report will serve to meet the requirement to consider alternatives under NEPA, as well as the Clean Water Act, and allow sub-project component environmental reviews, if applicable, to focus on the preferred alternative for each component.

Cumulative and Indirect Impacts

A key component of the environmental review will be a robust analysis of cumulative and indirect impacts, for both the construction and the operation phases of the project. Indirect impacts during construction may result from effects on water quality, sediment transport, construction traffic. Cumulative impacts may occur as a consequence of other construction projects during the same period, as well as the exposure of resources, vulnerable populations, and businesses to the effects of combined construction impacts, such as air pollution, noise, traffic impacts, access restriction, etc.

Our team members have a history of effective communication of complex infrastructure concepts. The EIS and Section 4(f) Evaluation for the Fulton Street Transit center prepared by Louis Berger was identified as Best Practice model in a publication by the AASHTO Center for Excellence as for its user friendly, highly-graphic and transparent analysis of alternatives and impacts.

Indirect impacts during operation may result from changes in tidal exchange, which in turn may affect water quality and habitat conditions, and redirect stormwater runoff. To the extent the project would include redevelopment, rezoning, and/or densification, as proposed by the RBD concept, there could be significant indirect impacts on traffic, community facilities, and emergency response services. Indirect effects on the affordability of existing residential and commercial activities could also impact existing businesses, community services, and LMI residents. The analysis will be conducted in the context of regional growth projections that form the basis for federal funding.

Environmental Analysis

Table 3-1 presents an overview of the environmental analysis subjects. The level of analysis will be proportional to the level of potential impacts. The environmental analysis of each subject will be conducted in compliance with HUD standards and compatible with impact criteria and methodologies of state and local agencies. Both CDM Smith and Louis Berger have extensive experience with integrating such standards and requirements that may vary. For the WTC GEIS, Louis Berger integrated these standards into an environmental analysis framework that harmonized all methodologies, standards, and criteria, which ensured that each agency could adopt the analysis

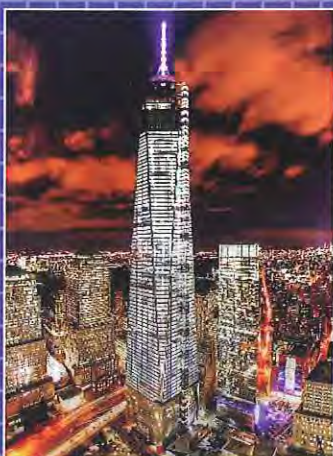
for its own environmental review purposes, eliminating redundancy and inconsistency.

Permitting Strategy

Due to its mixed use nature and geographic extent, the proposed project will require a myriad of permits, consultations, and other environmental approvals. **Table 3-2** provides a preliminary list of anticipated permits for the New Meadowlands project.

The team will identify applicable laws, regulations, and policies, including the Coastal Zone Management Act, Clean Water Act, and Rivers and Harbors Act, and other policies, in a matrix format. For each project element, we will identify what specific policies, regulations, and laws may apply. This matrix will also identify the interrelationships of such policies and regulations and identify the potential schedule and sequential implications to evaluate whether certain project elements could become a critical path/bottleneck for the implementation and phasing of the project.

In this approach the provision of both near term and long term resiliency will be a key consideration as well as the potential to realize smaller successful projects in the short term so that the project area can immediately experience the benefits of the overall project, including supplementary benefits such as open space, habitat development, and economic development. The environmental analysis and



DEMONSTRATED
EXPERTISE

We Wrote the Book on Cumulative Impacts

Louis Berger “wrote the book” on cumulative impacts and NEPA, having authored three guidance reports for the Transportation Research Board and serving as a consultant to the Federal Interagency Task Force on environmental cumulative impact assessments. Among the many successful applications of these procedures, Louis Berger was the consultant appointed to the post-9/11 Lower Manhattan Recovery State Agency Task Force that developed cumulative impact assessment procedures to ensure federal funding and agency approvals to allow the numerous projects to proceed independently through the NEPA process, without creating NEPA segmentation. Given the “logical nexus” between the RBD project and economic growth and other actions, this expertise provides NJDEP the expertise and credentials to address this critical legal sufficiency issue and, thereby, substantially minimize the risk of “NEPA segmentation” challenges to the EIS.

Table 3-1. Environmental Analysis Standards and Criteria





Component	Key Considerations	Our Approach	CDM Smith/Louis Berger Team's Proven Ability & Insight
<p>Land Use and Open Space</p> 	<ul style="list-style-type: none"> Existing land use and ownership in/adjacent to proposed flood mitigation project Current and pre-Sandy development trends and land use patterns Community redevelopment objectives NJMC district boundaries and zoning regulations Preservation of critical wetland areas in accordance with NJMC Master Plan Preservation of the ecological balance between natural areas, open space, and development Future rezoning to allow for development in areas with mitigated risk 	<ul style="list-style-type: none"> Employ customized, publicly accessible GIS tools for community/stakeholder input Ensure consistency with state and local coastal policies Ensure consistency with local land use plans and policies Minimize land/easement acquisition required to construct project Minimize potential impacts on land use patterns 	<ul style="list-style-type: none"> Developed the MRI Meadowlands Mitigation Bank and EIS statements for the Xanadu Development, Meadowlands Railroad and Roadway Improvement Project, and Meadowlands Programmatic EIS Minimized land use impacts while balancing flood mitigation, ecorestoration and open space preservation on the Lincoln Park Wetland Restoration and Saw Mill Creek Wetland Mitigation Bank Understanding that while likely exempt from district zoning requirements, infrastructure projects may experience many of the same issues as typical site development applications in the District relative to environmental constraints, site layout, and utilities
<p>Socioeconomics</p> 	<ul style="list-style-type: none"> Impacts of future economic growth, real estate demand, and market absorption Temporary economic stimulus from construction jobs Development of local and regional economies Impacts on tax revenues for various levels of government Coordination with other economic development projects, such as the American Dream 	<ul style="list-style-type: none"> Develop baseline community socioeconomic profiles in Pilot Area No. 1 Develop and evaluate up to three scenarios for future commercial and residential growth in Pilot Area No. 1 Employ IMPLAN input-output model to develop realistic projections of temporary and permanent job growth, labor income, and sales and tax revenues Minimize potential impacts on community facilities 	<ul style="list-style-type: none"> Extensive familiarity with demographic/socioeconomic base issues, conditions and trends of the Meadowlands region, Northern New Jersey, and the greater Tri-State Area Developed a regional economic and demographic forecasting model for the NJTPA Developing a similar model for the New York Metropolitan Transportation Council's (NYMTC's) regional demographic forecast
<p>Environmental Justice</p> 	<ul style="list-style-type: none"> Temporary and permanent effects of proposed flood mitigation project on LMI, minority, and socially vulnerable populations Local community needs, with emphasis on LMI/minority/socially vulnerable populations Special strategies for environmental justice populations that consider cultural norms HUD funding requirements for LMI populations Ensuring compliance with EO 12898 Environmental Justice 	<ul style="list-style-type: none"> Develop baseline profiles of vulnerable and LMI populations in Pilot Area No. 1 and surrounding communities Focused outreach to LMI communities based on cultural norms within Pilot Area No. 1, through multiple language publications and social media Maximize benefits and minimize potential impacts on vulnerable and LMI populations, in comparison to the surrounding region 	<ul style="list-style-type: none"> Authored several best practice documents on the subject for the Federal Highway Administration (FHWA), such as An Overview of Transportation and Environmental Justice (Publication No. FHWAEP-00-013) Authored research work for NCHRP: Practical Approaches for Involving Traditionally Under-served Populations in Transportation Decisionmaking Conducted five public information meetings for the Dumbarton Rail Corridor project designed to engage a diverse constituent base, including LMI, minority, and limited-mobility populations. Bilingual advertisements and literature was provided and targeted outreach to community leaders boosted engagement.
<p>Historic and Cultural Resources</p> 	<ul style="list-style-type: none"> Potential for deeply buried prehistoric archaeological resources Potential historic bulkhead buried along shoreline Potential for the proposed flood mitigation project to separate historic resources from their original context Impacts of project on views from landmark bridges and natural scenic areas Ensuring compliance with Section 106 of the National Historic Preservation Act, as amended, including tribal consultation 	<ul style="list-style-type: none"> Review earlier studies including; Hackensack Meadowlands Sensitivity Evaluation, MJMC Master Plan and the Draft Cultural Resource Investigation of Ten Sites in the Hackensack Meadowlands and other available data sources Develop Holocene model and conduct additional archeological surveys as necessary Coordination with SHPO Conduct Phase IA Archaeological Survey Minimize impacts to cultural resources in project design 	<ul style="list-style-type: none"> Operates one of the largest cultural resource practices in the United States, and has a tremendous amount of expertise through its work in New Jersey since 1985 Provided cultural resource services to New Jersey Turnpike for multiple feasibility studies in area Developed Programmatic Agreements and worked with designers to get Adaptive Reuse of historic structures approved by SHPO and the federal Advisory Council for Historic Preservation, paving the way for project construction. Providing cultural resource assessment services for Sandy recovery projects along the north-east, including in New Jersey and New York.

Table 3-1. Environmental Analysis Standards and Criteria







Component	Key Considerations	Our Approach	CDM Smith/Louis Berger Team's Proven Ability & Insight
<p>Natural Resources</p> 	<ul style="list-style-type: none"> Accurate identification, classification, and jurisdiction of wetland boundaries Identification of floodplains in accordance with FEMA Preliminary FIRMs Preservation of the unique ecology of the Meadowlands region Protection of natural heritage sites, terrestrial and aquatic biota, significant wildlife habitat and essential fish habitat Appropriate mitigation measures Compliance with Section 7 of the Endangered Species Act, Section 404 of the Clean Water Act, and Executive Orders 11990 and 11988 (Wetlands and Floodplains) 	<ul style="list-style-type: none"> Conduct wetland delineation per 1987 and 1989 USACE Wetland Delineation Manual, and 2012 Regional Supplement for the Northeast Region Develop accurate mapping of sensitive habitat including wildlife habitat, wetlands and open water boundaries Prepare floodplain management plan in accordance with the HUD 8-step review for floodplains and wetlands, including all required public notices Consider opportunities for green linkages to existing ecological resources in project design Demonstrate the potential for ecological uplift for target species that can be obtained through project design that minimize impacts to natural resources and compensatory mitigation requirements 	<ul style="list-style-type: none"> Completed nearby projects, such as the Secaucus High School Wetland Enhancement and Pedestrian Boardwalk, and Rose Street Recreational Area USACE Jurisdictional Determination for the NJ Meadowlands Commission Completed thousands of miles of wetland delineations nationwide, including hundreds of miles within New Jersey and the Hackensack Meadowlands, and established wetland mitigation banks in the Meadowlands. Completed HUD Floodplain Management Plans for compliance with EO 11988 for NJDEP through numerous Environmental Assessments for the RREM program. Well-versed in the full range of activities required to assess and demonstrate program compliance with EO 11990, including the identification and delineation of wetlands, assessment of functions and services, identification of potential direct and secondary impacts, and documentation of mitigation actions including avoidance, minimization, and compensation.
<p>Hazardous Materials</p> 	<ul style="list-style-type: none"> Accurate identification of potential contaminated sites, regulatory program status, or phase of compliance Institutional controls, such as Classification Exception Areas (CEAs) for restrictions on the use of contaminated groundwater and existing long-term monitoring well networks, and Deed Notices (DNs) with engineering controls Site characterization in areas disturbed by construction and operation of the project Potential for contaminated river sediment, removal, or dredging of legacy sediments Potential for subsurface soil or groundwater contamination Selection of appropriate construction methods 	<ul style="list-style-type: none"> Prepare inventory of contaminated sites Develop accurate mapping of contaminated sites and sediments Conduct environmental due diligence assessment Conduct Phase I ESA for Pilot Area No. 1 Provide LSRP oversight throughout the project to achieve regulatory compliance under the New Jersey's 2009 Site Remediation Reform Act (SRRA), N.J.S.A. 58:10C-1 et seq Minimize impacts to contaminated soils, groundwater or sediment Integrate remediation technologies into proposed flood mitigation design, as appropriate 	<ul style="list-style-type: none"> Decades of working experience within the federal (USEPA) and New Jersey regulatory framework Worked with NJDEP under on-call contracts for remedial investigation and remedial design and cleanup services at more than 100 publicly funded remediation sites throughout New Jersey and over 25 years of working on USEPA CERCLA and RCRA sites Completed numerous and ongoing services for a number of contaminated sites with a range of contaminants and impacted media within Pilot Area No. 1 Awareness that the Hackensack River is being assessed by USEPA for possible classification as a Superfund site
<p>Infrastructure</p> 	<ul style="list-style-type: none"> Intersection of infrastructure networks including transportation, stormwater and sewer, energy, and marine infrastructure Critical infrastructure assets Marine infrastructure and coastal defenses, level of protection Community infrastructure needs as co-benefits Need for an updated smart utility networking within the Meadowlands 	<ul style="list-style-type: none"> Develop accurate mapping of sewer and stormwater infrastructure, integrate into hydrologic and hydraulic model Develop accurate mapping of the shoreline and coastal defense network, overlaid with ecorestoration and environmental sensitivity Assess criticality and identify key nodes in infrastructure systems Integrate green infrastructure and low-impact design Integrate infrastructure improvements with local co-benefits into project design Minimize construction costs while providing adequate infrastructure protection 	<ul style="list-style-type: none"> Completed environmental review documentation for significant infrastructure investments such as the HUD/FEMA funded Suffolk Sewers projects, which would invest \$380+ million in sewer extensions, as well as stormwater drainage improvements, bulkheading, green infrastructure, and other coastal protection projects throughout Long Island Completed siting and design of GI installations throughout NYC, including nearly 1,090 ROW bioswales, and currently managing NYC's MS4 compliance program, which includes GI applications Completed the Hoboken Green Infrastructure Strategic Plan which won a 2015 Planning Excellence Award from NJ APA Developing alternatives for CDBG-DR coastal defense infrastructure along the LIRR for RBD Mill River

Table 3-1. Environmental Analysis Standards and Criteria

Component	Key Considerations	Our Approach	CDM Smith/Louis Berger Team's Proven Ability & Insight
<p>Transportation</p> 	<ul style="list-style-type: none"> Interaction of all modes of transportation, on land and in water Water transportation routes and structures Mass transit connections, including major NJ Transit bus routes and the Secaucus Intermodal Center Freight transportation Creation of "complete streets" that accommodate pedestrians, bikes, and vehicles Teterboro airport, FAA permitting, and air space requirements Coordination among agencies responsible for local, state, and federal roadways 	<ul style="list-style-type: none"> Employ targeted stakeholder outreach with PANYNJ, FHWA, NJDOT, NJTPA, NJ Turnpike Authority, NJ TRANSIT, County and Municipal traffic engineers, FAA Engage community groups with riverine interests, such as the Hackensack Riverkeeper and NY-NJ Baykeeper Collect and analyze data to establish baseline conditions and understand interaction Mode three alternatives Minimize construction and operational impacts on traffic and transportation 	<ul style="list-style-type: none"> Worked extensively at Teterboro Airport with PANYNJ and the FAA, two critical entities that also have an impact on development in several areas within the District Provided program management for NJ Transit's transit friendly land use program, as well as ongoing modeling work for NJ Turnpike Authority
<p>Air and Noise</p> 	<ul style="list-style-type: none"> Identification of sensitive receptors Potential sources of air or noise pollution related to the proposed project and flood mitigation measures Changing traffic patterns Greenhouse gas emissions and sustainability considerations 	<ul style="list-style-type: none"> Map noise sensitive areas adjacent to project elements and construction activities Conduct noise monitoring at sensitive sites Assess compliance with NAAQA, conduct mobile source emissions analysis using MOVES2014, if applicable Model noise using SoundPLAN, if applicable Minimize temporary construction air and noise impacts through best practices 	<ul style="list-style-type: none"> Contributed to a 2012 NCHRP 25-25 project entitled Templates for Project-Level Analysis with MOVES, AERMOD and CAL3QHC; which provides extensive guidance and a template air quality technical report that helps streamline project level air quality studies and improve the quality and consistency of the technical documentation
<p>Construction Impacts</p> 	<ul style="list-style-type: none"> Potential for Traffic, Air, and noise impacts Practices for filling and excavation Interventions will be stretched out over several years, extending potential for construction impacts 	<ul style="list-style-type: none"> Development of a Construction Impacts Analysis that addresses all resource areas Construction staging plan Consideration of waterside transportation opportunities Potential use of barges/botas for materials hauling 	<ul style="list-style-type: none"> Responsible for the major construction analyses for the New Jersey Turnpike and can provide solutions in this regard as well to address potential community concerns Pioneered the proactive analytical attention to construction impacts through the creation of Environmental Performance Commitments (EPCs) for the construction of Lower Manhattan Recovery projects

regulatory framework to be developed for the project will also identify project elements that could possibly be incorporated into ongoing initiatives such as green infrastructure initiatives and as such, can be implemented independently and with greater expediency.

Task 4. Design Services

The team will provide NJDEP with a complete design package for the selected project derived from Tasks 2 and 3. The design package will be prepared in a format that complies with the requirements set forth in the DPMC Procedures Manual for Architects and Engineers, Second Edition, or subsequent editions. We will use information and data obtained from the Tasks 1, 2, and 3 in preparing the design package. All design documents will be prepared, signed, and sealed by a New Jersey Licensed Professional Engineer or Surveyor (as appropriate). This design package task will include, at a minimum, the preparation of the following items:

- Design Report (50%, 95%, 100%)
- Design Drawings (50%, 95%, 100%)
- Construction Specifications (50%, 95%, 100%)
- Permit Applications (50%, 95%, 100%)
- Bid Form (and supporting documents)
- Specifications (NJDEP, NJ DOT, other)

For the design, we will identify the expected drawings needed for the design, including:

- Survey drawings (existing conditions plan)
- Proposed conditions plan
- Geotechnical boring logs and data
- Stormwater infrastructure and control structures
- Stream diversion plan for construction of gates and other structures
- Plan and profile sheets for levees, stormwater pipes, gates and channels
- Cross-sections of detention systems and levees/berm
- Utility conflicts
- Civil details
- Structural drawings for flood control gates and other structures

- Plantings plans, notes, and details
- Maintenance/protection of traffic plans
- Soil erosion and sedimentation control plans, notes, and details

Where possible, the team will rely on annotated color photographs of the project area, including buildings and wetlands, and aerials to convey

area-specific construction details and include such photographs as part of the drawing package.

Avoidance and minimization of impacts to regulated resources and existing environmental contamination will occur during Tasks 2 and 3. In the design, we will include the design measures and construction sequences that address these issues.

Based on our experience in the project area, we anticipate challenging geotechnical subsurface conditions, such as uncontrolled fill areas, soft wetland soils, soft clay layers, and high groundwater table, in addition to contamination areas. The CDM Smith/Louis Berger team has extensive experience in designing cost-effective measures to mitigate any adverse geotechnical conditions.

For the levee design, we will perform seepage, stability, and settlement analyses in accordance with the USACE design guidelines and Engineering Manuals. A key design issue will be seepage control under flood conditions. The selection of seepage control measures must take into account the potential presence of contamination. For example, a soil-bentonite cutoff wall may be the optimum design choice, but construction of wall would result in a large volume of contaminated soil that would need to be managed, treated, and/or disposed.

In some areas, depending on the subsurface conditions and site constraints, a floodwall may be a better choice than a levee for flood risk reduction. The CDM Smith/

Key Factors Addressed - Task 4



Flood protection



HUD/FEMA funding



Regulatory approval



O&M



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Table 3-2. Anticipated Permits, Reviews, and Approvals

Anticipated Permit/ Certification/Approval	Purpose	Responsible Authority/ Agency	Compliance Triggers/ Applicability
Section 404 of the Clean Water Act	Protects wetlands/open waters	USACE	Dredge or fill in wetlands/open waters
Section 10, Rivers and Harbors Act of 1899	Regulates dredging/fill in navigable waters	USACE	Dredge or fill in navigable waters
Water Quality Certification, Section 401 of the Clean Water Act	Protects water quality	NJDEP	Fill in wetlands or open water
Waterfront Development Act	Regulates work in tidally flowed waters below mean high water level	NJDEP	Work below the MHWL
Bridge Permit, General Bridge Act of 1946 and Section 9, Rivers and Harbors Act of 1899	Regulates the construction, reconstruction, or modification of bridges and causeways across navigable waters of the United States	USCG	Construction of a bridge over a navigable water
Section 7 Threatened/Endangered Species	Protects listed species and their habitat	USFWS	Federal permits
Essential Fish Habitat Assessment	Identifies potential impacts to federally managed fish and their habitat	NOAA, NMFS	Federal permits
Coastal Zone Management, Federal Coastal Zone Management Act of 1972	Ensures coastal actions comply with federally approved coastal zone management program	NJDEP	Development impacts such as dredging, filling, intensity of development in a coastal water
Tidelands License/Grant/Lease	Protects lands that are currently and formerly flowed by the tide	NJDEP	Work in tidelands
Flood Hazard Area Permit	Mitigates adverse impacts of construction on the environment	NDEP	Work in Flood Hazard Areas or Riparian Zones
NJ No Net Loss Reforestation Act	Requires state entities to replant trees when they are removed during construction	NJDEP	Impacts to 0.5 acre or more of forested land owned by a state entity (no counties or municipalities)
Clean Air Act, General Conformity Rule	Ensures consistency between federal actions and State Implementation Plans for improving air quality. Construction and operation emissions compared to the minimum thresholds to determine whether a general conformity determination is required	Lead federal agency, USCG	Federal Permits General conformity determination (including hot-spot analysis) required if minimum criteria exceeded.
FHWA Noise Regulations 23 CFR 772/ State Pollutant Discharge Elimination System (SPDES) Permit	Requires highway noise analysis using TNM2.5 Requires application for an erosion and sediment control plan, a stormwater pollution prevention plan, a post-construction stormwater management plan	Applies if FHWA funding/ approval involved NJDEP	Triggered for "Type 1" project if there is substantial change in horizontal or vertical alignment or addition of travel lanes Stormwater from a sole source site
Stormwater Pollution Prevention Plan (SWPP)	Assesses temporary and permanent measures and practices used to avoid or minimize during construction	NJDEP Bergen County Soil Conservation District	Construction that would cause pollutants to enter stormwater

Anticipated Permit/ Certification/Approval	Purpose	Responsible Authority/ Agency	Compliance Triggers/ Applicability
Post Construction Stormwater Management Plan	Assesses temporary and permanent measures and practices used to avoid or minimize after construction	NJDEP Bergen County Soil Conservation District	Monitoring and maintenance of post construction stormwater structures
Section 4(f)	Protects publicly owned parks, recreation areas, wildlife, or waterfowl refuges and historic sites	USDOT/FTA	Federal approval or funding of a transportation project if the project requires use of a publicly owned park, recreation area, wildlife or waterfowl refuge area, or any significant historic site, unless (a) there is no prudent and feasible alternative, and (b) all possible planning to minimize harm to the resource has occurred.
National Environmental Policy Act (NEPA)	Requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions		Federal permit/approval/funding
Section 106 of the National Historic Preservation Act (NHPA)	Requires federal agencies to consider effects of undertakings on historic properties; provide the Advisory Council on Historic Preservation (ACHP) opportunity to comment on such undertakings.	Lead federal agency, ACHP NJ Historic Preservation Office	Federal agency involvement: funding, permits, or property
NPS Director's Order (DO) 12: Conservation Planning, Environmental Impact Analysis, and Decision Making	Provides guidance for National Park Service (NPS) NEPA compliance		Federal action, approval, or permit by NPS
EPA RCRA 40 CFR Part 262	Assigns contractor a unique generator number for each project site issued by the EPA. This number needs to be on ALL waste leaving the site (except for ACM).	USEPA	Needed for any commercial/industry owner that will involve hazardous materials other than asbestos (i.e. Lead, PCB)

Louis Berger team has extensive experience designing floodwalls and closure gates. Design of the closure gates will require a stream diversion plan, including potential a cofferdam and stream bypass, to construct the gates in the dry. Included in this task will be the development and submission of required permit applications and associated mitigation plans. The team will schedule a multi-agency pre-application meeting to obtain agency input and facilitate application development.

Task 5. Bid Phase Services

The CDM Smith/Louis Berger team has developed numerous bidding documents for large civil infrastructure projects, including flood control and wetland restoration. We have incorporated lessons learned from each of the projects to improve our bidding specifications and contract language. Our experience and knowledge is invaluable toward the creation of clear, concise, efficient and fair procurement documents and contract terms for the construction contractor.

The following text outlines a general scope of services for all projects bid under the New Meadowlands Pilot Area No. 1 contract.

Key Factors Addressed - Task 5



Flood protection



HUD/FEMA funding



Regulatory approval



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Bidding Assistance

At the request of NJDEP, the team will copy and distribute sets of contract documents (plans/specifications/Introduction to Bidders and General Conditions) to all bidders in accordance with RFP Section 7.2.5 (Bid-Phase Services).

We understand that NJDEP will utilize its existing pool of pre-qualified contractors to bid on the construction packages developed for this program. From our team's experience, we applaud this approach since we believe this process tends to mitigate and control risks. In fact, our preferred approach typically is to include, at minimum, experience levels and measurable performance standards in the contract specifications to pre-select contracts. Thus, through NJDEP's pre-selection of contractors, the first critical step to effective implementation is already available.

Pre-bid Meeting and Preparation of Addendum

The CDM Smith/Louis Berger team will assist NJDEP in holding a pre-bid meeting for the project with all prospective bidders to review bid procedures, outline the scope of work and address comments concerning the bid documents. We will then prepare meeting minutes that clearly document the discussion that took place at the meeting. Bidders' formal questions will need to be submitted in writing to NJDEP. Copies of the pre-bid meeting minutes will be distributed to all attendees as part of a Bulletin to the bid documents.

A specific time frame will be established by NJDEP for contractors to submit questions. As requested, the CDM Smith/Louis Berger team will receive/respond to questions from the bidders and, if required, will

prepare Bulletin(s) for review and approval by NJDEP to interpret, clarify, or expand the contract documents. The Bulletin(s) will be distributed to all prospective bidders by NJDEP.

Bid Evaluation

NJDEP will attend the bid opening for the project and record the documents submitted by each bidder. All bids will be evaluated for correct mathematics and conformance with insurance, bonds, appropriate DPMC pre-qualification category and any other provisions required by the bid documents. Following review of the bids and the CDM Smith/Louis Berger team's opinion of probable construction cost, along with discussion with NJDEP, we will provide a formal recommendation to NJDEP for award of the construction contract.

Post-Bid Meeting

Following selection of the contractor but before signing a contract, NJDEP and the CDM Smith/Louis Berger team will meet with the contractor to discuss any significant variations between the contractor's bid and the engineer's opinion of probable construction cost. Once all issues are discussed and all parties accept the bid price and scope, then the contract can be signed and a notice to proceed issued to the contractor.

Task 6. Construction Administration Services

Our team has proven and tested internal and external procedures for construction administration and contract management including progress and budget tracking, budget projections, invoicing, reporting, document controls and related administrative functions. We employ industry-leading management and budget tracking systems to control the work product and expenditures of contractors or subcontractors. We have employed these management procedures on large infrastructure programs throughout the country, as well as New Jersey's CDBG Environmental Assessment Field Contractors for Environmental and Historic Reviews Program.

Our contract management procedures form the front line of accurate documentation and fraud control. Oversight of construction contracts is a comprehensive process that utilizes many of the same tools and controls as those used

for management of other CDM Smith and Louis Berger construction contracts. Documentation, invoicing, and auditing are intimately

related activities that combined with our effective and focused field monitoring are essential elements of our management plan.

Based on the RFP, we understand that NJDEP intends to engage a Construction Management Firm (CMF) separately to provide program and construction management services for the overall project. The CMF will provide day-to-day oversight, and the CDM Smith/Louis Berger team will conduct site visits at regular intervals and at critical milestones on the project. The CMF will coordinate on design matters with the CDM Smith/Louis Berger team as necessary.

Pre-Construction Meeting

The team will prepare the documents required for award of the construction contract and will coordinate execution of the contract with the contractor, CMF, and NJDEP. The team will distribute three sets of conformed plans and specifications to the contractor and two sets to NJDEP.

The team will assist the CMF to plan, schedule, and conduct a pre-construction conference with the contractor, NJDEP, appropriate local Pilot Area No. 1 municipal officials, utilities, and other involved agencies. Procedural guidelines and specific project requirements will be discussed at this conference, as well as the following subjects:

- Project communications
- Correspondence routing and distribution
- Shop drawing submittal procedures
- Operation and maintenance manual/information submission procedures
- Scheduling requirements and procedures

Key Factors Addressed - Task 6



Flood protection



HUD/FEMA funding



Regulatory approval



O&M



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- Progress payment procedures
- Change order procedures
- Cooperation with Pilot Area No. 1 municipal staff
- Utility coordination
- Storage of materials
- Site restoration
- Superintendence requirements
- Start-up requirements and procedures
- Emergency procedures
- Control of work provisions of the specifications
- Other agency requirements (permits, inspections, etc.)

The team will prepare minutes to the pre-construction meeting and distribute them to all in attendance.

Meetings/Site Visits/Progress Reporting

The team's Construction Administration Services lead, Warren Newman, will attend monthly progress meetings conducted by the Resident Project Representative and will periodically visit the site during the construction phase to observe the work. In addition, key members of the team's design team will make periodic site visits to observe the work associated with their discipline.

The team will prepare a single monthly construction report to NJDEP that will include the status of the project, cost summary, work completed, work anticipated in the coming month, schedule review, and discussion on significant issues.

Shop Drawings

The team will review shop drawings, samples, test results and other data that the contractors are required to submit for compliance with the contract documents. Appropriate material tests will be witnessed as required by the contract documents and those failing shall be rejected for use on the project. The team will review the acceptability of substitute materials and equipment proposed by the contractors, and will prepare recommendations for NJDEP approval. The project specifications will require the contractor to demonstrate the acceptability of

substitute materials. Redesign as a result of a substitution will be an additional service and is not included in this scope of work. Also, the team will review maintenance and operating instructions, schedules, guarantees, bonds, and other certificates of inspection that are to be assembled and submitted by the contractors.

Shop drawing administration will require accurate tracking of submittals. The team will use Expedition by Primavera, or a similar program, to log shop drawing submittals. This log provides complete information on the status of each shop drawing and can be updated daily. The system allows the team to quickly identify delays in shop drawing submissions or reviews and take action to minimize schedule impacts.

Requests for Information (RFIs) & Change Orders

The team will provide responses to RFIs and prepare design clarifications and other routine supplementary information. The key to avoiding contractor claims is promptly and efficiently processing RFIs, and identifying and authorizing changed work quickly. Efficient procedures for authorizing, evaluating, negotiating and finalizing change orders will be developed at the start of the project to control the authorization and execution of extra work while minimizing construction delays.

Change order requests will be logged and monitored to maintain an accurate update of additional anticipated construction costs or potential claims. Upon receipt of a proposed change from any party, the team will promptly discuss the change with appropriate NJDEP personnel, and a decision will be made on how to proceed in accordance with the contract documents.

If a change order is required, the team's Construction Manager will notify the contractor to proceed and then prepare the change order documentations. Once the change order documents are assembled, a review session will be held with NJDEP. This session will include reviewing the necessity for the change, reasonableness of the costs, and adequacy of the supporting documentation. Final copies of the change order will then be prepared for distribution to NJDEP and the contractor.

Record Drawings

The team will keep a "red line" set of contract documents that will include all approved changes or deviations from the original design. Record information, including field changes and changes resulting from the shop drawing process, will be included. These changes, as well as the record information provided by the contractor, will be incorporated electronically on the record documents, and two sets of record prints and an electronic record copy will be furnished to NJDEP at project close out.

O&M Information

The team will furnish NJDEP with a memorandum to accompany a bound copy of the O&M information submitted by the contractor. The memorandum will provide a basic description of operation and maintenance procedures.

Resident Engineering/Inspector

The team assumes that the CMF will provide a full time Resident Project Representative (RPR) for the construction projects.

Task 7. Community Relations, and Technical Support

Throughout the entire project, the team will work closely with NJDEP to organize and implement regular outreach, including, but not limited to the following: Purpose and Need meetings, scoping/data gathering meetings, screening criteria/metrics meetings, concept screening workshops, alternatives analysis workshops, public meetings, public hearings, and working group meetings. The goal of this effort is to develop a holistically minded project rooted in ongoing stakeholder communication and cooperation, meeting both short and long-term resiliency. Louis Berger scientists attended NJDEP's January and February 2015 public outreach meetings for this project and understand that the public needs to be re-engaged in this process.

The outreach efforts will support the development of a project that is based on community feedback and will provide stakeholders with another tool at their disposal to evaluate their community's goals. It is vital that the public understands:

- Risks and vulnerabilities of their communities

- How NJDEP plans to meet their needs through a regional approach, ensuring short- and long-term benefits from the resulting project

Key Factors Addressed - Task 7



**Concurrent
FS/DEIS by
May 2017**



**Alternative
solutions**



**Flood
protection**



**HUD/FEMA
funding**



Resources



**Regulatory
approval**



O&M



**A Blueprint
for
Resiliency**

The resulting discussions will encourage stakeholders to provide information on local resiliency problems that need to be addressed

by the final design. Our team will build off data obtained by others (NJIT and the RBD team) during previous resiliency efforts.

Based on the feedback solicited, the team will employ a variety of tools to identify systematic vulnerabilities that exist within the region. These tools will include, but not be limited to historic resiliency-testing, interactive mapping, and data analysis. These activities will highlight the region's most vulnerable resources on a local level and allow for the creation of a final design that meets the needs of all stakeholders.

Potential Deliverables

Community Outreach Plan: A Community Outreach Plan (COP) will be developed in collaboration with project stakeholders and will serve as a roadmap for public and interagency involvement in the project. The COP will include a list of outreach activities, deliverables, and a proposed schedule. Flexibility will be built into the COP to take advantage of opportunities that may come up during the course of the project or to adjust to NJDEP's needs.

Stakeholder Identification: Stakeholder identification is a collaborative process of research, debate, and discussion that draws from multiple perspectives to determine a key contact list across the entire stakeholder spectrum. With existing relationships on the governmental and community level, the team will be able to identify stakeholders critical to project success, relaying this information to

NJDEP. An extensive contact list of stakeholder groups was developed as part of the initial RBD project proposal process. This list will be used and updated to maintain ongoing contact with the community, transfer information, and publicize public meeting opportunities via meeting flyers and email notices. A database of contact information will be developed that will contain the names and addresses of project area representatives, media organizations, and representatives from the community, business, and environmental groups, as well as other stakeholders. The list will be continuously updated as the project develops.

Issues Identification: Engaging stakeholders on how they will have to adapt to the project will be a complex and challenging task. The impacted municipalities have many questions and uncertainties associated with the impact that the project will have on their community's future. Furthermore, these towns already have a myriad of problems that they continue to face in relation to rebuilding after Superstorm Sandy. The team will work with stakeholders to identify those issues that matter most. Issues may include, but not be limited to:

- Local flood mitigation needs/concerns
- Preparation of health and safety plans
- Community vulnerabilities and challenges
- Short and long-term impacts/desired vision for the future
- CBA evaluation
- Project design in relation to municipal adaptation
- FS, Alternatives Analysis, and EIS

Community Goals Definition: The team must identify goals, concerns, and objectives from the community perspective, as well as the RBD team, ensuring that any dissonance between them is addressed and mitigated openly and at the forefront of project development. Anticipated concerns of each town vary; however, some broader issues may encompass some of their overarching goals for development in the area. Items that community members and stakeholders will likely want to be addressed include, but are not limited to the following:

- Synthesizing current Sandy rebuilding activities
- Mapping existing infrastructure to ensure all flood hazard areas and mechanisms are addressed and considered throughout the RBD project period
- Developing coterminous projects that benefit residents
- Developing projects to build resiliency
- Ensuring involvement and engagement of community members
- Establishing and including long-term and short-term flood mitigation activities for each community to better protect property and improve the livelihoods of each resident, specifically those vulnerable to severe and/or repetitive flood loss

Civic Advisory Committees: The CDM Smith/Louis Berger team can assist NJDEP in forming a civic advisory committee (CAC) that meets regularly throughout the planning process. A CAC is comprised of a diverse group of stakeholders and typically includes government representatives. They foster stakeholder dialogue, educate members on technical issues, and offer members the opportunity to influence project decisions. CACs are democratic and representative of opposing points of view, with equal status for each member in presenting and deliberating views and in being heard. They may make formal recommendations to NJDEP or HUD.

NEPA Scoping Meetings: The CDM Smith/Louis Berger team will conduct two scoping meetings, with one likely for the general public and one geared toward public agencies. The purpose of these meeting(s) will be used to: initiate the agency scoping process, promote stakeholder coordination over the life of the project, receive input regarding the purpose and need of the project, and identify important issues among participants. The scoping meetings will seek to gain consensus on the broad project goals. A summary of existing deficiencies in the project area and a draft purpose and need will be presented by the team for input by the participants. Baseline environmental data will be introduced to allow community input on areas of possible further study and/or concern. The meetings will also seek to inform the stakeholders

Key Project Stakeholders

Key project stakeholders include:

- USEPA
- USACE
- NJ Office for Recovery and Rebuilding
- NJSEA/Meadowlands Commission
- Meadowlands Conservation Trust
- PANYNJ
- PSE&G
- Rutgers University/Meadowlands Environmental Research Institute (MERI)
- Various warehouse owners
- Hackensack Riverkeeper
- Municipal mayors
- Municipal Council members
- Community residents
- USFWS
- NOAA
- NJDEP
- FEMA
- HUD
- NJ Transit
- NJ Turnpike Authority
- NJ DOT

on the various disciplines that will be researched and the methods that will be used.

Public Informational Meetings: The public informational meetings will be a critical element of the outreach effort. They will be used to gather public comments and provide an opportunity for broad participation, the objective of which is engaging citizens and stakeholders to contribute to the study process, so that the outcomes of the project will be understood and widely supported.

The first meeting will serve as an opportunity to educate and raise awareness about the issues and opportunities in the study area. It will also highlight the spectrum of decisions that face the stakeholders and the range of alternatives and opportunities available for the area. The second meeting will involve a detailed review of the alternatives developed to date. The meeting will also discuss the alternative analysis process and evaluate the criteria and metrics that will be developed and used within the alternative analysis matrix. The matrix will be developed through local official, agency, and public input, which will be used to create a shortlist of the concepts, advancing project alternatives for further study. The third meeting will present a review of build alternatives that were advanced for further study. Build alternatives will be further analyzed through the development of an



The members of this team attended NJDEP's January and February 2015 public outreach meetings for this project and understand the need to re-engage the local public in this process.

Alternatives Analysis Matrix, which will ultimately result in the selection of the Preferred Alternative.

Public Hearing: Similar to the scoping hearing, the CDM Smith/Louis Berger team will prepare for, conduct, and attend one public hearing during the DEIS comment period. It will provide logistical support similar to that provided at scoping and other public meetings.

Workshops, Seminars, Symposia: Workshops, seminars, and symposia are classroom, lecture-hall, and round-table venues that can be used to bring technical information to a wide audience ranging from academia to the general public. The team will conduct workshops and seminars on targeted topics if there is sufficient public interest in a subject and will participate in symposia hosted by local academic institutions as appropriate.

Surveys and Focus Groups: The CDM Smith/Louis Berger team will consider conducting print or telephone surveys to solicit public feedback. It will also consider conducting focus groups to “tap into” public concerns, issues, and feedback regarding the project or specific issues within the project. Surveys and focus groups allow the team to continue to identify and address community concerns and issues pursuant to the project and also serve as a “snapshot in time” of the effectiveness of NJDEP communication with the public and the establishment of meaningful dialogue.

Community Asset Mapping:

Community asset mapping is a participatory planning tool that engages stakeholders in exploring their assets within their physical and social environment. The purpose is to create a concrete output (i.e., a map, either in paper or web based format) that can be incorporated into formal and/or informal community planning processes. If an asset map is combined with data showing other community information (such as where most people live, the number and locations of parks and recreation spaces or where critical infrastructure and impacted waterways lie), NJDEP can use asset maps for

targeted outreach to residents that represent specific neighborhoods or demographics. By providing various types of asset maps, including infrastructure maps and tax maps that note riparian rights, the team will ensure that stakeholders and community members have the data-informed background to actively and appropriately engage in discussions about project implementation, design, and maintenance.

Informational Materials: Up to three informational newsletters and/or fact sheets will be developed at key project milestones to communicate highlights of the study process. Newsletters printed in simple and graphically-rich formats are an effective way to present information on the project, including brief information about the project, contact information, project website address, and upcoming meeting dates. Newsletters will be no more than four pages in length, and fact sheets will be a single-page with text and graphics on both sides. Per HUD requirements, all newsletters and/or fact sheets will be provided in English and Spanish.

Social Media: The CDM Smith/Louis Berger team will use social media to inform the public and stakeholders of project efforts. This will primarily be done through existing social media outlets (e.g., Facebook, Twitter, Flickr, Instagram, and YouTube). The team will work with municipalities and others to craft Tweets and other social

media to place on their accounts at key milestones and in advance of public meetings.

Coordination with Stakeholder Points of Contact:

Because the team envisions proactive communication and negotiation with stakeholders, it will solicit regular feedback from stakeholder points of contact (POCs) and relay feedback from Stakeholder POCs to the RBD team. One method of soliciting feedback will be through monthly meetings with Stakeholder POCs. The team will also solicit regular feedback via phone, email, and social media.

3.2 Task Assignments and Responsibilities

The assignments and responsibilities for key personnel on the CDM Smith/Louis Berger team are presented in Table 3-3.

3.3 Contingency Plan

The CDM Smith/Louis Berger team has been a trusted partner to NJDEP on many environmental assessment and infrastructure projects. Our mission to be a high value provider of assessment and design/construction services is predicated on our thoughtful and deliberate technical approach to project delivery and the dedication of key staff. We believe various team member's history of anticipating and pre-empting potential problems will provide a framework to minimize project technical and administrative issues. This approach is supplemented by the QA/QC procedures governing the project, which are described in Section 3.4.

The experience of the team's personnel and high regard for quality and safe operations require that outcomes or contingencies be evaluated before a task is initiated. Our philosophy is to prevent problems. To this end, we have integrated several precautionary best management practices (BMPs) into each phase of the project to avoid re-work, data gaps, and unsupported assumptions. These BMPs include performance of a gap analysis on data sets prior to modeling and incorporation into the FS, multi-criteria decision analysis to evaluate and address bias in stakeholder input, and identification of contingency plans to prevent Stop Work during site investigation activities and construction. In addition, precautionary BMPs will be incorporated into the development of proposed alternatives

presented in the FS to address technical and scope issues that may arise from climate change effects. Table 3-4 presents risks identified at the proposal stage and approaches to alleviate/mitigate those risks. Figure 3-6 displays each risk's probability and impact to the critical path of the project.

An internal kick-off meeting will be held for each task order. In this meeting, possible/problems and the approaches to resolve them along with the identification of most (if not all) related stakeholders will be brainstormed. The most probable contingencies will then be discussed with NJDEP's Project or Contract Manager. In addition, weekly coordination meetings will allow task project managers and the technical manager to investigate and develop solutions on a timely basis prior to significant cost or schedule impacts occurring.

When an anticipated problem occurs, the team will conduct the mitigation approach outlined in Table 3-4. If a problem is encountered that was not previously identified, the following six steps will be performed in a time-is-of-the-essence fashion:

1. Obtain as much available information as possible, verify the source of information and inform the project and program managers of the problem at hand.
2. Maintain clear, effective and up-to-date communications with NJDEP's Project Manager and/or Contracting Officer.
3. Proactively, and jointly with NJDEP, work on a win/win solution to the problem or oversight, with emphasis on meeting contractual requirements and serving the public as licensed professionals.
4. Retroactively correct all affected deliverables and/or calculations, assumptions, and conclusions.
5. Follow up with a formal correction action memorandum (CAM) that describes the problem, the contractual or cost issues, recommendations, and a monitoring plan to document that the error was corrected; how all affected particulates were properly address; how the error was corrected; and how the work can be monitored in the future to prevent re-occurrence.

Table 3-3. Key Personnel Tasks & Responsibilities

Name	Project Role	Responsibility
Executive Leadership		
Thomas Schoettle	CDM Smith Contract Executive	Serve as the point-of-contact with NJDEP and NJDPMC on all contract matters. As needed, provide guidance on contract matters to program and task managers.
Thomas Lewis	Louis Berger Contract Executive	Serve as point-of-contact between CDM Smith and primary subconsultant, Louis Berger, on all contract matters.
Program Management		
Maria Watt	Program Manager	Assume overall responsibility for delivery of New Meadowlands project, including resource allocation, planning, communication, and quality management. Set strategy and objectives for the project team. Serve as primary point-of-contact between the CDM Smith/Louis Berger and NJDEP New Meadowlands teams.
Sean McGonigal	Assistant Program Manager	Provide assistance to Program Manager. Act as primary point of contact between the CDM Smith and Louis Berger project staff.
Program Management Support		
Arnold Bloch	Community Outreach Lead	Provide support to Program Manager and Assistant Program Manager on key programmatic issues. Assist in coordination, management, and deployment of program resources to ensure uniform delivery throughout the project lifecycle. Serve as key technical advisors and subject matter experts to the Program Manager and Assistant Program Manager.
Susan Scavone	Grant/Economic Redevelopment Support Lead	
Steven Green	HUD CDBG-DR Compliance Lead	
Timothy Hillier	FEMA Compliance Lead	
Ginger Croom	USACE Coordination Lead	
Craig Gladberry	Project Controls	
Quality Assurance/ Quality Control		
Gul Khan	Civil and Ecological Design	Ensure the project quality management procedures are fully implemented in an organized and efficient manner. Work closely with the Program and Assistant Program Managers to conduct periodic independent reviews of all work products throughout the project life cycle.
Lawrence Peseky	Planning	
Michael McCloskey	Site Investigation/Remediation	
Thomas Nye	Hydrologic and Hydraulics	
Michael Schultz	Geotechnical/Berm Design	
Timothy Feather	Flood Control	
Task Managers		
Nicolaas Veraart	EIS Task Manager	Manage preparation of the EIS and coordination with FS preparation.
Peg McBrien	Regulatory Compliance Manager	Provide support to EIS Task Manager throughout EIS preparation. Manage regulatory coordination throughout the project lifecycle.
Michael Schmidt	Feasibility Study Manager	Manage preparation of the FS and coordination with EIS preparation.
Stephen Whiteside	Design Manager	Provide support to the FS Task Manager throughout FS preparation. Implement design of recommended flood control alternative.
Warren Newman	Bid/Construction Administration Task Manager	Manage bidding services and construction tasks. Provide support to Design Manager and conduct constructability reviews of during alternative evaluations and of recommended alternative.

Figure 3-6. Risk Management Analysis for the Pilot Area No. 1 project.



6. The CAM would be entered into a database so that lessons learned can be used to benefit other current and future project properties.

Section 3.4 Quality Control and Oversight

The services provided under this contract will be executed with the same rigorous focus on project controls, timely delivery of technical resources and emphasis on quality management typical of CDM Smith's and Louis Berger's prior work with NJDEP and DPMC contracts.

In addition to our extensive experience with the services required for the successful development of this project, our team is committed to the overall quality management of the work and program. Particularly in the case of a project with a tight time-frame, it is imperative that the control of quality through quality checks and quality assurance is defined in a Quality Control Plan from the

kick-off of the project and that the plan is understood by the entire team.

At CDM Smith, quality is defined as meeting or exceeding the expectations of our clients and those we set for ourselves. Outstanding client service, one of CDM Smith's key differentiators, is best achieved by delivering quality projects to our clients consistent with our core values and the business approach embodied in our philosophy of our brand.

CDM Smith's quality management process will be adopted by the team for this project. This rigorous quality management program has three main elements: client participation, project planning, and continuous improvement. Achieving quality requires vigilance and scrupulous attention to the standards set forth by clients, professional associations, regulators, and internal CDM Smith standards and processes. To codify this commitment to quality, CDM Smith has developed our Quality Management System (QMS) to address project needs and

Table 3-4. Project Risks & Mitigation Plans

Risk Identification	Probability	Impact to Critical Path	Mitigation Approach
EIS			
Identification of threatened and endangered species nesting area/habitat not previously known	High	High	Modify proposed alternatives to prevent disturbance of threatened and endangered species nesting area/habitat identified during the EIS. Modifications will be discussed and approved by NJDEP prior to incorporation into the FS.
Identification of archaeological/cultural resource areas not previously known	Medium	Medium	Modify proposed alternatives to prevent disturbance of archaeological/cultural resources identified during the EIS. Modifications will be discussed and approved by NJDEP prior to incorporation into the FS.
A comprehensive data set is not available to adequately determine demographics of the area	Medium	Low	Conduct a gap analysis to determine if sufficient data collection has been performed to meet model and project objectives. If a data gap is identified, the project team will perform measures to address the gap prior to moving to the next phase of the project.
H&H, Water Quality, Geomorphic and Coastal Modeling			
A comprehensive data set is not available to adequately model flooding, climate change impacts, stormwater flow, hydrogeology, and mitigation controls	Medium	High	Conduct a gap analysis to determine if sufficient data collection has been performed to meet model and project objectives. If a data gap is identified, the project team will perform measures to address the gap prior to moving to the next phase of the project.
Geotechnical Conditions			
Access and permitting issues prevent collection of geotechnical samples and analysis	Low	Low	Contingency sample locations will be presented in the geotechnical scope of work to facilitate data collection when access/permitting issues prevent collection at proposed locations.
A comprehensive geotechnical data set is not available to adequately model subsurface conditions for the project site.	Medium	Low	Conduct a gap analysis to determine if sufficient data collection has been performed to meet model and project objectives. If a data gap is identified, the project team will perform measures to address the gap prior to moving to the next phase of the project.
Contamination			
Unknown contamination is encountered during the geotechnical investigation	High	High	Conduct an assessment of existing contaminant data in relation to areas being impacted by the project. Prepare a waste management plan to manage contamination during construction and other intrusive activities. Excavated material will be screened with a photoionization detector (PID) and physical observed for staining and odors. If unknown contamination is encountered, intrusive activities will be halted to modify the health and safety plan and waste management plan, if needed.
Certain contaminated sites may be under Consent Order remediation requirements with very specific metric and performance standards	High	Medium	These interventions will be carefully evaluated to ensure that they do not compromise pre-existing legal agreements nor trigger additional permit requirements. In addition geotechnical analyses will be conducted to ensure that drainage and settlement issue do not interfere with existing monitoring and protective systems
Coastal Risk and Climate Change Impacts			
Increased precipitation, storm surge, and sea level rise impacts are greater than anticipated during development of alternatives	High	Medium	Conduct periodic aggregation of related climate data and identify data gaps, especially as severe weather events occur and new climate projections are established during development of alternatives. Integrate resilient climate adaptation practices and technologies into the FS.

Table 3-4. Project Risks & Mitigation Plans

Risk Identification	Probability	Impact to Critical Path	Mitigation Approach
Increased frequency of heat waves and overall increase in temperatures are greater than anticipated during construction	Medium	Medium	Design wetlands and vegetation to be self-watering from river and stormwater sources. Time the construction of landscape vegetation wetlands and marshes for seasonal considerations. Plan for emergency water sources for irrigation.
Critical infrastructure located near the shore will be exposed to the risks associated with sea level rise. According to the most recent FEMA maps, several critical facilities in the Meadowlands will be exposed, including the Bergen County WWTP and PSEG Bergen Generating Station	High	Low	Evaluate the different alternatives in context of the increased vulnerability to storm surge resulting from sea level rise projections, and adequately protect against this heightened risk.
Impacts on human health due to reduction in air quality during construction could be a stakeholder concern, including the local community	Medium	Low	Develop measures to reduce impacts to air quality during construction activities. Measures may include, but are not limited to, dust suppression, no idling plan, and low emission equipment.
Impacts on human health due to more frequent extreme precipitation events is identified as a stakeholder concern, including the local community	Medium	Low	Integrate controls to prevent sewage overflows and pollutants from entering the water supply during extreme weather events.
Property Acquisition			
NJDEP cannot acquire properties to construct proposed mitigation project	Medium	High	Modify proposed alternatives to construct mitigation controls and facilities on properties approved for construction. Modifications will be discussed and approved by NJDEP prior to incorporation in the FS. Assist NJDEP with identifying alternate construction locations.
Community Outreach			
Stakeholder input is biased towards "loudest person heard" or may be in conflict with each other	Medium	Low	Conduct a multi-criteria decision analysis (MCDA) to appropriately weigh and normalize the resulting indicators and alternatives based on their input to avoid incorporating biased information in the FS.
Stakeholder input changes based on recent weather events, newly published climate data, etc.	Medium	Low	Perform periodic sensitivity analyses when conducting the MCDA to increase the importance (or value) of a specific indicator(s) to reflect stakeholders' changing views.
Ecosystem Functions			
While the Meadowlands has seen great progress over the past decades in restoring the area ecosystem of wetlands and uplands, future climate change effects, including repeated severe storms resulting in erosion and contaminant release, will require careful positioning of the flood management structures (both green and grey) to maximize the benefit to the Meadowlands ecosystem	Medium	Low	Position the flood management structures (both green and grey) carefully to maximize the benefit to the Meadowlands ecosystem. Specific attention will be paid to opportunities to integrate existing wetlands and restored wetlands in to larger functioning systems that will be more resilient to the effects of severe weather events and sea level rise.

specific phases, including manuals for design, services during construction, field services, and design-build.

To achieve quality in construction and engineering, CDM Smith has established Quality Management Process Manuals (QMPs) under our larger QMS, which contain documented internal practices and procedures. The QMPs promulgate organizational roles and responsibilities for plan implementation and establishes QA/QC function independence from operational organizations. The QMPs contains procedures and guidelines to be followed in the development and execution of all CDM Smith projects, and can be provided to NJDEP upon request.

Section 3.5 Understanding of DPMC and NJDEP Procedures and Processes

Both CDM Smith and Louis Berger have assisted NJDEP in disaster recovery support and performance of environmental reviews of HUD-funded programs, as well as numerous other environmental remediation and design contracts over the past 20 years.

Through our decades of combined experience, our team members understand how critical it is to execute project work in strict adherence with contract terms, as well as how essential it is to tailor procedures to individual department needs and NJDEP project manager preferences. For example, firm contract-dictated procedures include developing work orders for labor costs, office other direct expenses (ODCs) and audit reserve funds; developing contract modifications for all non-office ODCs, establishing programmatic subcontractors, establishing and updating staffing rosters, completing quarterly small/disadvantaged business enterprise reporting, and working with NJDEP auditors to assess disbursement of audit reserve funds. Task order procedures not explicitly defined by the contract are developed directly with the NJDEP project manager.

Section 3.6 Knowledge and Familiarity with HUD Requirements

CDM Smith/Louis Berger team is confident we can successfully support and help provide advisory, consulting, and project management support services to ensure HUD CDBG-DR funding for the New Meadowlands project. Because of our experience delivering similar, successful

I consider CDM Smith's work to be of excellent quality ... [they are] a top performer in terms of quality and timeliness ... and have consistently provided excellent work."

- Donna Mahon, NJDEP

programs for local and state governments across the United States, we can draw upon lessons learned, previously developed policies, procedures, protocols, and successful infrastructure, housing, and economic development programs to implement HUD's CDBG-DR program and FEMA grant funding, as well as other potential funding sources that may be utilized for the project. The team understands the complex HUD regulations, policies and guidance from previous programs—intelligence that will be critical in developing alternatives that meet HUD requirements.

The team staff supporting this program have years of experience in CDBG-DR programs. All FEMA projects require a local match and, in many cases, CDBG is used for that purpose. Also, there are many FEMA-ineligible costs that can be funded through CDBG; it is necessary to have staff that understand the relationships between the federal programs to maximize the benefits to the affected areas while minimizing local expenditures. The CDBG program comes with a variety of eligibility requirements and regulations, and it is fundamental to the success of the program to ensure all expenditures are in accordance with all federal regulations.

The CDM Smith/Louis Berger team has gained unparalleled post-natural disaster CDBG-DR funding administration by helping states and communities design CDBG-DR funded projects, as well as comply with the environmental and other regulations stipulated by this program:

- CDM Smith's experience with funding through FEMA reimbursement and HUD CDBG-DR was instrumental in a recently awarded a **\$9.5 million contract with the State of New Jersey, Department of Community Affairs** to assist in developing Action

Plans that will be used to help distribute financial assistance to residents and businesses devastated by Sandy.

- For the **New York Rising Community Reconstruction Program (NYRCR)**, CDM Smith and Louis Berger collaborated closely with integrated multi-disciplinary teams charged with supporting initial community recovery planning efforts by providing technical guidance to planning committees for communities in Brooklyn, Queens, Staten Island, Nassau County and Ulster County to produce their Community Recovery (CR) Plans, as well as the completion of critical studies to determine key vulnerabilities and the needs of each community. The planning process for the development of the reconstruction plans was based on local knowledge and ideas. Public engagement meetings were strategically scheduled to receive input and gauge community support on potential recovery projects. The process resulted in the identification of community-driven recovery priorities and projects to increase the communities' resiliency to future extreme weather events. **The Final Community Reconstruction Plans outline proposed recovery projects that are potentially eligible for CDBG-DR funding.**
- As the proposed projects in the NYRCR plans subsequently progressed into environmental review for HUD CDBG-DR funding, Louis Berger and CDM Smith are on respective teams preparing environmental assessments, categorical exclusions and EIS scoping in compliance with 24 CFR part 58 for a wide range of NYRCR infrastructure and community development projects. Together, the firms have prepared reviews for nearly 50 HUD funded projects, including the specific laws, regulations and authorities specific to HUD (per 24 CFR Parts 58.5 and 58.6), executive orders 11990 and 11988 for floodplains and wetlands. **Louis Berger is intimately familiar with HUD reporting requirements and considerations of eligibility from managing this on-call contract.**
- For NJDEP, both Louis Berger and CDM Smith have prepared environmental review documents

for CDBG-DR funded Superstorm Sandy Recovery projects for NJDEP, including housing and non-housing projects. **Together the firms have completed hundreds of task orders, ranging from environmental assessments to categorical exclusions and Tier II reviews, using the NJDEP web mapping tool and coordinating with NJDEP HUD program managers on a routine basis.**

- For the **state of Illinois following Hurricane Ike**, CDM Smith served as the **CDBG program manager** from the initial stages of setting policies and procedures to reviewing project worksheets (PWs), making recommendations for grant awards through HUD-required project monitoring, reporting, and closeout.

We are familiar with the full breadth of HUD requirements, from proper invoicing documentation to contract administration, subcontracting, and Section 3, Fair Housing, Davis-Bacon, and most importantly - the strict funding timeline - with delivery of the DEIS by May 30, 2017. Multiple project partners will provide oversight on CDBG and HUD Compliance in order to implement checks-and-balances related to regulation funding compliance. Partners directly involved in HUD Compliance throughout the RBD project period will include CDM Smith, Louis Berger, and Millennium Strategies, who have collectively managed hundreds-of-millions of HUD CDBG and CDBG-DR dollars over the past 10 years.

- **HUD DR Invoicing and Reporting.** Team members understand the level of detail required in employee timesheets, and the critical need to complete HUD required reporting, such as the ADM-123 Cumulative Payment Statement, ADM-136 Monthly Employment Utilization, ADM-146 Affirmation of Payments to M/WBE, PROC-5 Workforce Employment Utilization, and PROC-6 M/WBE Quarterly Reporting.
- **HUD Public Notices.** The team will assist NJDEP to ensure that the proper notices are filed from the Notice of Intent to prepare an environmental impact statement (NOI EIS) to the Finding of No Significant Impact / Record of Decision (FONSI/ROD) and the Notice of Intent to Request Release of Funds (RROF). This includes public notice requirements associated

with the 8-step review for floodplains and wetlands, as well as the NOI EIS and required comment periods. Proper public noticing and proof of affidavits are critical to prevent delays in distribution of funds.

- **HUD Section 3.** The CDM Smith/Louis Berger team will structure its Section 3 program by leveraging relationships with community based organizations and partners that could assist in advertising and providing referrals and training for a wide geographic area. The roles that could potentially be filled by Section 3 hires will then be identified, and the team will design a targeted training and retention program to reach, teach, and employ Section 3 eligible residents of New Jersey, particularly in Moonachie, Carlstadt, South Hackensack, Little Ferry, and Teterboro.
- **Integrity Monitoring/Auditing.** Through its grant agreement, the State of New Jersey pledged to work cooperatively and in coordination with [its] Federal partners to ensure the integrity and accountability of all Federal reconstruction resources received and distributed by the State to respond to and recover from the severe damage caused by Superstorm Sandy. When Federal funds are appropriated to states and/or local communities to assist with disaster recovery efforts, the recipients have the same desire as the State to ensure the accountability, transparency, and timely expenditure of these funds. The CDM Smith/Louis Berger team can help NJDEP ensure its desired outcomes by making sure that all records are up to date, policy and procedure manuals are on file, and all documentation is filed and stored in duplicate form.



Section 3

Project Approach to Services

Possible Data Sources





Potential Data Sources

The data gathering effort for the New Meadowlands project will mine the many reports and studies and information gathering activities done for the Meadowlands Pilot Area No. 1 project area and the greater Tri-State Area. A preliminary list of sources is provided below.

FEASIBILITY STUDY	POTENTIAL DATA SOURCES
Projected sea level rise scenarios	<ul style="list-style-type: none"> • U.S. Army Corps of Engineers (USACE) North Atlantic Coast Comprehensive Study (NACCS), 2015 • National Oceanic and Atmospheric Administration (NOAA). Global Scenarios for the United States National Climate Assessment • New Jersey Climate Adaptation Task Force • New Jersey State Climatologist
Historic shoreline and bathymetric data	<ul style="list-style-type: none"> • NOAA Coastal Services Center • FEMA HAZUS Shoreline Structures and Type
Precipitation, evaporation, stage-velocity-flow, tides	<ul style="list-style-type: none"> • NJGIN Stream Flow Gages • U.S. Geological Survey (USGS) monitoring gages/stations • NJGIN Supplemental Ambient Surface water Monitoring Network
Groundwater	<ul style="list-style-type: none"> • New Jersey Pollutant Discharge Elimination System (NJDPDES) Groundwater discharges • NJGIN Groundwater contamination areas • USGS Groundwater wells or models
Water quality	<ul style="list-style-type: none"> • STORET Water Quality Monitoring Stations • NJGIN Ambient Stream Quality Monitoring Reference Sites and water quality monitoring stations • AMNET Monitoring Sites • USGS water quality gauges • NJDEP Integrated Water Quality Monitoring and Assessment Report
Historic storms for the period of record	<ul style="list-style-type: none"> • NOAA NWS • NJMC Meadowlands Environmental Research Institute (MERI) • Rebuild by Design New Meadowlands
Floodplains, known areas of flooding, peak flood depths and tidal surge depths, areas of known scour and deposition	<ul style="list-style-type: none"> • Hydraulic and hydrologic data and existing available models • FEMA repetitive losses and community lists • FEMA Flood Insurance Studies (FISs), Flood Insurance Rate Maps (FIRMs), and models • Rebuild by Design New Meadowlands
Erosion problem areas	<ul style="list-style-type: none"> • Coastal Erosion Hazard Areas • Geomorphologic or coastal models
Topography	<ul style="list-style-type: none"> • LIDAR • USGS Topography • NJGIN Digital Elevation Grids



HUD ENVIRONMENTAL ASSESSMENT FACTORS • POTENTIAL DATA SOURCES

Land Use and Development

Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design

- NJDEP Land Use Data
- Parcel Data/Property Ownership
- Municipal Master Plans
- Municipal Zoning Regulations
- New Jersey Meadowlands Commission Site Plans and Master Plan

Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff

- LiDAR
- USGS Topography
- NJGIN Digital Elevation Grids
- U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey
- Bergen Soil Conservation District

Hazards and Nuisances

- NJDEP Known Contaminated Sites
- NJGIN Groundwater Contaminate Areas
- NJGIN Historic Fill CERCLA/RCRA sites and areas of influence, Historic aerials/maps
- Impaired reaches for TMDLs

Energy Consumption

- The State of New Jersey Energy Master Plan

Socioeconomic

Employment and Income Patterns, Economic and Fiscal Impact

- Longitudinal Employer-Household Dynamics and American Community Survey from US Bureau of Census
- Quarterly Employment and Wages from Bureau of Labor Statistics
- IMPLAN input-output modeling system New Jersey data
- New Jersey Department of Labor and Workforce Development, New Jersey's Transportation, Logistics and Distribution Industry Cluster, 2013.
- Listokin, David. New Jersey Demographic Multipliers: Profile of the Occupants of Residential and Nonresidential Development, Rutgers University, 2006.
- New Jersey Department of Community Affairs
- New Jersey DataBank

Demographic Character Changes, Displacement

- Census 2010 and American Community Survey from US Bureau of Census
- NJTPA forecasts
- NYMTC forecasts

Community Facilities and Services

Educational and Cultural Facilities, Commercial Facilities, Health Care and Social Services

- NJGIN point locations for public schools and cultural resources

Solid Waste Disposal / Recycling

- NJMC
- NJDEP

Waste Water / Sanitary Sewers

- NJGIN Sewer Service Area
- Municipal engineers



Water Supply	<ul style="list-style-type: none"> • United Water
Public Safety - Police, Fire and Emergency Medical	<ul style="list-style-type: none"> • Municipal police, fire, and emergency medical services providers
Parks, Open Space and Recreation	<ul style="list-style-type: none"> • NJDEP Recreational and Open Space Inventory (ROSI), NJGIN Open Space
Transportation Networks, Transportation and Traffic Operations, Accessibility	<ul style="list-style-type: none"> • Existing traffic counts and forecasts by mode, time of day and/or trip purpose- local and DOT counts • NJTPA model U.S.DOT TIGER Database • NJDOT • North Jersey Transportation Planning Authority (NJTPA)
Transit Networks, Vulnerabilities, Operations & Accessibility	<ul style="list-style-type: none"> • New Jersey Transit (NJT) Climate Vulnerability Assessment • NJTPA Climate Change Vulnerability and Risk Assessment
Natural Resources	
Unique Natural Features, Water Resources	<ul style="list-style-type: none"> • Natural Heritage Grid Map and Priority Sites, • NJ Meadowlands Commission, • NJGIN Ambient Biomonitoring network (AMNET) • NJPDES Water Discharges
Vegetation, Wildlife	<ul style="list-style-type: none"> • U.S. Fish & Wildlife Service iPAC Tool • NMFS Fish Index of Biotic Integrity • NJGIN Shellfish Classification
Statutes, Executive Orders, and Regulations Listed at 24 Cfr §58.5 And §58.6	
Potential Data Sources	
Airport Hazards	<ul style="list-style-type: none"> • Federal Aviation Administration (FAA) - exclusion zones for Teterboro Airport • Port Authority of New York & New Jersey (PANYNJ) Airport Traffic Report
Coastal Barrier Resources	<ul style="list-style-type: none"> • FEMA Coastal Barrier Resources System
Flood Insurance	<ul style="list-style-type: none"> • FEMA FIRMs
Clean Air	<ul style="list-style-type: none"> • NJDEP Ambient Air Quality Monitors
Coastal Zone Management	<ul style="list-style-type: none"> • NJGIN Coastal Area Facility Review Act (CAFRA) Boundary and CAFRA Layers
Contamination and Toxic Substances	<ul style="list-style-type: none"> • NJDEP Known Contaminated Sites • NJGIN Groundwater Contaminate Areas • NJGIN Historic Fill CERCLA/RCRA sites and areas of influence
Threatened and Endangered Species	<ul style="list-style-type: none"> • U.S. Fish & Wildlife Service (FWS) iPAC Tool • NJDEP GeoWeb Natural Heritage Priority Sites and Landscape Data
Explosive and Flammable Hazards	<ul style="list-style-type: none"> • NJDEP Site Remediation Program
Farmlands Protection	<ul style="list-style-type: none"> • USDA NRCS Web Soil Survey, Hudson Essex Passaic Soil Conservation District
Floodplain Management	<ul style="list-style-type: none"> • FEMA repetitive losses and community lists • FEMA FISs, FIRMs and models
Historic Preservation	<ul style="list-style-type: none"> • NJGIN Historic Districts, NJGIN Historic Properties, Historic aerials and maps
Noise Abatement and Control	<ul style="list-style-type: none"> • Data from other studies in the same area would be utilized, if available. Otherwise, existing conditions noise monitoring would be conducted in multiple locations.



NPDES MS4, Point Source, and Industrial Stormwater Permits	<ul style="list-style-type: none"> • US EPA • NJ DEP
Sole Source Aquifers	<ul style="list-style-type: none"> • NJGIN Wellhead protection areas and well program atlas grid • Local health departments and utilities
Wetlands Protection	<ul style="list-style-type: none"> • U.S. Fish & Wildlife Service National Wetlands Inventory (NWI) • NJDEP Freshwater Wetlands mapping. • New Jersey Meadowlands Commission (NJMC) mapping
Wild and Scenic Rivers	<ul style="list-style-type: none"> • National Wild and Scenic Rivers System (no Wild and Scenic Rivers are located in the project area)
Environmental Justice	<ul style="list-style-type: none"> • U.S. Census Data

Existing Plans, Reports and Studies

In addition to the data sources listed above, the CDM Smith/Louis Berger team will review existing plans, reports, and studies in the Meadowlands, New Jersey and the greater Tri-State Area. Many of these plans are published by NJMC, which provides for the orderly development of the Hackensack Meadowlands District, consistent with the carrying capacity of the land and the preservation of critical wetlands in accordance with NJMC's Master Plan, while preserving the ecological balance between natural and open areas and development. The following plans will be considered by the team, among others:

- Bergen County. Vision Bergen: The Visioning Component of the Bergen County Master Plan, 2011
- Meadowlands Regional Chamber. A Profile of the New Jersey Meadowlands Regional Economy and Workforce, 2007.
- Meadowlands Regional Chamber. Unlocking Mobility for Economic Opportunity, 2012.
- New Jersey Institute of Technology and University of Mississippi. Flood Mitigation Engineering Resource Center (FMERC) - PROJECT EC14-005 (Hackensack Area Study). 2014.
- New Jersey Department of Transportation. Portway Extensions Concept Development Study, 2003.
- New Jersey Department of Transportation. The New Jersey Comprehensive Statewide Freight Plan, 2007.
- NJMC, Reclaim, Redevelop, Restore: 2012 Annual Report, 2012.
- NJMC, The Meadowlands Region: 2011 Annual Report, 2011.
- NJMC. Energy Master Plan, 2008.
- NJMC. Hackensack Meadowlands Floodplain Management Plan, 2005. NJMC. Developer's Guide to LEED NC in the Meadowlands, 2008.
- NJMC. Interim Policies Governing Affordable Housing Development in the Meadowlands District, 2011.
- NJMC. Koppers Coke Peninsula Redevelopment Plan, Kearny, 2013.
- NJMC. Meadowlands District Transportation Plan, 2007.
- NJMC. Meadowlands Mobility 2030, 2004.
- NJMC. New Jersey Meadowlands Commission Master Plan, 2004.
- North Jersey Transportation Planning Authority. Plan 2040: NJTPA Regional Transportation Plan for Northern New Jersey, 2013.
- North Jersey Transportation Planning Authority. Rail Freight Capacity and Needs Assessment to the Year 2040, 2013.



- Together North Jersey. TNJ Regional Plan, 2014.
- U.S. Army Corps of Engineers (USACE). Hydrologic Feasibility of Storm Surge Barriers to Protect the Metropolitan New York-New Jersey Region. November 2004.
- U.S. Army Corps of Engineers. Meadowlands Environmental Site Investigation Compilation, 2004.
- U.S. Army Corps of Engineers. Meadowlands Comprehensive Restoration Implementation Plan (MCRIP) 2006.
- U.S. Army Corps of Engineers. Hudson-Raritan Estuary Comprehensive Restoration Management Plan. 2009.
- The inventory of planned and proposed projects will be compiled in a database, as well as mapped in a GIS geodatabase.

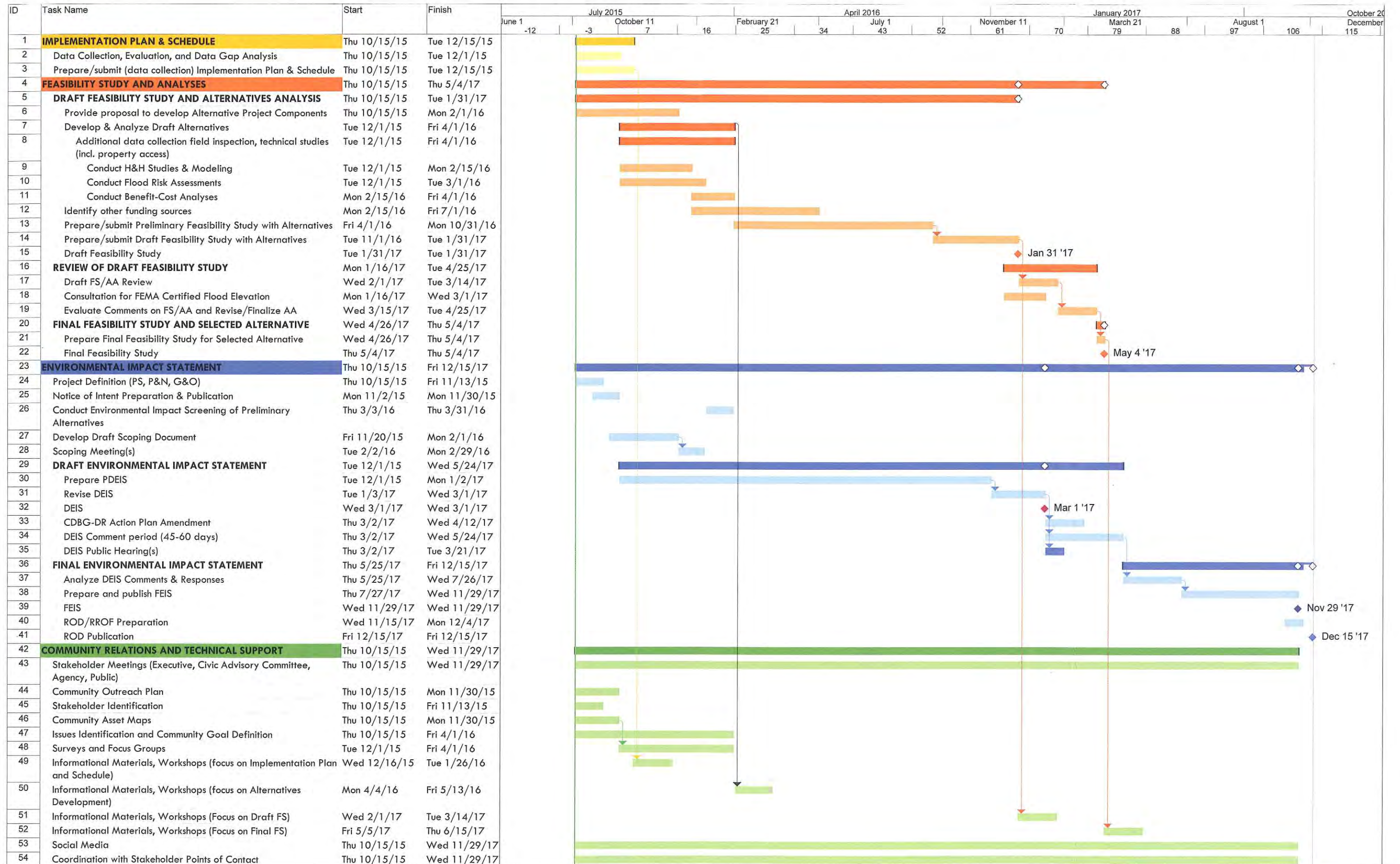


Section 3

Project Approach to Services

Detailed Schedule







Section 4

Term Contract Rate Schedule





110 Feldcrest Avenue, #8
6th Floor
Edison, New Jersey 08837
tel: 732 225-7000
fax: 732 225-7851

January 6, 2016

Richard Flodmand
Deputy Director
Contract Administration
Division of Property Management & Construction
33 West State Street
P.O. Box 034
Trenton, New Jersey 08625 0034

RE: Revised Cost Proposal
NJDPMC No. P1131-00
New Meadowlands Rebuild By Design TC-001

Dear Mr. Flodmand;

Thank you for providing the CDM Smith/Louis Berger Team with the opportunity to submit our revised cost proposal. Attached are our revised rates and key personnel data sheet. We believe that our technical strength and competency of our team as demonstrated through our recent proposal combined with these revised rates will provide significant value to the state of New Jersey. We look forward to meeting with you to discuss specific opportunities to engage the CDM Smith/Louis Berger Team as the Alternate Consultant.

If you have any questions regarding this proposal, please contact me at (732) 225-7000.

Sincerely,

A handwritten signature in blue ink, appearing to read "TRS", with a long horizontal flourish extending to the right.

Thomas R. Schoettle, PE, BCEE
Senior Vice President
CDM Smith Inc.



**TC 001 TERM CONTRACT RATE SCHEDULE
BY PERSONNEL LEVEL**

NAME OF FIRM: CDM Smith Inc.

INSTRUCTIONS

Provide a LOADED hourly rate (\$ per hour; no cents please) below for all Personnel included in each of the Levels listed. Please refer to the RFP for a description of each of the personnel types by level. Your proposal may be considered unresponsive if you leave blanks.

PERSONNEL TYPE/DISCIPLINE	TERM CONTRACT HOURLY RATES PER CONTRACT PERIOD		
	BASE (3 YEARS)	EXTENSION OPTION – YRS 4/5	EXTENSION OPTION – YR 6
LEVEL 7	\$ 220	\$ 233	\$ 240
LEVEL 6	\$ 194	\$ 206	\$ 212
LEVEL 5	\$ 172	\$ 182	\$ 188
LEVEL 4	\$ 142	\$ 151	\$ 155
LEVEL 3	\$ 109	\$ 116	\$ 119
LEVEL 2	\$ 86	\$ 91	\$ 94
LEVEL1	\$ 67	\$ 71	\$ 73
AVERAGE RATE (ALL LEVELS) Please calculate for Levels 7 -1	\$ 141	\$ 150	\$ 155

Authorized Signature: _____



RETURN THIS COMPLETED DOCUMENT TO DPMC

(PAGE 2 OF 5)

PROJECT KEY PERSONNEL LIST

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT								
		PROGRAM STUDY PHASE	FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE	12/21/2015 LEVEL 1-7
CDM Smith	Maria Watt, P.E. Program Manager		15	10	15	5	5		5	7
CDM Smith	Thomas Schoettle, P.E. Executive Sponsorship Team		5	5	5					7
CDM Smith	Timothy Hillier, CFM FEMA Compliance		5	5	5					7
CDM Smith	Stephen Whiteside, P.E. Design Task Manager		5		20	10	5		5	7
CDM Smith	Michael Schmidt, P.E. Feasibility Study Task Manager		20	10	5				5	7
CDM Smith	William Cesanek, PP, AICP Planning			5						7
CDM Smith	Virginia Roach, P.E. Green Design/Green		20		20					7
CDM Smith	Peter Chenevey, P.E. Civil Engineering		10		10					7
CDM Smith	Mitchell Heineman, P.E. Hydrologic, Hydraulic and Water Quality Modeling		10		5					7
CDM Smith	Gary Mercer, P.E. Hydrologic, Hydraulic and Water Quality Modeling		10		5					7
CDM Smith	Kirk Westphal, P.E. Hydrologic, Hydraulic and Water Quality Modeling		10		5					7
CDM Smith	Michael Schultz, P.E. QA/QC: Geotechnical		5		5					7
CDM Smith	Ginger Groom, P.E. USACE Coordination		5		5					7
CDM Smith	Patricia Forgang, CHMM Regulatory Compliance		10		10					7
CDM Smith	Kapila Pathirage, Ph.D, P.E. Geotechnical Engineering		5		5					7
CDM Smith	Robert Bunting, P.E. Geotechnical Engineering		20		20					7
CDM Smith	William Friers, P.E. Structural Engineering		20		20					7
CDM Smith	Timothy Verwey, P.E. Structural Engineering		5		10					7
CDM Smith	Dana Boyadjian, P.E., LSRP Environmental Engineering		20		20					7

PROJECT KEY PERSONNEL LIST

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT								
		PROGRAM STUDY PHASE	FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE	12/21/2015 LEVEL 1-7
CDM Smith	Thomas Nye, Ph.D, P.E. Technical Advisor: Hydrologic & Hydraulics		5		5					6
CDM Smith	Timothy Feather, Ph.D., PE Technical Advisor: Flood Control/Coastal Engineering		5		5					6
CDM Smith	Kate Stenberg, Ph.D Planning			10						6
CDM Smith	Nancy Vigneault, P.E. Geen Design/Green		20		20					6
CDM Smith	Sherry Crouch, P.E. Cost-Benefit Analysis		5		5					6
CDM Smith	Manuel Perotin, P.E. Cost-Benefit Analysis		5		5					6
CDM Smith	Michael Oleson, P.E. Civil Engineering		10		10					6
CDM Smith	Brian Kearney, P.E. Construction Administration					10	10	5	5	6
CDM Smith	Craig Gadberry, P.E. Project Controls		20		20					6
CDM Smith	Steven Green, CPA HUD CDBG-DR Compliance		5	5	5	5				6
CDM Smith	David Spector, LEED AP Urban Planning and GIS/visualization		5		5					6
CDM Smith	Brian Caulfield, P.E. Coastal Modeling		10		5					5
CDM Smith	Michael Giovannozzi, P.E. Coastal Modeling		10		5					5
CDM Smith	Warren Newman, Jr., P.E. Construction Administration					20	20		10	5
CDM Smith	Wing Chan Geotechnical Engineering		20		20					5
CDM Smith	Seth Nehrke, P.E. Civil Engineering		30		30	10	10			5
CDM Smith	Rebecca Jablon, AICP, LEED AP			10						5
CDM Smith	Robert Klein, P.E. Construction Administration					20	20		10	5
CDM Smith	Steven Fusco, RLA, LEED AP Site Planning		15		15					4
CDM Smith	Frances Bui, P.E. Coastal Engineering		25	2	25					4

PROJECT KEY PERSONNEL LIST

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT						
		PROGRAM STUDY PHASE	FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION OFFICE FIELD	CLOSE OUT PHASE
CDM Smith	Lauren Klonsky, P.E. Coastal Engineering		25		25			
CDM Smith	Melissa Harderode, ENV SP Site Investigation		25		25			
CDM Smith	Stacie Anderson HUD CDBG-DR Compliance		5		5			
The Louis Berger Group	Tom Lewis, P.E. Executive Sponsorship Team		5	5	5			
The Louis Berger Group	Gul Khan, P.E. Technical Advisor: Civil & Ecological Renovation		5	5	5		5	
The Louis Berger Group	Lawrence Pesesky, AICP Technical Advisor: Planning			5				
The Louis Berger Group	Albert Racciatti, AICP, PP Socioeconomics & Environmental Justice		5	5	5			
The Louis Berger Group	Dincer Egin, Ph.D., P.E. Geotechnical Engineering		5		5			
The Louis Berger Group	Hope Luhman, Ph.D, RPA Historic Preservation/Cultural Resources		5	10				
The Louis Berger Group	Mike McCloskey, PG Technical Advisor: Site Investigation/Remediation		5	5	5			
The Louis Berger Group	Sean McGonigal, P.E. Assistant Program Manager		15	20	10	5	5	5
The Louis Berger Group	Bob Thiel, P.E. Transportation Engineering		5		5			
The Louis Berger Group	Nicolaas Veraart, AICP, ASLA EIS Task Manager		20	25	5			
The Louis Berger Group	Hong Sun, P.E. Transportation Engineering		5	5	5			
The Louis Berger Group	Kirt Mevavala, P.E. Transportation Engineering		15		15			
The Louis Berger Group	John Hasselmann, P.E., CCM Construction Administration					10	90	50
The Louis Berger Group	Chris Corliss, P.E. Environmental Engineering		20	20	5			
The Louis Berger Group	Solomon Gbondo-Tugbawa, Ph.D, P.E.		5	10				
The Louis Berger Group	Ian Miller, MAFF Socioeconomics & Environmental Justice		5	10				

PROJECT KEY PERSONNEL LIST

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT							
		PROGRAM STUDY PHASE	FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE
							OFFICE	FIELD	12/21/2015 LEVEL 1-7
The Louis Berger Group	Sharon Bailey, P.E. Water Sediment Quality		10	5	10				5
The Louis Berger Group	Michael Dunn, P.E. Regulatory Compliance		10	10					5
The Louis Berger Group	Jennifer Brunton, P.E., CFM Ecosystem Restoration		20	20	30		5		5
The Louis Berger Group	Muzamil Husain, P.E. Structural Engineering		5		5				5
The Louis Berger Group	Ajay Kathuria, P.E., LSRP Regulatory Compliance		20	15	10		5		5
The Louis Berger Group	Mary Weber, P.E. Green Design/Green		10	10	20				5
The Louis Berger Group	Peg McBrien, P.E., PWS Regulatory Compliance Task		30	20	25		10		5
The Louis Berger Group	AmyMarie Accordi-Dey, Ph.D Water & Sediment Quality		10	10					5
The Louis Berger Group	Edward Samanris, PWS, CE Natural Resources		10	20	10				5
The Louis Berger Group	Fameeda Ali, CHMM Site Investigation		5	10					5
The Louis Berger Group	Chris Watt, PG, LSRP Site Investigation		20	20					5
The Louis Berger Group	Thomas Waldron, PG, LSRP Site Investigation		20	20			5		5
The Louis Berger Group	Carolyn Mitchell, RCLA Urban Planning and GIS /		10		5				5
The Louis Berger Group	Ann Folli, PWS Regulatory Compliance		25	25					4
The Louis Berger Group	Duncan Kisia Socioeconomics & Environmental Justice		5	5					4
The Louis Berger Group	Bethany Bearmore, P.E. Ecosystem Restoration		20	20	15				4
The Louis Berger Group	Abdul Fofanah, P.E., CFM Hydrologic, Hydraulic, and Water Quality Modeling		15	15					4
The Louis Berger Group	Dan Martin, P.E. Environmental Engineering		15	15	15				4
The Louis Berger Group	Stephen Bedford, Ph.D Historic Preservation/Cultural Resources		10	10					4
The Louis Berger Group	Deborah Matherly, AICP Planning		5	15	4				4

PROJECT KEY PERSONNEL LIST

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT							
		PROGRAM STUDY PHASE	FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION OFFICE	CONSTRUCTION FIELD	CLOSE OUT PHASE
The Louis Berger Group	Virginie Amerlynck, AICP Socioeconomic and Environmental Justice		5	15					12/21/2015 LEVEL 1-7
The Louis Berger Group	Alicia Meyers, P.E. Transportation Engineering		5	15	15				4
The Louis Berger Group	Sachin Apte, P.E. Construction Administration				15	10		50	20
The Louis Berger Group	Susan Lindstrom Natural Resources		5	25	5				3
The Louis Berger Group	Tara Stewart Natural Resources		5	25	5		10		3
The Louis Berger Group	Leo Tidd, AICP Planning			15					3
The Louis Berger Group	Tom Shinsky Natural Resources		15	15			10		3
The Louis Berger Group	Jennifer Gonzalez, AICP HUD CDBG-DR Compliance		20	20					3
The Louis Berger Group	Mike McWaters, P.E. Environmental Engineering		15	15	15		5		3
The Louis Berger Group	Thalia Loo, P.E. Water Sediment Quality		10	10					3
The Louis Berger Group	Christina Muir Historic Preservation/Cultural Resources		5	15					2
The Louis Berger Group	Lauren Hayden Historic Preservation/Cultural Resources		5	15					1
Binera	Jeb Benzing Cost-Benefit Analysis		10		5				7
Binera	Michelle Terry Cost-Benefit Analysis		10		10				3
BioHabitats, Inc.	Teresa Doss Ecosystem Restoration		15	15	15				5
BioHabitats, Inc.	Ted Brown Green Design/Green		15	15	15				4
BioHabitats, Inc.	Christopher Streb, P.E., LEED AP, Ecosystem Restoration		15	15	15				3
Boswell Engineering	Jeffrey Morris, P.E., PLS, PP Civil Engineering				10				5
Boswell Engineering	John Valentin, P.E. Structural Engineering				10				5

PROJECT KEY PERSONNEL LIST

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT								12/21/2015 LEVEL 1-7
		PROGRAM STUDY PHASE	FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION		CLOSE OUT PHASE	
Fitzgerald and Halliday, Inc.	Arnold Bloch, Ph.D Community Relations / Technical Support		5	10						6
Fitzgerald and Halliday, Inc.	Kristen Ahlfeld, P.E., AICP, PP, Community Outreach/Stakeholder Support		5	10						5
Fitzgerald and Halliday, Inc.	Ryan Walsh, AICP, PP, LEED GA, Community Outreach/Stakeholder Support		5	10						5
Fitzgerald and Halliday, Inc.	Melissa Pineda Community Outreach/Stakeholder Support		10	10						4
Jackson Associates Group, LLC	Yocontalie Jackson Construction Administration							15		7
Millennium Strategies, LLC	Susan Scavone Grant/Stakeholder Support		5	10						7
Millennium Strategies, LLC	David Jenkins Funding, Financing and Grants Management		15	15						6
Millennium Strategies, LLC	Bernadette McPherson, Esq Funding, Financing and Grants Management		5	10						6
Millennium Strategies, LLC	Stuart Kopnweiss Funding, Financing and Grants Management		5	10						6
Moffatt & Nichol	Santiago Alfageme, P.E. Coastal Engineering		20			20				7
CDM Smith	Peter Chenevey, P.E. Civil Engineering		10			10				7
CDM Smith	Mitchell Heineman, P.E. Hydrologic, Hydraulic and Water Quality Modeling		10			5				7
CDM Smith	Gary Mercer, P.E. Hydrologic, Hydraulic and Water Quality Modeling		10			5				7
CDM Smith	Kirk Westphal, P.E. Hydrologic, Hydraulic and Water Quality Modeling		10			5				7
CDM Smith	Michael Schultz, P.E. QA/QC: Geotechnical		5			5				7
CDM Smith	Ginger Croom, P.E. USACE Coordination		5			5				7
CDM Smith	Patricia Forgang, CHMM Regulatory Coordination		10	6		10				7

PROJECT KEY PERSONNEL LIST

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT						
		PROGRAM STUDY PHASE	FEASIBILITY STUDY	ENVIRONMENTAL IMPACT STATEMENT	DESIGN PHASE	BIDDING & AWARD PHASE	CONSTRUCTION OFFICE FIELD	CLOSE OUT PHASE

INSERT THE WAGE LEVEL FROM 1 TO 7 OF EACH KEY PERSON. DO NOT INSERT ANY HOURLY RATE



Appendix A

Resumes





Maria Watt, P.E. Program Manager

Education

B.S. - Chemical Engineering, Rutgers University,
New Brunswick, New Jersey, 1985

Registration

Professional Engineer: New Jersey

Years of Experience

With CDM Smith: 11

Total Years: 30

With 30 years of environmental restoration and disaster recovery experience, Ms. Watt has managed multi-million dollar, multi-tasked, multi-disciplined restoration and recovery programs requiring extensive stakeholder coordination and interface as well as agency negotiation. She has been the Program Manager for major restoration contracts for federal, state, municipal and private clients, and has managed over 100 feasibility studies in New Jersey and New York. She has also managed one of the first state-of-the-art cumulative impacts assessments for the Love Canal EIS. As a Program Manager in New Jersey and New York, Ms. Watt has managed and provided technical support to over 100 multi-disciplined professionals and numerous team members/subcontractors. She has been the Program Manager for major contracts issued by the New Jersey Department of Environmental Protection (NJDEP), New Jersey Department of Property

Management and Construction (NJDPMC), New Jersey Department of Community Affairs (NJDCA), United States Army Corps of Engineers (USACE), the United States Environmental Agency (USEPA) and the United States Department of Energy (USDOE). These contracts included environmental restoration and disaster recovery contracts with typical values between \$2 and 20 million.

Principal-in-Charge, NJDCA, Sandy Action Plan and Environmental Support, New Jersey. As the Principal-in-Charge for the NJDCA on-call contract, Ms. Watt mobilized a team of over 30 staff to the NJDCA office in Trenton within 48 hours of notice of award. This highly experienced disaster recovery team developed a Draft Action Plan that included a detailed needs assessment within 5 business days. Action Plans typically require 30-45 days to complete. Over 36 outreach meetings with various state, local and non-profit organizations were conducted within 3 days of contract award. Extensive resource mobilization and management, weekly financial reporting and daily tracking of progress and deliverables were critical on such an expedited schedule. This high profile project required extensive communication and coordination with the Governor's representatives. A high quality document produced on an expedited schedule received U.S. Department of Housing and Urban Development (HUD) approval. In addition to expediting the development of the Action Plan, the team simultaneously began development of procurement documents to obtain additional resources and teams needed to implement the Action Plan. Also under this contract, CDM Smith assisted the New Jersey Department of Environmental Protection in performing HUD National Environmental Policy Act (NEPA) Compliance activities and expedited the development of environmental review documentation of HUD-funded programs for recovery from Superstorm Sandy. CDM Smith assisted the NJDEP in the preparation of county-wide Tier 1 environmental assessments (EAs) for the Rehabilitation, Reconstruction, Elevation and Mitigation (RREM) Program for single-family homes and the portion of the Small Rental Properties Program for buildings with up to four residential units. CDM Smith helped modify the Tier 1 EA to meet the requirements of the Federal Emergency Management Agency (FEMA) and drafted the checklist to be used in Tier 2 site-specific review.

Program Manager, NJDEP, HUD NEPA Compliance Contract, New Jersey. As the Program Manager for this NJDEP on-call contract, Ms. Watt mobilized a team of over 50 professional staff and trained seven subcontractors to develop the NEPA compliance program on an expedited basis and develop a contract-specific mobile iPad application and geographic information system (GIS)/database management system within the first few weeks of contract award to streamline work flow and information tracking from the initial site inspections through the completion of the environmental assessment. Ms. Watt's innovative deployment of information management tools, HUD policy expertise, and a strong program management team allowed CDM Smith to successfully process a high volume of environmental reviews in an efficient, high-quality manner to facilitate funding for homeowner recovery from Hurricane Sandy. CDM Smith supported programmatic execution of fast-turnaround environmental reviews, processing more than 1,500 HUD recovery

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BLUEPrint
for **Resilience**

funding applications for Sandy-impacted homeowners (Tier 2 environmental reviews) and several complex community-wide EAs within the first 18 months of this 3-year program. Donna Mahon, Director, NJDEP, Sandy Recovery Environmental and Historic Preservation Review Program stated CDM Smith "is DEP's top performer in terms of quality and timeliness ... they have undertaken broader scope projects that are more difficult to coordinate and document [which] passed our quality assurance review without any required changes. Their HUD expertise has thus far outweighed the expertise of the competing contractors".

Program Manager, NJDEP, Design Term Contract, Liberty State Park Freshwater Wetland Ecosystem Restoration Project, Jersey City, New Jersey. Ms. Watt serves as the Program Manager on this multi-million dollar major design restoration program under this 5-year on-call contract including the design and construction management services for the creation and restoration of wetlands at Liberty State Park (LSP). The LSP ecosystem restoration project was chosen to serve as the site model for implementing the overall area-wide restoration of the Hudson-Raritan Estuary Ecosystem Restoration program. The implementation plan ultimately developed for LSP includes the phased-in restoration of the 230-acre park. The four components of the phased restoration project include the creation of approximately 46 acres of salt marsh, the creation and enhancement of approximately 26 acres of freshwater wetlands, the creation of approximately 50 acres of warm weather grasslands and the enhancement of approximately 100 acres of urban forest comprised of successional northern hardwoods and maritime shrubland. This project helps to restore the locally endangered ecological habitat, enhances overall park connectivity for increased public use and benefit, and is an important first step of an ambitious restoration process for the Port District section of the Hudson-Raritan Estuary.

Program Manager, NJDPIC Blue Acres Demolition Design Term Contract. Ms. Watt serves as the Program Manager on this multi-million dollar Blue Acres Demolition Design Term contract that provides demolition design services in support of the Blue Acres Program that acquires and demolishes homes that are flood prone or have sustained flood damage as the result of Hurricane Sandy. She mobilized a team of HUD and FEMA demolition experts to develop program-specific design parameters that meet local, state and federal requirements. Ms. Watt managed the development of demolition design documents, bid packages and permit documents required to expedite the demolition of over 100 homes that were damaged by Hurricane Sandy or were located in an area likely

to experience continued and repeated flood damage.

Program Manager, Brookhaven National Laboratory, Department of Energy Environmental Restoration

Contract. Ms. Watt was positioned as the Program Manager for a major environmental restoration contract that targeted the restoration of this 8 square mile site which included the restoration of the Peconic River. Feasibility Study and Design documents were developed to dredge radioactive impacted sediment with low impact techniques and avoid the major disruption of miles of stream and wetland areas. A state-of-the-art site-specific sediment toxicity study was conducted to demonstrate that dredging could be selectively performed to minimize disturbance of the natural stream habitat while targeting specific depositional areas within the stream floodplain. Stream and wetland restoration was performed with minimal disturbance to the existing habitat and the stream/wetland area was restored to enhance aquatic and wildlife habitat. Ms. Watt received commendations from the DOE, USEPA and NYSDEC for this innovative approach that led to over a \$50,000,000 savings in the restoration of the Peconic River.

Project Manager, Occidental Chemical Corporation (OCC) Love Canal Environmental Restoration Contract.

Ms. Watt served as the Project Manager for three major Environmental Impact Statements for the remediation of the Love Canal Site located in Niagara Falls. She expeditiously mobilized a team of over 50 engineers and scientists and created an on-site team of specialist to develop three multi-million dollar EISs in accordance with NEPA and New York SEQRA requirements. The expedited response was required to meet an aggressive Administrative Consent Order schedule. A state-of-the-art cumulative impacts assessment was negotiated with the New York State Department of Environmental Conservation (NYSDEC) in response to new EPA guidance. Protocols were developed that set precedence for NYSDEC EIS policy. Ms. Watt received client commendations for delivering high quality EISs.

Project Director, City of Newark and Together North Jersey Green Infrastructure Contract, Newark, New Jersey.

Ms. Watt serves as the Project Director for the City of Newark and Together North Jersey Contract. Through a HUD grant awarded to the State's Together North Jersey initiative, CDM Smith is working with the City of Newark, Together North Jersey and the Brick City Development Corporation to plan and implement green infrastructure. The program is a key strategy for Newark to both manage stormwater more sustainably, and promote community renewal, but is also challenging due to the city's extremely high impervious cover and its old and overburdened combined sewer system.



Sean McGonigal, P.E. Assistant Program Manager

Education

M.S. - Environmental Engineering, New Jersey
Institute of Technology, 1995

B.S. - Civil Engineering, Syracuse University,
1991

Registration

Professional Engineer: New Jersey

Years of Experience

With Louis Berger: 18

Total Years: 24

Mr. McGonigal is a vice president and an environmental engineer with more than 24 years of experience, including 17 years supporting NJDEP and DPMC on various contracts and high visibility projects. Mr. McGonigal has significant program and project management experience on multi-disciplinary projects. He specializes in projects where large scale redevelopment occurs in contaminated and ecologically sensitive environments. He leads programs and projects that include investigations, feasibility studies, designs, permitting, stakeholder and community involvement, and negotiations with regulatory agencies. Mr. McGonigal's experience includes environmental impact statements, due diligence, ecological evaluations, ecological restoration, hazardous waste management, spill response/recovery, remedial investigation, remediation design and remedial action implementation. Mr. McGonigal also has extensive experience in field investigation of soil, groundwater and sediment, performing feasibility studies, and developing cost estimates for environmental projects at public and private facilities.

New Jersey Sports and Exposition Authority (NJSEA), Meadowlands Xanadu Environmental Impact Statement and Third Party Oversight, East Rutherford, New Jersey. Lead Engineer for Hazardous Waste issues identified during the Draft and Final Environmental Impact Statement and presented findings during Public Hearings. Lead representative to provide third party oversight on this 90+ acre mixed use redevelopment project which will turn previous grade-level parking surrounding the Continental Airlines Arena into a 4.8-million square foot sports, entertainment and retail facility. Responsibilities have included evaluation of site remediation data and reporting in support of the environmental impact statement, preliminary assessment/site assessment, remedial action workplan, soil re-use proposal, health and safety plan, air monitoring plan, and remedial actions (including a 6,000 ton PCB soil remediation) for the project. Additionally, coordinated preparation of permits including wetlands and stormwater and assisted NJSEA in negotiations with regulators and developers regarding all Site Remediation activities. Coordinated characterization, transportation and recycling/disposal of impacted soils/historic fill that are geotechnically unsuitable for re-use on-site. Currently serving as project manager for a PCB remediation project (500+ tons) including coordination of the subsurface investigation, reporting in accordance with NJDEP Technical Requirements for Site Remediation, as well as submission of the 30-day notification to USEPA.

NJDEP, Five Statewide Term Contracts for Investigations, Remedial Alternative Selection Evaluations, Remedial Design, and Landfill Closure Services, Publicly Funded Site Remediation Projects. As Program Manager, Mr. McGonigal manages contracts with over 30 projects and 75 Work Orders for Remedial Design, Landfill Closure Design and Ecological Restoration Design Services. Projects involve addressing contamination and owner non-compliance issues at industrial facilities/ brownfields, wetlands and other water bodies; landfills, gas stations, and other types of sites. Work covers the full range of investigations, remedial alternative development/selection, remedial design, and construction support. He ensures that all aspects of the term contract are implemented, managed and completed in a timely, efficient and professional manner. Mr. McGonigal also ensures that all work is completed as specified by, and to the satisfaction of the NJDEP project requirements. Works closely with corporate Quality Assurance/Quality Control officers to monitor the implementation and progress of projects to ensure that field work, data collection and analysis, and subsequent reporting complies with applicable local, state and federal regulations, as well as the firm's own quality standards and policies. In addition, Mr. McGonigal works with Louis Berger's corporate Health and Safety coordinators to review all project health and safety plans, audit and monitor field operations, and ensure that the health and safety of all LBG field personnel, subcontractor personnel and the public is maintained during all work in the field and otherwise. Mr. McGonigal also ensures that staffing

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rosters are up to date. Mr. McGonigal has also served as Project Manager and RI/RAS Leader supporting NJDEP programs and contracts for Louis Berger at more than 40 sites under five different term contracts since 1998.

New Jersey Division of Property Management and Construction, General Environmental Services Term Contracts, Statewide.

Since 2005, Mr. McGonigal has served as Louis Berger's contract manager for over 40 projects on five consecutive, two-year indefinite quantity general environmental services term contracts, with the fifth of these term contracts currently ongoing. As contract manager for these environmental services contracts, responsibilities have included the senior level management, coordination and oversight needed to successfully conduct and complete preliminary and comprehensive remedial investigations and remedial action development at multiple sites throughout the State ranging in various sizes and complexity. As contract manager, Mr. McGonigal's responsibilities on these five contracts have included the management, coordination and assurance that all technical, administrative, financial and legal aspects of the contract are implemented and completed to the client's satisfaction, and in full compliance of all applicable state and federal regulations during the course of the contract.

New Jersey Sports and Exposition Authority, Meadowlands Railroad and Roadway Improvement Project, East Rutherford, New Jersey.

Project manager for environmental work for the re-use of underutilized and contaminated properties in the New Jersey Meadowlands. Mr. McGonigal was in charge of the preparation of the final plans, specifications, and design report for the remediation of over 6,000 cubic yards of soil/sediment contaminated with PCBs (including TSCA levels), mercury, arsenic and lead to allow for the construction of a new 2.3-mile railroad extension through a superfund site (Former Universal Oil Products site). The final design documents prepared by Louis Berger were utilized by the client to solicit open competitive bids for the project. The project has been successfully completed and the remedial action report to be submitted to the regulators is underway. Mr. McGonigal also supervised the preparation of the discharge to surface water permit application for dewatering a former waste treatment lagoon that is being remediated as part of the project. Responsible for sediment assessment/remediation and assisted the NJSEA in brownfields/smart growth negotiations with NJDEP, USEPA and Biological Technical Assistance Group (BTAG) regarding scope and objectives for the sediment site assessment/findings within the rail corridor. He also evaluated the potential for

contaminant transport of nearby sediments to and from the development area based upon baseline reference sampling of off-site sediments. All work has been performed under an expedited schedule to facilitate regulator involvement on this fast-track project.

New York State Department of Environmental Conservation (NYSDEC), Statewide On-Call Contracts Investigation, Design, and Construction for Superfund Sites. Program Manager.

For 15 projects Mr. McGonigal has been responsible for assigning project managers and ensuring that the projects are staffed appropriately and overseeing remedial investigation/design of soil, groundwater, sediment and soil vapor for a variety of contaminants including, pesticides, volatile organics, PAHs, and heavy metals; design plans and specifications for soil and sediment remediation; and, construction oversight of manufactured gas plant remediation projects.

Red Bull Arena Brownfields Redevelopment Project, Harrison, NJ.

Lead Environmental Representative for the Client on all environmental issues on this 12+ acre redevelopment project which turned previous contaminated industrial properties into a state-of-the-art soccer-specific stadium. Responsibilities have included evaluation of site remediation data and reporting in support of the Remedial Action Workplan (RAW), Soil Re-use Proposal, Health and Safety Plan, Air Monitoring Plan, and Vapor Intrusion Mitigation Design for the project. Also, coordinated excavation of and off-site disposal for contaminated soil during pile-cap construction activities as well as preparation of NJPDES Discharge-to-Groundwater permit by rule.

NJDEP, Lower Passaic River Restoration Project, New Jersey.

Remedial design program manager. Louis Berger is NJDEP's lead consultant on the Passaic River restoration project. Mr. McGonigal managed tasks within this engagement including: assisting the NJDEP in any project related technical matters arising from involvement with other agencies, reviewing/commenting on the reports produced by these agencies, responsible parties or other stakeholders including cooperating agencies and community/environmental groups.

Nicolaas Veraart, AICP, ASLA

EIS Task Leader

Education

M.S. - Regional Planning and Land Planning,
Wageningen University, Netherlands

B.S. - Land Planning and Landscape
Architecture, Wageningen University,
Netherlands

Registration

American Institute of Certified Planners
American Society of Landscape Architects

Years of Experience

With Louis Berger: 16
Total Years: 28

Mr. Veraart is a vice president with Louis Berger where he leads the firm's environmental planning practice and resiliency efforts. He brings over 25 years of NEPA experience in the tri-state area with NEPA environmental review for large-scale complex infrastructure projects. His HUD CDBG-DR NEPA experience includes his role as Louis Berger's Project Manager for the environmental review for the Lower Manhattan Recovery projects post 9/11 with his award-winning work for the World Trade Center Memorial and Redevelopment GEIS. He is also the Project Manager for the post-Sandy New York Rising Community Reconstruction Program and subsequent implementation of reconstruction projects, providing NEPA HUD CDBG-DR environmental review for over \$600M in construction such as the \$125M Rebuild By Design Living with the Bay and the \$380M Suffolk Sewers projects. Mr. Veraart is very familiar with the Meadowlands as he was retained by the USACE to lead the Meadowlands Mills EIS and served as Principal Environmental Planner on the Meadowlands Comprehensive Restoration Implementation Plan (MCRIP) NEPA Programmatic EIS.

He has published extensively on resilience, sustainability, and infrastructure including for the Transportation Research Board (TRB) and National Academy of Sciences and is a frequently invited contributor to professional expert panels on resiliency. Most recently, he presented on critical infrastructure and served as a Subject Matter Expert (SME) for the HUD-sponsored National Resilience Academy to assist applicants with their submissions to the \$1B National Disaster Resilience Competition (NDRC). Projects led by or contributed to by Mr. Veraart have earned recognition, including a 2015 Outstanding Plan Award from APA-NJ, a 2014 Meritorious Achievement Award from APA-NY Metro, a 2012 Smart Growth Award from New Jersey Future, and multiple Diamond Engineering Excellence Awards from ACEC.

USACE New York District, Meadowlands Comprehensive Restoration Implementation Plan (MCRIP) NEPA PEIS, New Jersey. As Principal Environmental Planner, Mr. Veraart was responsible for quality assurance and management of the PEIS, which provides an evaluation of environmental, social, and economic issues and alternatives to achieve project goals and objectives, while avoiding/minimizing adverse impacts, providing USACE with the necessary NEPA compliance documentation for MCRIP implementation. The PEIS is a comprehensive document that considers a number of related actions proposed in the MCRIP, including cumulative, direct, and indirect impacts.

USACE New York District, NEPA EIS, Meadowlands Mills Regional Mall, Bergen County, New Jersey. As Project Manager, Mr. Veraart prepared the EIS and Section 404(b) Permit Alternatives Analysis on behalf of the USACE for the development of a 600-acre site for the construction of a mixed use regional mall, office, and recreation complex. The project applicant proposed the modification of approximately 200 acres of wetlands, and the project involved extensive wetland creation and enhancement.

New York State Governor's Office of Storm Recovery / Housing Trust Fund Corporation, On-Call Contract for HUD CDBG-DR NEPA Environmental Review, Management and Testing Services, New York. Mr. Veraart is Program Manager overseeing Louis Berger's environmental planning and engineering services to the New York State Governor's Office of Storm Recovery (GOSR) to assist with project development and the preparation of NEPA environmental clearance documents for HUD CDBG-DR funded resiliency projects. Mr. Veraart is responsible for the environmental review and project development for a project portfolio exceeding \$600M in construction. His role includes close coordination with the federal interagency coordinating group.

Lower Manhattan Development Corporation, HUD CDBG-DR NEPA GEIS for World Trade Center Memorial and Redevelopment Plan, New York, New York. As Project Director Mr. Veraart directed Louis Berger's services for the World Trade Center (WTC) GEIS. Indirect and cumulative

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impacts were addressed through the development of an EPA-approved Environmental Analysis Framework that enabled the streamlining of environmental review for the rebuilding of Lower Manhattan, enabling the completion of the GEIS process for this high-profile complex HUD-CDBG-DR infrastructure project within a record time of 12 months. Environmental Performance Commitments were developed under Mr. Veraart's leadership that effectively addressed both public and agency concerns about the environmental impacts of the massive rebuilding program.

New Jersey TRANSIT/FTA, Access to the Region's Core NEPA EIS. Task Leader. Mr. Veraart prepared the Section 4(f) Evaluation on behalf of the FTA for the Access to the Region's Core project, a \$7.6 billion new and improved rail connection between New Jersey and Manhattan. The evaluation addressed historic, archaeological, open space resources, and wildlife refuges. This included the evaluation of the effects of tunnel construction under the Hudson River.

New Jersey Transit, Hoboken Green Infrastructure Strategic Plan, Hoboken, New Jersey. Project Manager. The award-winning plan identified place-based sustainable stormwater management and flood control strategies for the City of Hoboken with a focus on access to transit infrastructure and green infrastructure best management practices with engineering concepts, regulatory mechanisms, partnerships for integrating green infrastructure into capital improvement, and private development projects. The Plan received the 2015 Outstanding Plan Award from APA-NJ.

Lower Manhattan Development Corporation, HUD CDBG-DR Environmental, Planning and Analysis Services Task Order On-call (multiple consecutive contract). Program Director. Mr. Veraart directed multiple, consecutive on-call contracts for the HUD CDBG-DR program for the rebuilding of Lower Manhattan. Task orders addressed specific projects for open space planning, economic development, transportation improvements, and remediation. The planning services provided for the national September 11 Memorial were awarded the ACEC Diamond Award for Engineering Excellence by the American Council of Engineering Companies.

New York State Governor's Office of Storm Recovery / Housing Trust Fund Corporation, Rebuild by Design Living with the Bay / Mill River NEPA EIS Scoping and Alternatives Development, Nassau County, New York. Project manager for Phase I of the \$125M Living with the Bay project, developed through the RBD Competition. In addition to environmental review, services include the development of design options and alternatives that enable implementation of the RBD concept, while leveraging local and regional resilience

initiatives and public and private investments, thereby meeting the purpose and need of flood risk mitigation, ecorestoration, economic development, and improved quality of life. Specific attention is paid toward stakeholder engagement, regulatory streamlining opportunities, and integration of benefits to Lower and Middle Income (LMI) populations in accordance with HUD requirements.

New York State Governor's Office of Storm Recovery / Housing Trust Fund Corporation, NY Rising Community Reconstruction Plans, Staten Island, Nassau County, Brooklyn and Queens, New York. Project Manager. The project involved the development of six critical resiliency plans, including community engagement, cost-benefit analysis, and comprehensive reconstruction plans with fact-based and cost-effective projects that creatively integrate resilience with economic growth and environmental improvements. Recipient of three Rising to the Top Awards from the Governor of New York State for Best Use of Green Infrastructure, Best Approach to Resiliency Economic Growth, and Best Inclusion of Vulnerable Populations; as well as a Meritorious Achievement Award from the American Planning Association – NY Metro Chapter.

New York City Economic Development Corporation, NEPA HUD CDBG-DR Environmental Assessment for Saw Mill Creek Wetland Mitigation Bank (MARSHES), Staten Island, New York. Project Manager. This project is an Environmental Assessment per HUD 24 CFR Part 58 for the first Wetland Mitigation Bank in New York, also designed by Louis Berger to enhance habitat and water quality, facilitate waterfront and economic development, and increase coastal resilience. The project included an extensive regional site selection and alternatives analysis.

New York State Governor's Office of Storm Recovery / Housing Trust Fund Corporation, Suffolk Sewers NEPA Environmental Assessments, Suffolk County, New York. Mr. Veraart is leading an 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.

New Jersey Future, Resource Gateway for Innovative Management Practices for Sewer and Stormwater Infrastructure, New Jersey. Project Manager. This project involves the development of a resource gateway for best practices 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.



Peg McBrien, P.E., P.W.S. Regulatory Compliance Task Leader

Education

M.S. - Environmental Engineering,
Northwestern University, 1989

B.A. - Geology, Mount Holyoke College, 1986X

Registration

Professional Wetlands Scientist

Professional Engineer: New Jersey,
Massachusetts, North Carolina

Years of Experience

With Louis Berger: 16

Total Years: 28

Ms. McBrien has extensive experience in managing wetland, stream, water quality, and watershed evaluation and restoration projects. She has managed restoration designs for more than 1,800 acres of aquatic ecosystems. For these projects, Ms. McBrien managed multi-disciplinary staff and contractors to complete topographic and bathymetric surveying, soil borings and geotechnical studies, sediment and water contamination investigations, habitat surveys, vegetation mapping, cultural resource assessments, environmental permit applications, hydraulic and hydrodynamic modeling, civil design plans and specifications, construction cost estimates, technical reports, and construction oversight. As a former U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection (EPA) employee, Ms. McBrien is thoroughly familiar with environmental regulations, guidelines, and procedures. She has extensive federal and state regulatory experience including delineating wetland boundaries, assessing wetland functions and services, restoring and creating streams and wetlands,

obtaining state and federal permits, conducting ecological risk assessments, and designing stormwater and wastewater treatment wetlands.

Project Manager, New Jersey Meadowlands Commission, Final Design of Secaucus High School Wetland Enhancement Site, New Jersey Meadowlands, New Jersey. Responsible for completing a construction bid package and providing construction oversight. The design enhances an approximately 31-acre degraded tidal marsh located adjacent to the Secaucus High School on the Hackensack River by improving tidal flow and re-establishing a diversity of high and low marsh wetland plants to provide habitat for a variety of wildlife. Reviewed data on site— soils, hydrology, vegetation, and wildlife use as well as the preliminary plans and specifications and the issued permits to gain a full understanding of the site and the permitted design. Assessed the water budget, tidal elevations, survey data, geotechnical data, construction technique feasibility, hydrologic modeling, and boardwalk design. Conducted extensive research on the appropriate soil types to be used as fill material to support the high marsh habitat islands. Based on anticipated erosion forces on the islands, explored and used both hard (riprap toe on a portion of one island) and soft (coir fiber mat across entire island surface) techniques to stabilize the island fill material. Conducted multiple site visits to ascertain field conditions and verify design assumptions. Completed final plans including layout and elevations of proposed wetland and boardwalk and density and distribution of species to be planted or seeded. Completed detailed construction specifications including specifications to ensure the contractor employs and correctly handled the appropriate soil type for the islands. Assisted with acquisition of the Soil Erosion and Sediment Control Plan Certification. Managed construction oversight of selected Construction Contractor – The Dawson Corporation.

Project Manager, USACE New York District, Meadowlands Comprehensive Restoration Implementation Plan (MCRIP), NJ Meadowlands, New Jersey. Responsible for the completion of the Initial Phase of the MCRIP, which addresses the engineering, environmental, and economic feasibility of the comprehensive restoration plan for the HMD as a precursor to the advancement of the Meadowlands Feasibility Study and engineering, design, and construction. The purpose of the MCRIP is to develop and evaluate alternatives for implementing solutions to ecosystem degradation and water resources problems in the HMD. Oversaw Hydrogeomorphic (HGM) Functional Assessment Model and IVA baseline data collection for potential restoration sites and developed HGM scores for proposed restoration measures at the sites. Coauthored the Preliminary Report, which included: creation of a Purpose and Need Statement, which included a list of degradation factors and reference habitats for the HMD; development of site restoration measures, on which site restoration designs would be based in future phases of the project; establishment of performance metrics for the overall HMD and specific sites, on which the success of past, present, and future restoration and enhancement sites would be measured; and assessment of the effects of the

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implementation of the restoration measures on potential sites. Responsible for intense coordination with multiple agencies and organizations, including the USACE, U.S. Fish and Wildlife Service (USFWS), and New Jersey Meadowlands Commission for both the data collection, site assessments, and preparation and review of the report.

Task Manager NJDEP (in Coordination with NOAA), Lincoln Park Wetland Restoration, Jersey City, New Jersey.

Responsible for determining restored marsh elevations for tidal wetland to optimize success and minimize costs. Reviewed design plans and specifications for accuracy. Project required dredging approximately 245,000 cubic yards (cy) of material, including 2 feet of over-excavation followed by the import and placement of processed dredged material (PDM) to achieve final proposed grades.

Task Manager, NJDEP (in coordination with NOAA), Mad Horse Wetland Restoration, Salem County, New Jersey.

Freshwater and tidal wetland restoration design studies, construction plans, and specifications for the Mad Horse Creek Wetland and Coastal Grassland adjacent to the Delaware Bay. Managed the characterization of the existing ecological, hydrological and geotechnical conditions, and development of design plans and specifications. The site is being restored as partial compensation for the 250,000 gallon oil spill caused by the grounding of the merchant marine oil tanker Presidente Rivera in the Delaware River in 1989. Impacts caused by the spill included park and fishery closures, and oil deposits along the coastal wetlands and shoreline impacts through 30 miles of river.

Program Manager, NOAA Damage Assessment Remediation and Restoration Program (DARRP) Indefinite Delivery Indefinite Quantity (IDIQ), Environmental Restoration Projects and Related Work.

For the NOAA Ecosystem Restoration IDIQ contract, which focuses on DARRP-funded projects, emergency response, restoration design, and National Environmental Policy Act (NEPA) for various NOAA actions/facilities. Recent projects include the Saugatucket River Fish Ladder Design and Construction Assistance in Rhode Island, Seagrass Restoration Services along the Northern Coast of the Gulf of Mexico in Florida, and Alaska/Arctic Oil Spill Risk Analysis.

Project Manager, EarthMark New Jersey Kane Mitigation, LLC., Technical Studies, Permitting, Design, and Construction Oversight of the Kane Tidal Wetland Mitigation Bank and Forested Mitigation Site, Bergen County, New Jersey Meadowlands, New Jersey.

Responsible for establishing the Richard P. Kane Tidal Wetland Mitigation Bank and Kane Forested Wetland in the New Jersey

Meadowlands. The 17-acre forested wetland is providing wetland mitigation for the Port Authority's Teterboro Airport EMAS project. Oversaw wetland design and obtained regulatory approvals of the approximately 234-acre site, the largest wetland bank in New Jersey, on an expedited schedule from the Meadowlands Interagency Mitigation Advisory Council (MIMAC), USACE, and the New Jersey Department of Environmental Protection (NJDEP). The Bank may be used by four New Jersey transportation agencies: New Jersey Transit (NJ TRANSIT), New Jersey Department of Transportation (NJDOT), Port Authority of New York and New Jersey (PANYNJ), and the New Jersey Turnpike Authority (NJTA). Managed the completion of a Phase I study, baseline ecological evaluation, ecological risk assessment and sediment sampling and analyses to assess site contamination; topographic, boundary, and bathymetric surveys; vegetation characterization; bio-benchmark studies; wetland delineation; wetland functional assessment; cultural resource assessment; threatened and endangered species analysis, hydrologic monitoring and modeling for the tidal portion, groundwater monitoring, and water budget development for the freshwater portion; and geotechnical sampling and analyses. Based on the information collected from these technical studies, prepared design/build plans along with a cost estimate and construction schedule to establish approximately 230 acres of emergent wetlands, scrub shrub wetlands, freshwater forested wetlands, open water channels/pools, mudflat habitat, and uplands in accordance with the provisions of a Mitigation Banking Instrument and regulatory permits. Obtained a Jurisdictional Determination and Section 404/Section 10 permit from USACE, NJDEP Waterfront Development Permit and Flood Hazard Area Permit, NJDEP Tidelands License, and a Soil Erosion and Sediment Control Plan Certification and New Jersey Pollution Discharge Elimination System (NJPDES) RFA from Bergen County. Provided construction assistance and monitored wetland establishment. The restored site is expected to create critical habitats for benthic organisms and crucial foraging areas for fish and migrant waterfowl.

Michael F. Schmidt, P.E., BCEE, D.WRE

Feasibility Study Task Leader

Education

B.S. — Environmental Engineering, University of Florida, 1984

Registration

Professional Engineer: Florida and Louisiana

Board Certified Environmental Engineer (BCEE), American Academy of Environmental Engineers and Scientists

Diplomate Water Resource Engineer, American Academy of Water Resources Engineers, 2015

Years of Experience

With CDM Smith: 29

Total Years: 31

Mr. Schmidt has 31 years of experience in stormwater, flood control, coastal, ecosystem restoration, water resource, and watershed master planning, modeling, research, facilities evaluations and design, permitting, operations, asset and data management, implementation, training, public information, and funding. He has managed or directed more than 180 stormwater and water resource management programs. Mr. Schmidt has guided the implementation of \$500+ million of multi-benefit capital improvements, and he has led and directed CDM Smith teams in developing innovative solutions that have saved our clients over \$240 million. He has peer reviewed, applied, and/or directed stormwater and water resource model applications including U.S. Environmental Protection Agency (USEPA) SWMM and EFDC; XP SWMM; U.S. Army Corps of Engineers (USACE) HEC STORM, HMS, RAS, and Dambreak; FDEP WMM; SFWMD LOEM, DMSTA2, and RSM; WAMView; USGS MODFLOW and WETLANDS package; DHI Mike SHE and 11; STELLA; and ICPR.

Technical Manager, Blind River Freshwater Diversion Feasibility Study, EIS, and Conceptual Design, LA CPRA and USACE New Orleans District, Louisiana.

Mr. Schmidt served as technical manager for the LA OCPR and USACE New Orleans

District Blind River Freshwater Diversion project to re-establish hydroperiod, and sediment and nutrient fluxes to support wetland forest growth and regeneration. The project will divert 3,000 cfs to restore up to 36 sq. mi. of coastal wetlands. He identified a dual use option for water distribution with the flood control system that will save between \$30 and \$40 million in capital costs and over 1 sq. mi. of forested wetlands. Project feasibility evaluations included three sea level rise scenarios over the 50 year planning horizon.

Technical Manager and Engineer of Record, Lake Okeechobee Fast Track (LOFT) Project Basis of Design Report (BODR) and Technical Manager for Lakeside Ranch STA Preliminary and Final Design, South Florida Water Management District (SFWMD) Florida. Mr. Schmidt was the technical manager and engineer-of-record for the SFWMD LOFT Project BODR for the 2,000-acre Taylor Creek Reservoir and 2,700-acre Lakeside Ranch Stormwater Treatment Area (STA). He led the work team in the application of seven models in parallel to guide feasibility evaluations, design, and operations. The system-wide model considered the interaction between the existing flood control pump stations, canals, two navigable locks, S-191 and S-153 control structures, Taylor Creek STA, Nubbin Slough STA, proposed Taylor Creek reservoir and proposed Lakeside Ranch and Brady Ranch STAs. This approach provided design and operations innovations that saved approximately \$140 million in capital costs.

Lead Engineer and Technical Manager, C-44 Reservoir-STA Conceptual Design, Aquacalma and SFWMD, Florida. Mr. Schmidt served as lead engineer and technical manager for the feasibility study and conceptual design of a combined 12,000 acre reservoir and STA system to capture, store and treat excess flows from the C-44 Canal as part of Lake Okeechobee and Indian River Lagoon restoration.

Technical Manager, Hydrologic, Hydraulic, and Hydrodynamic Support, St. Johns River Water Management District (SJRWMD). Mr. Schmidt served as technical manager for ecosystem restoration projects for the SJRWMD including:

- Water quality BMP decision matrix to guide BMP selection, sizing and costing.
- Tri-County Agricultural Area (TCAA) nutrient reduction program which included over \$2M in cost savings by coordination with FDOT for fill material in-exchange for construction of two Regional Stormwater Treatment (RST) facilities to treat nutrients from agricultural runoff.

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- Wekiva Springshed Protection program which evaluated aquifer and spring protection strategies and regulations for central Florida.
- Nutrient reduction plans for Lake George and Lake Apopka. These lakes are the second and third largest in the State of FL after Lake Okeechobee, and the projects have involved evaluations of alternative BMPs and management measures to reduce nutrients and growth of algae and Cyanobacteria.
- Cedar and Ortega River sediment remediation project in coordination with the City of Jacksonville.
- Minimum Flows and Levels (MFLs) program to identify the necessary environmental low flows and water levels for lakes and streams for water supply and ecosystem protection.

Project Manager, USACE Water Resources Engineering Support and Hydrologic and Hydraulic (H&H) Studies for Ecosystem Restoration, Jacksonville District, Florida. Mr. Schmidt managed three indefinite delivery contracts which included the following:

- Hydrologic, hydraulic, and database planning and engineering support for the SWFFS, including modification of Mike SHE-11 models for the Caloosahatchee River, Estero Bay, and Big Cypress Basin, along with the SWFFS Hydrogeologic Database. Earned "Excellent" overall ratings in the two Architect/Engineer Contract Administration Support System (ACASS) evaluations.
- Uncertainty Analysis for Inflow Design Floods – Lake Okeechobee Herbert Hoover Dike – evaluation of the uncertainty for Kissimmee River Watershed flows to the lake for dam safety analyses.
- Hydrologic, hydraulic, and ecosystem restoration evaluations for the Boquerón Wildlife Refuge in Puerto Rico.
- Cerrillos Dam assessment in Puerto Rico.
- SFWMD Regional Simulation Model (RSM) peer review of hydrology and hydraulics and C-43 Calibration.
- RSM Verification Test Cases for surface-groundwater hydrology and hydraulics.
- South West Florida Feasibility Study (SWFFS) Watershed Management Model (WMM) for the hydrologic, water quality, and best management practices (BMP) evaluations of the Big Cypress Basin (BCB) and updates for the Caloosahatchee River and Estero Bay watersheds.

This also included onsite WMM training for the USACE, the USEPA, SFWMD, and Lee County staff through CDM Smith University.

Project Manager, USACE Water Resources Engineering Support H&H Studies for Mobile District, Alabama. Mr. Schmidt managed two indefinite delivery contracts which included Emergency Action Plan support with dam break analyses for the Allatoona, Carters, and Westouisia Point dams and Restricted Reservoir Operation Plans for the West Point and R.F. Henry dams to maintain flood control during trunion gate system repairs.

Project Engineer, Project Manager and Technical Manager, Master Stormwater Management Plan (MSMP), Update and Implementation, Jacksonville, Florida. Mr. Schmidt served as project engineer, project manager, and technical manager over the past 26 years for the 800 square mile study area for the City of Jacksonville MSMP with detailed hydrologic, hydraulic, and water quality modeling; permitting; design; and implementation of over \$150M in stormwater facilities as part of the Lower St. Johns River Restoration Program for the city and the SJRWMD. He also innovated floodplain, floodway, and detention techniques for sustainable river management systems, including volume-time detention controls for the full range of hydrology and dynamic floodway methodologies that consider both storage and conveyance.

Technical Advisor, Baptiste-Collette Navigation Channel Feasibility Study, Plaquemines Parish, Louisiana. Mr. Schmidt served as a technical advisor for the navigation channel evaluation for an improved outlet from the Mississippi River, which included multi-dimensional hydrodynamic and water quality modeling, wetlands evaluations, engineering and cost evaluations of channel configuration, and beneficial use of dredge material for wetlands creation.

Model Research, Development, and Implementation. Mr. Schmidt has served as stormwater model caretaker and stormwater watershed director for CDM Smith's Water Resource Practice Group. As part of this assignment, Mr. Schmidt was the caretaker and led methodology and code development for the U.S. EPA Storm Water Management Model (SWMM) with Dr. Wayne Huber for 12 years (1988 through 1999) and for the FDEP Watershed Management Model (WMM), along with several graphical user interfaces (GUIs), over the past 24 years. Both these tools are supported in the public domain.

Stephen L. Whiteside, P.E.

Design Task Leader

Education

Engineer Degree – Geotechnical Engineering,
Stanford University, 1976

M.S. – Geotechnical Engineering, Stanford
University, 1975

B.S. – Civil Engineering, Duke University, 1974

Registration

Professional Engineer: New Jersey, North
Carolina, South Carolina, Virginia, Georgia,
Florida, Alabama, Tennessee, Kentucky,
Louisiana, Arkansas and Massachusetts

Years of Experience

With CDM Smith: 15

Total Years: 39

Mr. Whiteside has 39 years of professional experience in providing geotechnical and dam engineering services. His extensive experience includes inspection of concrete and embankment dams and levees; design of new roller compacted concrete (RCC) dams, embankment dams, and levees; decommissioning of existing dams; assessment and closure design for coal ash impoundments; design of RCC and articulated concrete block mat overtopping protection and soil cement erosion protection; and design of other rehabilitation measures for existing concrete and embankment dams, levees, and appurtenant structures. He is a Federal Energy Regulatory Commission (FERC)-approved independent consultant for Part 12 dam inspections and PFMA facilitator. His geotechnical experience includes geotechnical investigations and designs for water and wastewater treatment plants, pump stations, tunnels, bridges, roadways, pipelines, landfills, and waterfront structures.

Lead Geotechnical Engineer, Trinity Uptown Program, Fort Worth, Texas. Mr. Whiteside is the lead geotechnical engineer for proposed rerouting of the Trinity River in Fort Worth, Texas. This project includes a new river channel, construction of new levees, raising of existing levees, retaining walls and parks incorporated into the levees on one side of the channel, replacement of existing bridges, new

roller compacted concrete (RCC) dam, and isolation gates to control water levels.

Lead Geotechnical Engineer, Noman Cole Pollution Control Plant Equalization Basin and Flood Protection

Improvements, Fairfax County, Virginia. Mr. Whiteside was lead geotechnical engineer for the planning evaluation and development of a preliminary engineering report and engineering design for required improvements to existing equalization basins, pump stations, flood protection systems, and other facilities at the Noman Cole Pollution Control Plant in Lorton. He oversaw the geotechnical investigation, seepage analyses, and stability analyses and reviewed hydrologic/hydraulic analyses to develop flood protection measures to protect the plant against the 100-year flood event and potentially be accredited by FEMA. The measures include a combination of new floodwalls and a levee.

Technical Consultant, Klamath River Dam Removal, California and Oregon. Mr. Whiteside was a technical consultant for the environmental impact statement project for evaluating the decommissioning of four dams on the Klamath River in California and Oregon. The work included evaluating potential sediment management plans for the dam removals.

Technical Consultant, Bucklin Point WWTP Levee Raise, East Providence, Rhode Island. Mr. Whiteside served as the technical consultant for the design for raising a perimeter levee around the Bucklin Point WWTP in East Providence, Rhode Island. The project involved raising an existing levee in order to provide 100-year flood protection for the plant. The levee is approximately 3,000 feet long and up to 20 feet high. CDM Smith performed a detailed topographic survey, performed a geotechnical field and laboratory program, and developed construction documents.

Project Manager, Various Dams, U.S. Army Corps of Engineers. Mr. Whiteside was the project manager for two indefinite delivery agreements with the U.S. Army Corps of Engineers, New England Division to provide services at various dams in New England. The projects included a liquefaction evaluation of the 35-foot-high Old Quincy Reservoir Dam, Braintree, Massachusetts; design, installation, and monitoring of slope inclinometers and precision surveying network at the 265-foot-high Ball Mountain Dam, Jamaica, Vermont; installation of 24-inch-diameter relief wells at the 133-foot-high Townshend Lake Dam, Townshend, Vermont; construction of a graded filter seepage control beam at the 75-foot-high North Springfield Lake Dam, North Springfield, Vermont; construction of a downstream toe drain at the 130-foot-high Thomaston

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Dam in Thomaston, Connecticut; design of automated instrumentation systems at Townshend and North Springfield Lake Dams; and evaluation of instrumentation at Mansfield Hollow Dam, Mansfield, Connecticut.

Lead Geotechnical Engineer, USACE New England District, Assabet River Sediment and Dam Removal Study, Massachusetts. Mr. Whiteside served as the lead geotechnical engineer for the civil works planning study for the USACE and local sponsor MA DEP. The study evaluated a series of alternatives for sediment and dam removal on the main stem of the Assabet River west of Boston to meet the goals of a previously developed TMDL for the river (total phosphorus). Extensive hydrologic, hydraulic, sediment transport, and water quality modeling was conducted using HSPF, HEC-RAS, and HEC-6. The reconnaissance level study also involved preparation of civil site plans, conceptual depictions, cost estimates (MCACES – MII), and a sediment management plan to evaluate dredging methods and disposal options for contaminated sediment.

Technical Consultant, Inspection and Engineering Assessment of Water Supply Dams, Troy, New York. Mr. Whiteside is the technical consultant for engineering services for the dams owned by the City of Troy, New York including Tomhannock Reservoir, Wright Lake, and Bradley Lake Dams. The services have included dam inspections, preparation of Inspection and Maintenance Plans, dam-break analyses and Emergency Action Plans, Engineering Assessments and design of rehabilitation measures for the dams.

Lead Geotechnical Engineer, Dam Inspections, New York City. Mr. Whiteside was the lead geotechnical engineer for the inspection of 20 water supply dams and reservoirs for the New York City Department of Environmental Protection. The reservoirs provide the water supply for the city. The inspection reports included recommendations for repair, improvements, or further evaluations for each dam.

Geotechnical Engineer, Inspection of Dams, Middletown, New York. Mr. Whiteside conducted visual inspections of eight dams that are part of the water supply for the City of Middletown and several neighboring towns. The dams included Monhagen Dam, Mapes Dam, Carey Dam, Woodward Dam, Greenleaf Dam, Kinch Dam, Stewart Dam, and Mill Pond Dam. The inspection reports included recommendations for repair, improvements, or further evaluations for each dam.

Engineer of Record, Savannah Harbor Expansion Project Raw Water Impoundment, Savannah, Georgia. Mr. Whiteside was the Engineer of Record for the design of a 97-MG raw water impoundment for the Savannah Harbor Expansion Project (SHEP) in Savannah, Georgia. The purpose

of the reservoir is to mitigate salinity impacts on a raw water intake as a result of the proposed harbor dredging. The project includes an extensive geotechnical investigation, dam-break analyses, seepage and stability analyses, liquefaction and seismic deformation analyses, and design documents for the dam, raw water pump station, pipelines, and other appurtenant structures. The reservoir will have an HDPE liner underlain by a geocomposite drainage net.

Engineer of Record, Freedom Park Dam Decommissioning, Valdosta, Georgia. Mr. Whiteside was the Engineer of Record for the decommissioning of Freedom Park Dam in Valdosta, Georgia. The City of Valdosta received the dam as a gift from a developer. The dam had serious deficiencies and the Georgia Safe Dams Program required that the dam either be rehabilitated, replaced, or breached. Due to the high cost to rehabilitate or replace the dam, the City decided to breach the dam. CDM Smith performed a geotechnical investigation and hydrologic/hydraulic analyses and designed the dam breach. The City constructed the breach with their in-house forces and materials. The dam is no longer a jurisdictional dam.

Technical Consultant, Lowell Flood Protection Project, Lowell, Massachusetts. Mr. Whiteside was the technical consultant for the evaluation and rehabilitation of the Lowell Flood Protection project in Lowell. The system consists of approximately 1,750 linear feet of I-walls and 3,350 linear feet of earthen levees. CDM Smith performed a geotechnical investigation, developed a rehabilitation design to bring the levees and floodwalls into compliance with FEMA regulations, obtained a Section 408 permit from the USACE, and oversaw the construction.

Lead Practitioner, Industrial Park Levee FEMA Accreditation – Design, Construction and Regulatory Submittal, Council Bluffs, Iowa. Mr. Whiteside is the Lead Practitioner for the effort to attain FEMA accreditation for the Industrial Park Levee. This effort involved a significant coordination between the city and the private land owners, including two major industries and a casino. The overall project consisted of multiple task orders, including the accreditation submittal, coordination of subcontractor activities in the design of levee improvements needed for accreditation and construction phase services of the levee improvements. The project has included geotechnical investigations, detailed geotechnical analyses, and design of modifications.



Brian E. Kearney, P.E.

Construction Administration Services Task Leader

Education

M.E. - Environmental Engineering, Manhattan College, 2000

B.S. - Environmental Engineering, Syracuse University, 1995

Registration

Professional Engineer: New York

Years of Experience

With CDM Smith: 19

Total Years: 20

Mr. Kearney is an environmental engineer who has 20 years of professional experience serving as a project manager, construction manager, resident engineer, and design engineer on a wide range of multi-disciplinary municipal water, wastewater, combined sewer overflow (CSO) infrastructure projects. In addition he has worked on a variety of environmental projects in the areas of hazardous waste, solid waste, and water resources.

Deputy DSDC Manager, Catskill/Delaware (Cat/Del) Ultraviolet (UV) Light Disinfection Facility Construction, New York City Department of Environmental Protection (NYCDEP).

Mr. Kearney served as the design services manager during construction (DSDC) for the construction and startup of the 2,020-mgd UV disinfection facility for the NYCDEP. The \$1.5 billion facility is the largest UV disinfection facility in the world. The new facility included installation of 56, 48-inch UV reactors, flow control and measurement using 16, 84-inch energy dissipating valves and four, 120-inch venturi flow meters, standby generators,

electrical distribution and various support facilities. Mr. Kearney was responsible for managing a team of approximately 50 people working out of 10 separate, but electronically interconnected offices. He was personally responsible for the detailed review of approximately 12,000 shop drawings, coordination of contractor change order development and RFI response as well as direct communication with the owner, third party construction manager, and various contractors. Mr. Kearney also served as the design liaison to the project risk management team responsible for maintaining the project risk register. In addition, he assisted in facility startup planning, operations and development, and implementation of 50 facility standard operating procedures (SOPs) and the electronic operations and maintenance manual.

Project Manager/Construction Manager, Wastewater Facilities Upgrade Construction, Florham Park Sewerage Authority, Florham Park, New Jersey.

Mr. Kearney served as the project manager and construction manager for the \$8 million facilities upgrade project to the Florham Park Sewerage Authority wastewater treatment plant. He provided construction coordination and general contract administration for the project which included four new main sewage pumps, architectural improvements to the administration building, facility-wide electrical system improvements, and the implementation of a supervisory control and data acquisition (SCADA) system at the wastewater plant and outlying pump stations. Mr. Kearney was responsible for overseeing CDM Smith's construction inspection efforts, shop drawing review, responding to request for information, coordination between contract, and change order negotiating and processing.

DSDC Design Liason, Cat/Del UV Light Disinfection Site Preparation Construction, NYCDEP. Mr. Kearney also served as the DSDC design liaison in support of the \$54 million Site Preparation Contract for the Cat-Del UV facility. In this role, he was responsible for managing design issues during construction including change orders, requests for information and clarification at the Kensico Site, and project closeout at both the Eastview and Kensico Site. Mr. Kearney's involvement in support of the project was related to the demolition, ultimate backfilling, and closure of both the Catskill and Delaware Aerators as well the overflow conduit at the Kensico Site.

Task Manager, Water Treatment Plant Upgrade Design, Private Water Company, New Jersey. Mr. Kearney was part of the \$85 million design-build upgrade for a private water company's 185-mgd facility in Northern New Jersey. For this project, he served as the task manager for the design of the new residual treatment facilities. He was responsible for the conceptual design of the new dissolved air flotation (DAF) sludge and filter backwash treatment facilities which includes storage, thickening, clarification, pumping, and dewatering. In addition, Mr. Kearney was responsible for coordination between all process areas and engineering disciplines for the site design including layouts and tie points between the new and existing facilities.

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During construction, he was the primary point of contact for all construction related issues during the construction of the new residual facilities and site work. He was responsible for shop drawing review, reviewing and responding to RFIs, and issuing work change directives and sketches as necessary for the contractor to complete the work.

Project Manager/Construction Manager, Brick Sewer Rehabilitation, City of Newark, New Jersey. Mr. Kearney served as the project manager and construction manager for Phase V of the brick sewer rehabilitation program and he oversaw and managed more than \$18 million in multiple construction projects for the rehabilitation of more than 9 miles of the historic brick sewer system in the city. Mr. Kearney served as the point of contact for all coordination between the various contractors, owner, and CDM Smith inspection staff. He provided the city with recommendations on technical matters and construction-related issues. He was personally responsible for general construction contract administration; overseeing CDM Smith's construction inspectors; shop drawing review; responding to the contractor's request for information; coordination between contractors; and change order review, negotiations and processing.

On-Site Manager/Resident Project Representative, Water Pollution Control Facility (WPCF) Upgrade, Village of Ridgewood, New Jersey. Mr. Kearney was the on-site manager of construction services and resident project representative for the \$15 million upgrade and expansion of the village's WPCF. The project included upgrading the existing headworks with new bar screens and grit removal equipment, upgrading four existing aeration basins with fine bubble aeration, upgrading the two existing primary clarifiers and two existing secondary clarifiers with new spiral collectors, constructing a new secondary clarifier with spiral sludge collection, upgrading the two existing digester, and upgrading the plant's four pump stations. Mr. Kearney served as the first point of contact for the client for all construction-related issues. He supervised a staff of inspectors and was responsible for review of the contractor's monthly pay estimates, preparation of daily reports, and record drawings.

Project Manager/Construction Manager, Interceptor Construction, Somerset Raritan Valley Sewerage Authority, Bridgewater, New Jersey. Mr. Kearney served as the project manager and construction manager for the construction administration of a new 19,400-foot, 30-inch, and 36-inch diameter gravity sewer. Construction of the interceptor included eight separate river crossings, a jack and bore crossing of an existing state highway, and the implementation of a SCADA control system to manage the flow through six

new gate chambers while working in and around a bald eagle nesting and foraging site. Mr. Kearney served as the point of contact for the owner and contractor; was responsible for overseeing CDM Smith's construction inspection efforts; shop drawing review; responding to contractor RFIs; reviewing the contractor's critical path method (CPM) project schedule; preparation of work change directives; and reviewing, negotiating, and processing change orders.

Design Engineer, Upgrades to CSO Facility, NYCDEP. As a design engineer for the Spring Creek facility, Mr. Kearney was responsible for supervising upgrades to the basin building, which houses six separate 50-foot-wide by 500-foot-long CSO detention basins and provides for 15 mg of CSO storage. In addition, he was personally responsible for the design of the new 24-mgd basin cleaning system with a system of fixed spray water headers with orifices to replace the existing traveling bridge cleaning system. Also, he designed a new floatables control system, a new tide control system, and coordinated major structural modifications to the existing reinforced concrete roof structure. A phased demolition and construction sequence was incorporated into the design so that the work would not impede the operations of the facility during construction. Mr. Kearney developed detailed design specifications and contract drawings for the public bidding of the job.

Site Manager, CSO Disinfection Pilot Study, NYCDEP. As part of the Spring Creek upgrade project, Mr. Kearney served as the site manager for the CSO disinfection pilot study. He supervised a team of engineers for the field pilot study of innovative, alternative high-rate disinfection technologies. Five disinfection technologies (chlorination/dechlorination, chlorine dioxide treatment, ultraviolet irradiation, ozonation, and electron beam irradiation) were tested concurrently on actual CSO and simulated CSO wastewater and under conditions of high-rate disinfection required for CSO. Pilot operations occurred in two separate phases and consisted of 28 total test runs. Mr. Kearney was responsible for operation of the pilot facilities as well as oversight of sampling teams, on-site laboratory teams and coordination of subcontractors and offsite laboratories. He was also responsible for on-site maintenance and troubleshooting of all five of the pilot facilities, as well as quality assurance/quality control (QA/QC) of all on-site analyses. For the second phase of the pilot testing, Mr. Kearney performed a detailed evaluation of alternative pilot equipment. He personally designed the pilot equipment including an innovative chlorine contact tank system to evaluate the effects of mixing on disinfection.

Thomas R. Schoettle, PE, BCEE

Executive Sponsorship Team

Education

M.E. - Environmental Engineering, Manhattan College, 1991

B.E. - Civil Engineering, Manhattan College, 1986

Registration

Professional Engineer: New Jersey and New York

Board Certified Environmental Engineer (BCEE), American Academy of Environmental Engineers and Scientists

Years of Experience

With CDM Smith: 29

Total Years: 29

Mr. Schoettle is a Vice President of CDM Smith with more than 25 years of diverse experience in the field of water and wastewater engineering, with significant contributions on planning, design, and construction projects throughout New York and New Jersey. Much of his work experience has involved upgrading and expanding existing wastewater treatment facilities, pumping stations, and collection facilities. A senior project manager and client service manager with the firm, Mr. Schoettle has managed design projects totaling more than \$500 million in construction. His diverse technical skills include all areas of facility planning and design. He is presently serving as the firm's Strategic Account Manager for the firm's metropolitan New York clients.

Officer-in-Charge, Raw Water Forcemain and Pump Station, Middlesex Water Company, Middlesex County, New Jersey. For the Middlesex Water Company, Mr. Schoettle served as the officer-in-charge and engineer of record for the design of a new 60-inch raw water supply pipe between the water company's raw water pump station and the Carl J. Olsen Water Treatment Plant located in Middlesex County, New Jersey. The project also involved the design of modifications to the water company's raw water pumping station. This \$8 million project is presently under construction.

Project Manager, Digester Gas-Fueled Microturbine, South Monmouth Regional Sewerage Authority, Wall Township, New Jersey. For the South Monmouth Regional Sewerage Authority, Mr. Schoettle served as project manager for the design and construction of a digester gas-fueled microturbine pilot facility at the Authority's WWTP located in Wall Township, New Jersey. This facility was one of the first distributed power generation facilities in the State of New Jersey to utilize digester gas.

Project Manager, Digester Facility Upgrade, South Monmouth Regional Sewerage Authority, New Jersey. For the South Monmouth Regional Sewerage Authority, Mr. Schoettle recently served as project manager for the design and construction of upgrades to the Authority's Sludge Digestion Facilities.

Project Manager, Collection System Computerized Hydraulic Modeling, South Monmouth Regional Sewerage Authority, New Jersey. For the South Monmouth Regional Sewerage Authority, Mr. Schoettle served as project manager for preparing a computerized hydraulic model of the Authority's collection system. The purpose of this study was to evaluate the performance of 11 existing pumping stations, establish whether any deficiencies existed within the collection system, and determine the cost benefit associated with the addition of variable-speed drive controllers to each pump station. Since each of the pump stations discharge to a common force main, resulting in extremely complex hydraulics, a computerized analysis of the collection system hydraulics was undertaken. A report summarizing the results of the evaluation was prepared. This report identified recommended improvements and prioritized them according to cost benefit and the Authority's needs.

Project Director, Water Pollution Control Plant (WPCP) Upgrade, Village of Ridgewood, Bergen County, New Jersey.

Prompted by more stringent ammonia discharge limits, the Village of Ridgewood has undertaken a comprehensive upgrade of its existing WPCP located in Bergen County, New Jersey. Mr. Schoettle served as the project director for this design project that also included preparing a facility plan, and design and implementation of interim facility improvements. Work at the facility includes the complete upgrade of the plant's headworks, primary and secondary treatment processes and sludge processing facilities including sludge digesters and dewatering facilities. The contract documents included provisions for temporary dewatering to facilitate rehabilitating the plant's sludge digesters and thickeners.

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Project Manager, Rehabilitation of Primary Sludge Digester, Florham Park Sewerage Authority, New Jersey.

Mr. Schoettle served as project manager for rehabilitating the Florham Park Sewerage Authority's (FPSA) primary sludge digester. Work on the New Jersey project included detailed inspections of the existing digester, preparing plans and specifications for correction of noted deficiencies, and engineering services during construction.

Project Manager, Sludge Storage Tank Rehabilitation, New Jersey. Mr. Schoettle served as project manager for rehabilitating the Linden Roselle Sewerage Authority's (LRSA) sludge storage tank. The project included detailed inspections of the facility, preparing plans and specifications for correcting noted deficiencies and engineering services during construction.

Project Engineer, Evaluation of Design Improvements, Borough of Washington, New Jersey. For the Borough of Washington in New Jersey, Mr. Schoettle was responsible for evaluating alternative design proposals for improvements to the Borough's existing wastewater treatment facility. This task involved reviewing the conceptual design proposal submitted by three design-build-operations firms to initially screen the proposals and establish whether they generally conformed to the requirements of the project's Request for Proposal (RFP). After completing this initial evaluation, detailed technical proposals were reviewed against requirements of the RFP and a traditional design completed by another design consultant to determine if the design-build proposals provided a cost-effective and technically sound alternative. Based on this review, CDM Smith recommended the privatized design-build approach and assisted the Borough in negotiations with the design-build contractor. Mr. Schoettle was also responsible for preparing detailed technical requirements for the design build alternative selected by the Borough. These requirements were included in the contract with the design-build contractor.

Officer-in-Charge, Capital Prioritization/Risk Mitigation Study, New York, New York. As part of the NYC DEP EE-DSGN-1 contract, Mr. Schoettle oversaw a three-year, multi-phase study to assess the level of risk that exists within DEP's water supply, water distribution, wastewater collection, and wastewater treatment facilities. These assets run from upstate New York through the five boroughs of New York City and represent approximately \$100 billion of assets. Under Mr. Schoettle's direction, the team assisted DEP in prioritizing a \$24 billion, 10-year capital program to upgrade old and outdated facilities and install new technology to meet mandatory treatment requirements of the U.S. EPA for the 2006 budget request. The purpose of this project was to: 1)

establish a standard methodology for evaluating the severity of risk and the probability of failure for each proposed set of capital improvements based on the current condition of their water and wastewater assets; 2) present the level of risk in a graphic format that justifies the need to request additional capital dollars to fund the full level of need for capital improvements; and 3) escalate the level of risk over the 10-year planning period to demonstrate how the risk will increase with time if improvements are not initiated.

Project Manager, Requirements Contract for Various Wastewater and Clean Water Infrastructure Projects (EE-DSGN-1), New York, New York. Mr. Schoettle managed this \$15 million engineering requirements contract for the NYC DEP. The team has provided engineering support on more than 60 assignments in a broad range of engineering disciplines across the city's water supply and wastewater collection and treatment infrastructure. This five-year contract included planning, design, design services during construction, environmental review, site investigations, management consulting, general consulting, surveying, constructability reviews, and permitting on projects at most of the city's wastewater treatment facilities and water supply facilities, including upstate dams. Mr. Schoettle served as the primary contact with DEP and was responsible for coordinating the efforts of the joint-venture team and a wide array of subconsultants.

Project Manager, Requirements Contract for Various Wastewater and Clean Water Infrastructure Projects (EE-DSGN-5), New York, New York. Beginning in July 2008, Mr. Schoettle has served as project manager for the second round of water and wastewater requirements contracts for the NYC DEP. Like EE-DSGN-1, the contract addresses infrastructure needs throughout the City of New York's \$40 billion water and wastewater facilities.

Officer-in-Charge, Advanced Wastewater Treatment Plant Design Build Project, Rockland County, New York. Working as a member of a design build consortium, Mr. Schoettle was responsible for overseeing CDM Smith's efforts on the design and construction oversight of a 1.5 million gallon per day advanced wastewater treatment plant for the Rockland County Sewer District. The project is being delivered using a design/build/operate approach to meet stringent effluent limits for biochemical oxygen demand, total suspended solids, ammonia, nitrates, and phosphorus using an advanced wastewater treatment process.

Thomas Lewis, P.E., J.D. Executive Sponsorship Team

Education

J.D. - Environmental Law, Rutgers Law School,
1995

M.S.C.E - Geotechnical-Hydrogeology,
University of Connecticut, 1991

B.S. - Civil (Environmental-Structural-
Geotechnical), University of Connecticut, 1986

Registration

Professional Engineer: New Jersey, New York,
Rhode Island

Bar Admission, New Jersey, New York (Inactive)

Years of Experience

With Louis Berger: 23

Total Years: 30

Mr. Lewis is President of Louis Berger and a federal/state regulatory compliance and environmental expert with bachelors and masters degrees in engineering, a law degree with focus on environmental law and regulatory/administrative law, and has more than 30 years of directly relevant work experience on hazardous waste investigations and related projects. He has served as project director/executive on numerous coastal and upland environmental and disaster management programs and projects, including New Meadowlands Rail Link for Giants Stadium Redevelopment, 3 NJDOT on-call type contracts, more than 10 different Federal contracts (including FEMA, USACE, FHWA/USDOT, and Federal District Court), more than 10 other State of New Jersey on-call contracts (including New Jersey DEP, OEM, DPMC), and more than 5 different County/Municipal programs (including disaster recoveries for Ocean County NJ, New Orleans, Galveston, and New York City).

Program and project management experience encompasses more than 20 discrete projects/sites involving coastal and marine settings. In total over the past 15 years alone, this experience has included more than 10 different multiple-project-type on-call environmental and disaster/emergency management

contracts with State of New Jersey agencies, more than 5 with the US Army Corps of Engineers (USACE), and more than 5 programs with county/municipal clients that demonstrates his experience and expertise regarding familiarity with NJ DOT invoicing and other administrative processes, familiarity with USACE and FEMA regulations and guidance, and familiarity with New Jersey's marine transportation system, coastal engineering, planning and disaster recovery. Through this experience Mr. Lewis has become an expert in FEMA, USACE, EPA, and analogous state agency regulations pertaining to coastal and marine work as well as emergency/disaster programs and grants.

New Jersey Office of Emergency Management, Superstorm Sandy Recovery Efforts. As Louis Berger program staff continue to work with communities throughout the state of New Jersey that were impacted by Superstorm Sandy (October 2012), Mr. Lewis has been responsible for project oversight and managing the operation's efforts for all New Jersey based projects. Additional emergency response and disaster recovery contracts which Mr. Lewis served as a project executive included:

- U.S. Postal Service Nationwide Emergency Planning, Response and Recovery Services Contract
- City of Galveston (Texas) Hurricane Ike Recovery Program
- Prince William County (Virginia) National Incident Management System Compliance Support
- New Jersey Department of Transportation Emergency Engineering Term Contract
- Anthrax Response for U.S. Postal Service, New York City and Trenton, New Jersey
- September 11, 2001 World Trade Center Terrorist Attack Response for New York City Transit
- Reckson Realty Chemical Release and Toxic Mold Responses for Multiple Buildings
- New York City School Construction Authority, On-Call Emergency Responses for Multiple Sites (Chemical and Asbestos Fiber Releases)

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NJDEP, Remedial Design & Remedial Investigation/ Remedial Action Selection Services Statewide Term Contracts, New Jersey. Contract executive for three consecutive Remedial Investigation / Remedial Alternative Selection and Evaluation (RI/ RASE) contracts, two consecutive Remedial Design contracts, and one Landfill Closure contract, all of which consisted of multiple projects involving site investigations, subsurface sampling, laboratory analysis, and remedial action selection for multiple maintenance area sites. Investigations involve well installation, soil boring installation, geophysics, air monitoring, and soil, air, surface water and groundwater sampling. Mr. Lewis was the lead executive and responsible in a project direction, oversight and QA/QC role for the entire time that Louis Berger worked under this contract.

New Jersey Turnpike Authority, General Environmental Consultant Contract and Exit 6 to 9 Widening, New Jersey. Environmental program manager. Managed Louis Berger's services associated with feasibility studies/constraints analyses (including costing), site investigations, compliance and permitting support, wetlands services, and asbestos abatement support. Also assisted with the environmental engineering and hazmat components of the Exit 6 to 9 widening program and multiple wetland mitigation sites under project-specific contracts.

Special Master for US Federal Court, Soil, Groundwater and Surface Water Investigation and Remediation; Slurry Wall and Chromate Waste Fill Removal/Disposal Design Contract for Honeywell Study Area 7, Jersey City, New Jersey. Technical consultant to Federal Court Special Master, Senator Robert G. Torricelli. The Special Master was appointed by the federal judiciary to oversee all aspects of Honeywell International's court and regulatory compliance with a Court Order to investigate and remediate chromium contamination caused by historic disposal of Chromium Ore Processing Residue (COPR) into former tidal flats of the mouth of the Hackensack River at the northern end of Newark Bay. The cleanup, includes (1) excavation of over one million cubic yards of COPR over the 34-acre site; (2) investigation and remediation of chromium-contaminated sediments in the Hackensack River; (2) excavation of over one million cubic yards of COPR over the 34-acre site created by filling in the coastal estuary; and (3) investigation and remediation of associated chromium groundwater plume along and beneath the river/bay. Mr. Lewis is the NJ licensed P.E. of record on behalf of the Federal Court Special Master and he and the Louis Berger team have been responsible for ensuring federal compliance (including USACE, EPA, Coast Guard requirements), state coastal/marine/environmental

compliance (including NJDEP and NJDOT) and local compliance (county sediment control and city building/development programs). This work has included but not been limited to reviewing and analyzing investigations and technical reports/designs/permits prepared by Honeywell and its consultants/contractor's, monitoring the technical and programmatic aspects of the project (including regular on-site monitoring/compliance inspections), identifying and quickly addressing critical shortcomings, and providing technical guidance and all engineering recommendations to the Federal Court Special Master. The implemented sediment remedy involved the dredging and capping of a large area of contaminated sediments at the northern end of Newark Bay over a 2 year period.

USACE, Kansas City District & USEPA Region 2 (NJ and NY) Superfund Coastal and Upland Site Support Contract – Lower Passaic River Superfund Site and (connected)

Newark Bay Superfund Site. Program Director and Project Executive. Louis Berger is the prime consultant in the conduct of a CERCLA RI/FS for the Lower Passaic River in northern New Jersey, one of the highest priority sites for USEPA Region 2. The 17-mile tidally influenced Lower Passaic River is one of the most contaminated urban waterways in the country, having received discharges from various industrial operations along its banks containing many contaminants, including dioxins, PCBs, pesticides, PAHs, and metals. In a very similar role for the same USACE manager, Louis Berger also provides technical review and oversight for the Newark Bay Superfund Site. Mr. Lewis has been the lead executive and responsible in a project direction, oversight and QA/QC role since Louis Berger started work under this contract. This personal experience specifically included demonstrated familiarity with USACE regulations and guidance, and familiarity with New Jersey's marine transportation system, coastal engineering, and planning. New York City Economic Development Corporation. Contract executive in charge of multiple contracts for prior environmental investigation, remediation of restoration projects for NYC Economic Development Corporation. This involvement includes, but is not limited to the Flushing, NY airport site.

NYCT, Services of an Environmental Engineering Consultant, New York. Contract executive for environmental engineering projects, including abatement management, environmental site assessments (Phase I/II), asbestos containing materials inspections, remedial investigations and sampling, remedial alternative assessments and conceptual designs (Phase III), environmental construction management and compliance and permitting assignments.



Arnold J. Bloch, Ph.D.

Community Relations/Technical Support Task Manager

Education

Ph.D. - Transportation Planning and Engineering, Polytechnic Institute of New York, 1984

M.S. - Civil and Environmental Engineering, Cornell University, 1977

B.A. - Geography, State University of New York at Albany, 1973

Years of Experience

With FHI: 1+

Total Years: 39

Dr. Bloch is a planner who has been involved in multimodal projects for nearly four decades. He is most proud of his ability to help forge a strong partnership among agencies, diverse stakeholder interests, and the general public in efforts to best serve current and future needs with safe, accessible, and sustainable solutions. His prior managerial experience in 1980s New York City government made him acutely aware of the importance of building practical consensus in order to ensure implementation. Since that time, Dr. Bloch has worked diligently to create effective two-way communication and understanding between agencies and the public, as well as to bring the interests of oversight agencies, communities, the underserved, and under-represented to the table. In so doing, he utilizes his planning experience and expertise to inform the outreach efforts he leads, from facilitating advisory groups, workshops, hearings, and focus groups to opening up the outreach opportunities provided by such electronic means as websites, social media, virtual workshops, etc. Tools evolve, but his approach

holds true: Building early, continuous, and relevant linkages between government and those it serves (and affects) is the most effective way to turn plans into reality.

NYCDDC/MORR/NYCDPR East Side Resiliency Study. Dr. Bloch oversees the public outreach activities for the HUD-funded project (which grew out of the 2014 Rebuild by Design competition) to improve resiliency and quality of life for residents, businesses, and institutions along Manhattan's East Side from Montgomery Street to 23rd Street. He oversees the organization of ten community engagement meetings, several dozen stakeholder meetings, and interaction with a joint Community Board #3 and 6 Task Force. The purpose of the study is to develop feasible improvements that will protect the community and the FDR Drive against rising waters, while also improving waterfront recreational features.

NY Rising Community Reconstruction Program. Dr. Bloch oversaw the public involvement services of several projects for this New York State Rising Reconstruction Program intended to help create more resilient communities in light of hazardous weather incidents such as Superstorm Sandy and Hurricane Irene. He oversaw efforts in Staten Island, the Five Towns area along Long Island's southwestern shore, and with communities in Southeast Queens. He worked with local Community Planning Committees, and with the community as a whole, utilizing meetings, electronic communication, and survey techniques to develop effective and implementable resiliency improvements.

NJDOT Route 3 Bridge over the Passaic River. Dr. Bloch oversaw the public outreach effort for NJDOT's reconstruction of the Route 3 bridges over the Passaic River. The project entailed the preliminary design, final design and construction phases. The outreach effort helped build a strategic approach to a difficult project--a much-needed reconstruction of bridges on a major commuting/travel corridor that also happens to impact close-by residential areas of three distinct municipalities. He oversaw the establishment of a Community Liaison Committee, traditional public information centers, meetings with elected officials, and printed materials such as newsletters and fact sheets. He used a variety of mechanisms for gaining input, including a project website, opinion surveys, and non-visual techniques to help disabled persons understand key project issues.

PANYNJ Goethals Bridge Modernization Environmental Impact Statement. Dr. Bloch oversaw the NEPA public outreach effort for potential improvements to the bridge, leading directly to the decision to replace the bridge with a new facility. He oversaw an extensive bi-state outreach program, including public scoping and public hearing processes, and the establishment of a stakeholder committee and two technical advisory committees, as well as other open houses, newsletters, and electronic/media outreach to involve key stakeholders and the general public throughout the environmental process.

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NJTPA Regional Transportation Plan. Dr. Bloch led public involvement activities for NJTPA's update of its 2035 Regional Transportation Plan. He helped the NJTPA incorporate several important enhancements in this update to more actively engage transportation users to explore critical issues that will shape the region in the coming years. One of those enhancements was a freight roundtable he facilitated among industry leaders, elected officials, specialists in freight movement, and other freight stakeholders to discuss major issues and challenges the region will face in freight movement over the next 25 years. Another role he led was to facilitate 15 workshops around the region at which participants worked through an interactive tool choosing among three different visions of the future and then selecting desired land use and transportation investment strategies.

NJDOT Access Management Code Evaluation. Dr. Bloch facilitated several meetings of a 30-person group Stakeholder Advisory Group which was convened to help NJDOT better coordinate its Access Management Code with the State's Development and Redevelopment Plan (SDRP). The intention of the project was to link up regulatory powers of NJDOT in terms of preserving roadway capacity and the encouraging urban and suburban development with the stated goals of the SDRP to designate various regions as growth or preservation areas. The Stakeholder Advisory Group consisted of local municipal officials, developers, land use/transportation planners, and state officials.

NJ Transit Newark/Elizabeth Bus Service Planning Study. Dr. Bloch led outreach and survey efforts for a study of bus services and operations throughout New Jersey's largest metropolitan area. He led an extensive public and stakeholder outreach effort, covering both the cities of Newark and Elizabeth, nearby suburban towns, and the intensely developed seaport and airport facilities. He assisted with a broad survey of bus travelers, including an origin-destination survey and passenger on/off counts on all bus routes.

Principal-in-Charge, National Transit Institute (NTI) Public Involvement In Transportation Decisionmaking Course.

Dr. Bloch led the development and teaching of this course. He has taught the course more than 50 times throughout the U.S., along with various subconsultants. Class participants have included employees of MPOs, transit properties, State DOTs, municipalities, and private sector firms. In 2010, he worked with other consultants and various federal agencies to revise and update the 3-day course to best reflect changes in federal regulations, best practices from around the country, and new techniques and technologies, including the rapid infusion of Social Media opportunities.

Newtown Creek Brownfield Opportunity Area Step 2

Nomination Study. Dr. Bloch oversaw the public involvement services for the New York State Brownfield Step 2 Nomination phase of the Newtown Creek Brownfield Opportunity Area (BOA) project. The project explored opportunities for promotion and growth for industrial businesses in the areas of Brooklyn and Queens surrounding the Newtown Creek. Dr. Bloch helped plan several public meetings and coordinated targeted outreach to the local businesses. In addition to public workshops and meetings, he helped planned a successful Business Owners Breakfast during which private business owners participated in roundtable discussions centered on opportunities for site remediation and brownfield redevelopment. He also facilitated public meetings at the project's conclusion in order to relate and receive feedback on findings and recommendations.

New York City Economic Development Corporation (NYCEDC) East River Waterfront Esplanade Master Plan And Architectural Design.

Dr. Bloch oversaw the public involvement and outreach for NYCEDC's design effort to transform the East River Waterfront from the Lower East Side to the Battery into a continuous pedestrian and community amenity esplanade for years to come. Dr. Bloch interacted with two active community boards, Manhattan Boards 1 and 3, as well as with several other community groups and leaders, in an effort to develop consensus on the project's recommendations. Public input was crucial in the formation of the plans and proposals put forth by the City and its international design team. In the design phase one of the key tasks was to work with the community to develop implementable concepts for the use of programmable spaces to be constructed under the FDR Drive for public service uses. Dr. Bloch led a neighborhood workshop, using both Chinese and Spanish interpreters, to gain a consensus on preferable activities.

NYCDOT Bus Rapid Transit Public Outreach, 1st And 2Nd Avenues And Nostrand Avenue.

Dr. Bloch oversaw the public outreach services related to bus rapid transit (BRT) implementation known as "Select Bus Service" along two New York City corridors: 1st and 2nd Avenues in Manhattan (an 8.5-mile corridor from 125th Street to South Ferry) and Nostrand/Rogers Avenue in Brooklyn (Williamsburg Bridge Plaza to Sheepshead Bay). Tasks included organizing and facilitating public open houses; facilitated meetings with active Community Advisory Committees; produced newsletters and other printed materials; and surveyed businesses regarding their loading and parking needs. Both SBS services have been implemented.

Susan M. Scavone

Grant/Stakeholder Support

Education

Masters Candidate: Public Administration,
Rutgers University

B.A. - Political Science and Minor in Public
Administration and Secondary Education,
Montclair State College, 1986

Years of Experience

With Millennium Strategies: 10

Total Years: 29

Principal, Owner, Millennium Strategies, LLC, Caldwell, NJ (2005 to Present).

Ms. Scavone provides oversight and management of Millennium Strategies' full suite of services, which includes grant writing and administration, economic revitalization, disaster recovery, and housing rehabilitation. Shared management of Millennium's 70+ public entity and private enterprise clients. Expertise in federal, state and philanthropic grant procurement, state agency coordination, and alternative funding methodology processes.

Ms. Scavone is responsible for implementing the firm's Disaster Recovery and Sustainability Division, which has procured over \$71 million in funding from FEMA, HUD DR, CDBG, NJDEP, NJCDA as well as philanthropic organizations for Millennium clients in the aftermath of Hurricane Irene and Superstorm Sandy.

Administered projects to enable the acquisition or elevation of flood prone

homes and flood control projects in severely impacted communities. She has procured and administered multiple grants and projects for Passaic and Union County flood prone towns where we successfully acquired over 40 homes and elevated over 20 homes. Responsible for the first demo/rebuild elevation project completed in Pompton Lakes, New Jersey funded through FEMA.

Ms. Scavone has led the effort for disaster recovery and mitigation efforts in southern Bergen County including the successful appeal of the Moonachie Borough Hall with FEMA Public Assistance, multiple funding streams for infrastructure mitigation efforts in Carlstadt, Little Ferry and Moonachie and continued work with Moonachie, federal and state entities on mitigation efforts for two manufactured housing locales in the Borough. Her additional responsibilities include, but are not limited to, obtaining federal, state, county and local permits and approvals; coordinating grassroots campaigns; designing public relations programs and community outreach curricula.

President, SMS Consulting Services, Inc., Montclair, NJ (1996 to 2005). Ms. Scavone was retained by various public entities, engineering firms and developers to provide Public Administration, Public Relations, Grant writing services and overall management for transportation related projects. She served as Consultant to Statewide Health Insurance Funds (HIFs) and Joint Insurance Funds (JIFs) for school boards and municipalities. Licensed Health Insurance Broker - cliental included small businesses, school boards and municipalities.

Risk Manager/Insurance Manager, County of Essex and PERMA, Hall of Records, Newark, NJ (1994 to 1996). Ms. Scavone was responsible for the County's complete insurance portfolio including Property and Casualty, Fidelity Bonds, Professional Liability, Workers' Compensation, Health Benefits, Reinsurance and all Certificates of Insurance. Particular emphasis was placed on restructuring the Employee Health Plan and the Workers' Compensation Program where both were experiencing serious deficits, abuse and employee dissatisfaction. Over a two year period both plans were analyzed and changes were made through a cooperative effort of plan design changes, negotiated savings, direct contracting and risk share arrangements.

Scheduler and Assistant Director for Legislative Affairs, State of New Jersey, Governor's Office, and Treasurer's Office, Trenton, NJ (1990 to 1994). Ms. Scavone was responsible for the scheduling of private and public events for former Governor James Florio prior to moving to the Treasurer's Office. At the Treasurer's Office responsibilities included analyzing and testifying on all legislative actions pertaining to each of the eight State administered retirement systems and the State Health Benefits Program. She coordinated regional Benefits Awareness communications program for State employees and employees of the State Colleges and Universities. Assisted in the preparation and administration of the first Early Retirement Incentive Program for State and Local employees. Held a non-voting seat on the State Health Benefits Commission.

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Steven C. Green, CPA

HUD CDBG-DR Compliance

Education

M.B.A., Bellarmine University, May 1983

B.S. - Accounting, University of Kentucky, May 1975

Registration

Certified Public Accountant (CPA)

Years of Experience

With CDM Smith: 6

Total Years: 31

As part of CDM Smith's team to serve as program administrator on federally funded disaster recovery projects, Mr. Green is responsible for the design and oversight of all financial operations. As Financial Manager, he also assists in the selection, negotiation, contracting and oversight of subcontractors. This position requires expertise in Federal regulations, contract negotiations, accounting policies and controls, and project management. He also assists in the development and implementation of project policies and procedures especially in dealing with Community Development Block Grant (CDBG) requirements. Mr. Green assists with the design of software applications used on these projects.

Financial Manager, New Jersey Department of Community Affairs (NJDCA), Superstorm Sandy Disaster Recovery Support Term Contract, New Jersey. As the Financial Manager for the NJDCA on-call contract, Mr. Green was responsible

for establishing and implementing financial processes and controls for this project. These processes and controls must comply with all Federal, state and local regulations and supply accurate and current financial data for reporting and program management requirements.

Financial Manager, Various Disaster Recovery Projects. As the Financial Manager for CDM Smith Disaster Recovery projects, Mr. Green is responsible for establishing and implementing financial processes and controls for CDBG-Disaster Recovery (DR) funded projects. These processes and controls must comply with all Federal, state and local regulations and supply accurate and current financial data for reporting and program management requirements. He is also responsible for providing financial and other required information as needed for HUD disaster recovery grant reporting (DRGR) performance reports. Additional duties include the establishment and oversight of the anti-fraud, waste, and abuse policies and processes on these projects to help ensure that funds are properly spent on eligible activities benefitting only qualified applicants. This includes developing relationships and coordination with the appropriate federal, state, and local enforcement agencies. Mr. Green also participates in the establishment of program policies and procedures to confirm compliance with all applicable regulations that program expenditures are allowable and eligible. Since joining CDM Smith, Mr. Green has worked on project management for several disaster recovery projects including Galveston (2009-2011) and Harris County, Texas (2009-2013); Minot, North Dakota (2012-2014); and the State of Illinois (2010-2014).

Prior to CDM Smith

Transition Team Program Lead, State of Louisiana, Office of Community Development, Disaster Recovery Unit, Baton Rouge, Louisiana. A transition team was established to assist the Disaster Recovery Unit in transitioning programs and operations from the current contractor to new contractors. This involved the preparation of multiple requests for proposal and the solicitations, evaluations and selection of new contractors. Mr. Green had oversight responsibility of the contractor (up to 15 personnel) acquired to assist with this effort. Responsibilities included the establishment and oversight of a Project Management Office, contract preparation, contract negotiations, logistical preparation and implementation.

Financial Manager, State of Louisiana, Office of Community Development, Disaster Recovery Unit, Baton Rouge, Louisiana. As Financial Manager of the Disaster Recovery Unit, Mr. Green had several areas of responsibility including the design, development, and implementation of a financial monitoring system that consisted of 25 different programs with a cumulative funding level of \$13 billion. He was responsible for the design, implementation and operation of accounting and payment processing systems for these programs. He reviewed and approved all payments to ensure compliance with program requirements, CDBG eligibility, contractual compliance and allowability under state statute. Mr. Green participated in the negotiation and preparation of all contracts and he was responsible for reporting to upper management and

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testifying before legislative committees. Provided oversight to anti-fraud efforts and investigations and participated in an Anti-Fraud Task Force involving the Louisiana Attorney General's Office, the Louisiana Legislative Auditor, HUD's Office of the Inspector General, FBI, and others.

Branch Manager, Commonwealth of Kentucky, Governor's Office for Local Development, Frankfort, Kentucky. Duties included responsibility for all financial and programmatic information for the State's Community Development Block Grant. This involved preparation of the Program Evaluation Report, all draws from HUD, all payments to grantees and contractors, administrative cost accumulation and reimbursement, and interface with HUD's IDIS system. Mr. Green served on committees to assist HUD in software and program development and assisted in the review regulations.

Local Government Advisor Chief, Commonwealth of Kentucky, Governor's Office of Local Development, Frankfort, Kentucky. Mr. Green acted as a program advisor to economic development applicants and projects. This included meeting with business and government leaders to discuss possible projects and the structuring of the projects, making recommendations to the loan committee, and oversight of the project after receiving grant awards. Responsible for the review and analysis of the financial information contained in the project applications. Responsible for the technical review of all audits involving communities receiving CDBG and some Appalachian Regional Commission grants. Mr. Green reviewed these audits for compliance with Federal and State regulations, generally accepted accounting principles, Governmental Auditing Standards, and accuracy with agency records.

Other duties included working with the communities and audit firms in assisting them in the completion of the required audit procedures so that reports were accurate and contained all the information needed for a timely review and quick approval. Prepared the Division's Schedule of Federal Financial Assistance and maintained the supporting data files. Worked as the Division Intermediary with the State Auditor's Office in resolving any questions and/or findings they had and assisted in training their staff in the area of compliance auditing in dealing with CDBG projects.

Assistant Director, Division of Fiscal Affairs, Commonwealth of Kentucky, Kentucky Higher Education Assistance Authority, Frankfort, Kentucky. Mr. Green's responsibilities included supervision and maintenance of the agency's accounting system including the design, control, and implementation of accounting policy and procedures. He supervised and prepared the agency's biennial budget and the annual operating budget for the student loan

corporation, and prepared analysis and projections of financial information for both internal and external use. He directly supervised six accountants, and maintained/coordinated the agency's computerized accounting system. His additional responsibilities included coordinating the purchasing and use of micro-computer systems.

Internal Policy Analyst Senior, Commonwealth of Kentucky, Kentucky Higher Education Assistance Authority, Frankfort, Kentucky. Mr. Green was responsible for handling special projects, which required both an accounting and computer background. This included systems and program design, testing and implementation, analyzing the accounting and financial impact of system and program changes, and development of agency microcomputer and accounting policies.

Timothy S. Hillier, P.E., CFM

FEMA Compliance

Education

M.S. - Ocean Engineering, University of Rhode Island, 2001

B.S. - Biological Resources Engineering, University of Maryland, 1997

Registration

Professional Engineer: Massachusetts
Certified Floodplain Manager, Association of State Floodplain Managers

Years of Experience

With CDM Smith: 7
Total Years: 13

Mr. Hillier is a coastal engineer with a diverse background which combines a well-developed theoretical understanding of marine engineering concepts with significant practical experience. His areas of expertise include coastal flood hazard analysis and mitigation, marine hydraulic evaluation, waterfront structural investigation and design, and hydrographic data collection. His additional waterfront related duties have included underwater inspections, construction administration and observation, project site evaluation, and environmental permitting.

FEMA Map Coordination Contract, Regions I, II, III, and IV. Mr. Hillier was the Coastal Engineer responsible for flood hazard analysis along the Atlantic and Gulf Coasts of the United States. In support of FEMA's National Flood Insurance Program, investigated nearshore hydrology and hydraulics during the 1 percent annual-chance storm to include: stillwater elevations, wave setup, wave runup, and wave heights. He provided technical support for development of Flood Insurance Studies and Flood Insurance Rate Maps. He coordinated with

stakeholders (local, state, and Federal officials) to facilitate acceptance of FIS and FIRMs by community. He performed QA/QC on flood hazard studies performed by FEMA study contractors. Mr. Hillier reviewed and made determinations regarding requests for site specific revisions to Flood Insurance Rate Maps based upon more accurate and up-to-date information than that used to develop effective maps.

Senior Coastal Engineer, U.S. Army Corps of Engineers, New Orleans District, Louisiana Coastal Flood Hazard

Identification and Mapping Program. Mr. Hillier performed quality assurance planning and quality control reviews for coastal flood hazard mapping on 234 DFIRMs for seven parishes in New Orleans. He mapped flood hazards based on updated coastal storm surge analyses (ADCIRC), wave runup (RUNUP 2.0), levee overtopping, coastal erosion, and overland wave propagation (WHAFIS 4.0). He verified compliance of data with FEMA guidelines and specifications and worked seamlessly with USACE and local partners for the common benefit of FEMA's unified approach to the Gulf Coast recovery.

Coastal Flood Hazard Studies, FEMA Region I. Mr. Hillier was the project engineer responsible for updating the coastal Flood Insurance Studies for the Federal Emergency Management Agency in ten counties in Region I. He led coastal efforts for mapping updates from Scoping Phase to Preliminary Maps. He conducted outreach and coordination with stakeholders including local, state and Federal officials. He supervised field reconnaissance and verification efforts which utilized Geographic Position Systems to document existing conditions of the study areas. As part of the update, new hydrologic and hydraulic modeling was performed based on available oceanographic and topographic data. The modeling incorporated FEMA approved models as well as Geographic Information Systems to automate data extraction and population. Mr. Hillier coordinated the incorporation of modeling results into new Digital Flood Insurance Rate Maps.

Program Manager, Map Modernization Contract, FEMA Region 1. Mr. Hillier managed indefinite delivery contract which encompasses 21 task orders related to updating digital Flood Insurance Rate Maps as part of FEMA Map Modernization Program. His is directing the efforts of multiple teams of engineers and GIS professionals in all elements of DFIRM production in both coastal and riverine environments. He managed and provided technical guidance for updates along more than 1,400 miles of coastline. Updates of coastal studies in Region I included coastal storm surge based on high order tide gage analyses, estuary and inlet tidal propagation, overland wave propagation, and assessment of shore protection structures.

FEMA Map Coordination Contract, Regions 9 and 10. Mr. Hillier was the project engineer involved with development of new guidelines for coastal flood hazard analysis and mapping. He

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drafted recommendations to be used when considering a coastal structure's ability to mitigate the 1 percent-annual-chance flood. The following topics were considered: removal procedures for structures which fail during the 1 percent-annual-chance event, assessment of the U.S. Army Corps of Engineer's Technical Report 89-15 regarding the evaluation of coastal structures, and development of coastal erosion methodologies. Recommendations were included in FEMA's Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update, February 2007. In addition, he performed technical review of multiple coastal Letters of Map Revisions in support of Michael Baker Jr., Inc. National Service Provider contract.

U.S. Coast Guard Waterfront Inspections, Various Locations. Mr. Hillier was the project engineer-diver responsible for field investigations of two United State Coast Guard stations in New York and Connecticut. He performed above and underwater inspections on numerous waterfront structures including: bulkheads, piers, wharves, moorings, floating docks, revetments, and boat hoist piers and aprons. He coordinated preparation of engineering reports which included underwater structural condition assessment, repair recommendations, and cost estimates for repair work.

Lead Waterfront Engineer, Lockheed Martin Corporation, Waterfront Revitalization, Middle River, Maryland. Mr. Hillier performed inspection of waterfront structural components for Lockheed Martin Corporation – Marine Systems & Sensors facility on Dark Head Cove, Middle River, Maryland. He provided a feasibility study for improvements to support maritime related manufacturing on site. His engineering report included assessment of dredge needs, repair and replacement of coastal protection structures, and opinion of probable cost. He developed construction cost estimates (including dredging).

Sprague Energy Marine Terminals Inspection and Repair, Various Locations. Mr. Hillier performed routine field investigations on three Sprague Energy Marine Terminals throughout New England. His investigations included above and underwater structural condition assessments and evaluation of cathodic protection. Prior to submittal to the client, completed final review of engineering reports which assessed the facilities' overall condition, estimated structural significance of deterioration, and provided recommendations for future actions. During construction of recommended repairs, he provided bid assistance and resident engineering services.

Economic Development Corporation Waterfront Inspections, New York, New York. Mr. Hillier was the project engineer-diver for field investigations and underwater

inspections of three marine facilities. Investigations included underwater assessments of multiple structural elements including: steel and vinyl sheet pile bulkheads, concrete and granite masonry seawalls, timber and concrete piles, and riprap revetments. He prepared engineering reports which documented the existing configuration of the structures, assessments of the overall conditions, structural analysis, estimates of remaining service life, and recommendations for future actions (repair and rehabilitation).

Global Port Terminal Maintenance Dredging and Berth Deepening Feasibility Study, Jersey City, New Jersey.

Mr. Hillier was the engineer investigating the feasibility of deepening an existing berth at the Global Terminal. He determined the design criteria including operating conditions, design dredge depths, and existing soil characteristics. He performed classic slope stability analysis for a range of deepening depths to determine the maximum safe dredge at the terminal. He utilized the software program STABL to perform the Simplified Janbu Method for slope stability analysis. Mr. Hillier developed conceptual structural designs to be used at dredge depths at which the slope is no longer inherently stable.

NOAA Hydrographic Surveys IDIQ Contract, Mid-Atlantic.

Mr. Hillier performed geophysical and hydrographic studies in Delaware Bay on behalf of the National Oceanographic and Atmospheric Administration. He utilized and calibrated specialized oceanographic instrumentations including: multibeam and conventional single-beam sounders, side scan sonar, moving vessel profiles, sub-bottom profilers, and sediment samplers. He reviewed, processed and corrected data to account for accurate reflection of local conditions such as tides and water levels. He interpreted collected data and prepared final reports and mapping products.



Ginger L. Croom, P.E. USACE Coordination

Education

M.S. - Civil and Environmental Engineering,
University of Maryland, 2000

B.S. - Environmental Science, Susquehanna
University, 1998

Registration

Professional Engineer: New Mexico

Years of Experience

With CDM Smith: 15

Total Years: 19

Ms. Croom is a program manager with 19 years of technical and management experience for federal, state and municipal water resources planning and design projects in dam removal, stormwater, water supply, watershed planning and wastewater projects. Management highlights include multi-disciplinary project management and extensive stakeholder coordination, while technical strengths include hydraulic, hydrologic and water quality modeling, stormwater best management practices (BMPs) and watershed assessments.

Project Manager, USACE Fort Worth District and Local Sponsor, Trinity River Central City Project, Fort Worth, Texas.

Ms. Croom managed preliminary engineering design in support of Environmental Impact Statement (EIS) in partial fulfillment of United States Army Corps of Engineer (USACE) National Environmental Policy Act (NEPA) requirements. She performed project management duties for multi-disciplinary, \$910 million civil engineering project

with water resources/flood control emphasis. She managed multidisciplinary project team of more than 50 staff in multiple offices, conducting preliminary design of 1.5 mile bypass channel to re-route flood flows around an approximately 2-mile stretch of existing floodway with levees adjacent to downtown Fort Worth. Preliminary engineering included preparation of conceptual and preliminary designs in support of USACE EIS, including hydraulic, civil, structural, and geotechnical design of bypass channel and associated flood control structures (dam with crest gates, three flood isolation gates) civil and structural design for three roadway bridges and two pedestrian bridges. Additional tasks included preliminary design of ecosystem restoration and habitat improvement areas, including landscape architecture.

Ms. Croom performed daily project management, including coordination of multi-disciplinary project tasks, subcontractors, and extensive coordination with various governmental entities as project partners (TRWD, City of Fort Worth, Tarrant County) as well as regulatory agencies (USACE, Texas Commission on Environmental Quality (TCEQ), Texas Department of Transportation (TxDOT)). Developed and conducted dozens of presentations to various entities, including governmental entities as well as special interest river user groups. She reviewed project team technical submittals (preliminary design reports) in preparation of the USACE Draft Environmental Impact Statement. She coordinated with the local urban design team developing the companion urban design plan area based on CDM Smith's preliminary engineering concepts of bypass channel and associated structures.

The Feasibility Study and EIS was completed on a very aggressive schedule, with the EIS and Feasibility level design completed in less than 2 years.

Environmental Engineer/Task Order Manager, USACE North Atlantic Division, North Atlantic Coast Comprehensive Study.

Ms. Croom has led all aspects of CDM Smith's role in the North Atlantic Coast Comprehensive Study (NACCS) for USACE and other federal and state agencies. She provided technical oversight and task management for the following: completion of six pre-feasibility level studies analyses (Focus Area Analysis) for coastal areas in NY, NJ, DE, MD and DC, stakeholder engagement for completion of the Focus Area Analyses, conducted interviews and synthesized information on Institutional and Other Barriers, designed concepts for Visioning meetings, coordinated with all stakeholders for nine Visioning Meetings in eight states and and facilitated large stakeholder meetings. She served as CDM Smith's project manager and is the main point of contact with NACCS Study Manager as well as the main point of contact for USACE planning staff in New England, New York, Philadelphia, Baltimore and Norfolk Districts in preparation of each region's Focus Area Analysis and Visioning Meetings. She is leading a team of CDM Smith civil and coastal engineers, water resources planners, and policy experts in conducting these tasks on a very aggressive schedule.

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Project Engineer/Modeler, USACE, Muddy River Flood Control Studies, Boston and Brookline, Massachusetts.

Ms. Croom further developed an existing SWMM model to evaluate the need for flood control improvements along the Muddy River. Various synthetic design storms were simulated in the model, as well as the Standard Project Flood. Results from model simulations were compared with target HGLs in specific areas to analyze the most effective areas for improvements. Extensive modeling was performed to simulate improvement alternatives such as open channels, bypass culverts and replacement pipes.

Project Manager, USACE Wilmington District, Roanoke River Flood Reduction Project – Recreational Trail Concepts.

Ms. Croom was project/task order manager for development of various alternatives for recreational trail concepts associated with Roanoke River Flood Reduction project. Conceptual trail design included multiple pedestrian bridges, pile supported walkways, extensive grading, and landscape architecture features. Trail alignment alternatives were analyzed and ranked for various criteria based on Corps study objectives. Cost estimates for each trail alternative were developed in MCACES -MII. The trail alternatives were presented to USACE for consideration as part of the federal portion of the project.

Environmental Engineer/Project Manager, USACE New England District, Water Resources Planning Indefinite Delivery Contract (IDC).

Ms. Croom leads the CDM Smith team in conducting comprehensive water resources planning assignments for USACE New England District, for two successive IDCs. Ms. Croom is currently leading the CDM Smith team for the Merrimack River Watershed Assessment study, a multi-purpose, comprehensive water resources plan being conducted under Section 729 for multi-purpose benefits. This study includes regional program involvement, extensive stakeholder coordination with federal (USACE and EPA), state (NHDES and MADEP) and local communities and NGOs. Other assignments conducted for USACE New England and led by Ms. Croom include Regional Sediment Management (RSM) study in Chatham, MA and estuarine ecosystem restoration projects in Yarmouth, MA.

Environmental Engineer/Project Manager, USACE Jacksonville District, Water Resources Engineering IDC.

Ms. Croom leads the CDM Smith team in conducting civil works planning and design assignments for USACE Jacksonville District Water Resources Engineering Branch, under 2 successive IDCs. She leads the CDM Smith team in hydrologic and hydraulic modeling assignments, as well as development of Wetland Reserve Plans of Operation, which

involve extensive field data collection, alternatives analysis, wetlands restoration design and cost estimating for over 15,000 of wetland restoration in South Florida. As civil works design projects for USACE, the projects are following all USACE guidelines, regulations and procedures.

Environmental Engineer/Project Manager, USACE Mobile District, Civil Works Planning and Design IDC.

Ms. Croom leads the CDM Smith team in conducting a wide range of civil works planning and design assignments for USACE Mobile District. Assignments completed under her direction include large civil works planning and design projects in support of programs of regional significance such as MsCIP (geotechnical investigations and sampling) and the Savannah Harbor Expansion Project (SHEP) for civil design of a large (\$20M) mitigation component of SHEP. Design of these projects is strictly adhering to all USACE guidelines, regulations and procedures.

Project Manager, USACE New England District, Assabet River Sediment and Dam Removal Study.

Ms. Croom is serving as program/ project manager for this \$1 million civil works planning study for the USACE and local sponsor MA DEP. The purpose of the study is to evaluate a series of alternatives for sediment and dam removal on the mainstem of the Assabet River west of Boston in order to meet the goals of a previously developed TMDL for the river (total phosphorus). The reconnaissance level study also involves preparation of civil site plans, conceptual depictions, cost estimates (MCACES - MII) and a sediment management plan to evaluate dredging methods and disposal options for contaminated sediment.

Project Manager, USACE New England District, Upper Merrimack and Pemigewasset River Watershed Assessment Study.

Ms. Croom is serving as program/ project manager for this \$1 million civil works planning study for the USACE and local sponsor NH Department of Environmental Services and various communities in the watershed. This multipurpose watershed assessment study is evaluating conditions in the Upper Merrimack River in an effort to guide water resources decisions, in particular, development of a TMDL for dissolved oxygen. Tasks include a 2-year comprehensive watershed assessment and monitoring program (to commence in spring 2008) to characterize conditions in the watershed and provide data that NHDES will use in developing the TMDL, and an extensive modeling program (HSPF, SWMM, WASP). A preliminary water supply evaluation was conducted to evaluate potential future water withdrawal scenarios using the HSPF and SWMM models.

Craig A. Gadberry, P.E. Project Controls

Education

B.S. — Civil Engineering, Purdue University,
1993

Registration

Professional Engineer: Florida

Years of Experience

With CDM Smith: 13
Total Years: 21

Mr. Gadberry is a chief estimator with over 20 years of experience in water and wastewater treatment plant construction. As CDM Smith's leading authority on estimation in the Southeast U.S., he oversees the performance of many of the firm's most vital projects. He is highly experienced in alternate delivery methods, including design-build and construction manager-at-risk (CMAR). He is able to draw upon the firm's estimation staff in the Southeast to provide clients with the resources needed to accurately and speedily execute many different types of procurement.

Mr. Gadberry routinely oversees the performance of design-build proposals and Engineer's Opinion of Probable Cost of Construction (OPCC) Estimates. He regularly provides estimates for solid and hazardous waste facilities, water and wastewater treatment facilities, and pipelines and pumping stations. His

responsibilities include the preparation of feasibility estimates, conceptual estimates, preliminary design estimates, final design estimates, detailed bid estimates, and change order pricing and negotiating. Adding efficiency to his work with technology, Mr. Gadberry is skilled in the use of many software packages, including Timberline, Primavera, and Insite Sitework.

Chief Estimator, Disaster Recovery Services, Palm Beach County, Florida. CDM Smith was contracted to perform design-build consulting services for the Palm Beach County Water Utilities Department (PBCWUD) for disaster recovery. PBCWUD has recognized the need to prepare facilities to withstand a Category 4 or 5 hurricane event and be able to restore services as soon as possible. CDM Smith's role was to provide design, construction management, and/or construction services for hardening, repair, or replacement of facilities owned, operated, or maintained by PBCWUD. We were authorized by the Department to provide design-build services for the hurricane hardening of their facilities for the Customer Service Building, Water Treatment Plant (WTP) #9, WTP #2, and Central Regional Operations Center. We performed engineering and construction services for improving the survivability of the buildings during a Category 4 or 5 hurricane. Mr. Gadberry served as chief estimator for this project.

Chief Estimator, Fort Pierce Utility Authority (FPUA) Henry A. Gahn WTP Switchgear Upgrades Project, Fort Pierce, Florida. Mr. Gadberry serves as CDM Smith's regional chief estimator for this design-build project included design for the improvements to the 480 V main switchgear including replacement of two PLCs with Allen Bradley PLCs, replacement of several uninterruptible power supplies throughout the plant, and running new data wiring between the new PLCs and the existing plant PLCs. Our construction phase activities included rehabilitation of the GE switchgear, replacement of the existing uninterruptible power supplies and running new data wiring. We participated in periodic meetings with the owner, provided oversight of the contractors of the site, responsible for invoicing and document management, permit applications and close out activities, and oversight of City inspections.

Chief Estimator, South Central Hillsborough Booster Pump Station, Tampa Bay Water, Tampa, Florida. Mr. Gadberry was the chief estimator for the 180-mgd South Central Hillsborough Intertie Booster Pump Station. The project included two 3,000 hp horizontal split case pumps, a 300,000-gallon ground storage tank, and piping up to 72 inches in diameter. The project enabled this station to boost either to or from the regional reservoir, minimizing the amount of horsepower required at the existing repump station and the proposed off-stream reservoir pump station. Mr. Gadberry's responsibilities included oversight, review, and QA/QC of the engineer's opinion of probable construction cost.

Chief Estimator, Public Works and Public Services Administration Building, Dania Beach, Florida. Mr. Gadberry served as the chief estimator for this project and provided an Opinion of Probable Construction Cost for this project for the design, permitting, bidding, and construction phases of the City of Dania Beach Public Works and Public Services Administration Building. The

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15,000-square-foot administration building includes three distinctly different zones to meet the spatial program requirements for each of the City's public works, public services, and fleet maintenance divisions. These zones include offices, meeting space, restrooms, and break room facilities, and were designed as separate entities to meet the City's security requirements while complementing the spatial arrangement of the whole.

Chief Estimator, Mass Burn Waste-to-Energy Facility Design-Build-Operation, West Palm Beach, Florida. Mr. Gadberry serves as CDM Smith's regional chief estimator for the design and construction of the new 3,000-tons per day (tpd) mass burn waste-to-energy (WTE) facility. CDM Smith's scope of work includes design and construction of the Tipping Building, Air Pollution Control Building, Ash Management Building, Maintenance Building, Sky Bridge, and a LEED Platinum Certified Visitor Center. Additional scope includes cladding and roofing of the Refuse Handling Building, Boiler Building, Water Treatment Building, and Turbine Generator Building. The project also includes the design and construction of the largest rain water harvest system in the U.S. comprising of a rainwater collection system from 7 acres of roof area. The design and construction of onsite roadways, drainage, utilities, water storage tank, landscaping, grading, and fencing is also part of CDM Smith's scope of work.

Chief Estimator, Red Top Regional Pump Station & Wastewater Interceptor Phase I, Charleston Water System, Charleston, South Carolina. Mr. Gadberry served as CDM Smith's regional chief estimator for the design and construction for the Red Top Regional Pump Station & Wastewater Interceptor Phase I, construction manager at risk project. The project comprises of approximately 6-miles of sewer piping, ranging from 6 to 30-inches in diameter, including both open-cut and trenchless construction methods. The project also includes a new regional pump station.

Chief Estimator, Big Bend Master Pump Station, Hillsborough County, Florida. Mr. Gadberry was the chief estimator for this new master pump station project at an existing public works site. The design included demolishing three septic tanks located at the site and diverting the flow to the master pump station. Mr. Gadberry provided oversight, review, and QA/QC of the engineer's opinion of probable cost of construction.

Chief Estimator, Phase II and IIIA Closure, St. Lucie County, Florida. Mr. Gadberry served as the chief estimator for the closure of the Phase II and IIIA landfill cells at the St. Lucie County bailing and recycling facility site. Work includes landfill


gas system improvements, liner system placement, stormwater improvements, and earthmoving for the \$8 million project to close approximately 40 acres.

Chief Estimator, Lantana Landfill/Park Ridge Golf Course, Lantana, Florida. Mr. Gadberry served as the chief estimator for this \$14 million design-build project that involved converting a closed landfill into a public golf course for the Palm Beach County Solid Waste Authority and Parks and Recreation Department. This project, unique in South Florida, consisted of constructing a new golf course and clubhouse building complex.

Chief Estimator, Class I Landfill Access Road Master Plan, Solid Waste Authority of Palm Beach County, Palm Beach County, Florida. Mr. Gadberry served as the chief estimator for the master plan of SWA's Class I landfill access road to provide access to the top of the landfill. This consisted of analyzing various cross sections and their effect on stability, stormwater management, and consumption of landfill airspace. The roadway slope and alignment was optimized while also taking into consideration the current and future operations of the landfill, end use planning, existing landfill gas management system features, and stormwater management system features including swales, terraces, and the location of downdrains.

Chief Estimator, Roanoke Island Water Treatment System Expansion, Dare County North Carolina. Mr. Gadberry served as CDM Smith's regional chief estimator for the design and construction for the Roanoke Island Water System expansion construction manager at risk project. The project comprises of approximately 56-miles of water distribution piping, ranging from 6- to 16-inches in diameter, including both open-cut and trenchless construction methods. The project also includes a new elevated storage tank; a new ground storage tank and rehabilitation and upgrades to the high services pumps located at the Skyco WTP.

Chief Estimator, Palm Beach County Water Utilities Department, SWRF Digester Biogas Renewable Energy Project, Palm Beach County, Florida. Mr. Gadberry served as CDM Smith's regional chief estimator for the design and construction of this project \$3.5 million. The scope of work included Site Work, Piping, Supply and Installation of Gas Treatment System and Renewable Generator Units, and Electrical.



Timothy Feather, Ph.D.

Technical Advisor – Flood Control/Coastal Engineering

Education

Ph.D. – Geography, minor in Environmental Engineering, University of Florida, 1992

MS – Geography, Southern Illinois University, 1986

BA – Civil Engineering Technology, Southern Illinois University, 1983

Years of Experience

With CDM Smith: 26

Total Years: 25

Dr. Feather's professional and academic focus has been on the development of interdisciplinary solutions to environmental challenges and has been involved in projects nationwide servicing federal and state water resource agencies with special planning and policy studies. Recently, he has worked with stakeholder groups to surface the strategic balance between growth and the environment in south Florida and the Everglades. As part of the U.S. Army Corps of Engineers (USACE) Evaluation of Environmental Investments Research Program, Dr. Feather has researched methods for monetary and nonmonetary valuation of environmental project features and developed an overall evaluation framework for environmental plan formulation. Environmental planning tools that Dr. Feather has supervised and/or developed include environmental resource valuation, environmental law review/assessment, outdoor recreation analysis, water demand and conservation analysis, economic base analysis, water and wastewater quality

analysis, survey and statistical evaluation and group process design and facilitation.

Quality Manager, USACE North Atlantic Division, North Atlantic Coast Comprehensive Study (NACCS). Dr. Feather has provided quality management for application of USACE plan formulation principles and guide-lines to one of the largest comprehensive water resources and coastal planning studies undertaken by USACE. He has advised the project team in development of a Focus Area Analyses, per USACE plan formulation process, promotion and enhancement of interagency cooperation, alternatives evaluation, and analysis of "Institutional and Other Barriers" as required by PL 113-2 with input from stakeholder interviews.

Quality Manager, Blind River Freshwater Diversion Project, St. James Parish, Louisiana. Dr. Feather helped coordinate a multidisciplinary project team in development of feasibility document and supporting environmental evaluations to support feasibility-level design for a new channel and diversion structures. He worked with state agencies and USACE in the framework of the USACE six-step plan formulation process. The 3-year feasibility study was completed in 18 months within budget and was approved by the Secretary of the Army.

Quality Manager, USACE Institute of Water Resources, Enhancement of Technical Assistance to Coastal Communities, Nationwide. Dr. Feather supports the Federal Interagency Floodplain Management Task Force (FIFM-TF) by researching literature and other resources related to decision-making, stakeholder engagement, green infrastructure implementation, and coastal flood risk management to determine where analytical gaps exist. This effort examined the spectrum of tools and approaches described in terms of best practice, implementation, funding, monitoring, and risk quantification, based on published literature, technical reports, and other resources. Over 300 documents were reviewed as part of the source assessment and analysis for this analysis.

Quality Manager, USACE Institute of Water Resources, Regional Assessments of Climate Change, Nationwide. Dr. Feather is part of team evaluating the regional impacts of climate change on USACE projects and business lines. He is working with an interdisciplinary team compiling relevant climate change information for all major, 2-digit hydraulic unit code (HUC) basins, evaluating the climate change impacts to each basin individually. The assessment synthesizes regional climate information with the potential vulnerabilities associated with the USACE Civil Works Business Lines specific to the HUC basin.

Quality Manager, Economic Analysis of Coastal Management, USACE Baltimore District, IWR.

Dr. Feather supported the USACE Shoreline Erosion Study with hedonic pricing model to examine how property values surrounding Chesapeake Bay are impacted by shoreline stability/erosion. This economic analysis was supported by detailed statistical analysis and geographic information system (GIS) tools. This economic benefits analysis will help support further water resources planning

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investment in the program through improved definition of regional social and economic conditions. Provided support on scoping, led the analysis and report development.

Project Manager, Institutional Review of Watershed Planning. Dr. Feather led a team that reviewed typical existing Federal authorities and management practices from the perspective of watershed planning. His critical appraisal was provided and characterization of promising advancements was offered. The study was done in support of the USACE in consideration of improving its watershed planning capabilities. This was based primarily on literature review and selected interviews conducted of USACE District planning staff.

Project Manager, Watershed Based Participatory Planning to Support USACE Regulatory Program. In support of USACE Jacksonville District, Dr. Feather worked with stakeholder groups to evaluate a range of alternatives for the Southwest Florida Environmental Impact Statement and Lake Belt Environmental Impact Statement. The task was to work with selected agencies, NGOs, and private interests to discuss and compare the merits of alternative futures for the study areas. These were comprehensive efforts that consider a range of factors from preservation and environmental impacts to economic development. These efforts set the stage for improved efficiency in permit decisions for the District.

Program Manager, Evaluation of Environmental Investment Research Program. Faced with a growing ecosystem restoration mission, the USACE embarked on a multi-year initiative to customize and/or modify common planning procedures to effectively address unique features of ecosystem-focused projects. Dr. Feather led the work units on monetary and non-monetary valuation techniques and creation of an evaluation framework. These efforts lead to several publications and a received favorable review by the USACE Environmental Advisory Board.

Project Manager, QUADRANT: Incremental Analysis Methodology for Prioritizing Operations and Maintenance (O&M) Projects. This project for the USACE addressed placing economics-based priorities on proposed maintenance packages for annual O&M programming. This was a multi-year effort that addresses the navigation and hydropower mission areas in USACE. Models were created based upon the economic benefits tied to improved reliability of the engineering structure. This effort involved elicitation of field experts, model development, software creation and training of final products.

Project Manager, Installation Water Resources Analysis and Planning System (IWRAPS). Mr. Feather led the initial model development and several applications of IWRAPS.

This tool is used by the U.S. Army, Air Force and Navy to plan future water requirements at fixed military installations. These analyses are used to support master planning efforts, water rights negotiations, conservation planning, and water needs associated with major mission changes including BRAC. He has applied this tool or reviewed applications at fifteen studies across the United States.

Project Manager, National Recreation Lakes Commission, Lake Managers Workshop. This Presidential Commission was convened to analyze efficiencies in managing Federal recreation programs at lakes. Dr. Feather oversaw the workshop design, facilities and documentation that were held in Arlington, Texas on January 20-21, 1999. This workshop helped form consensus among members of the commission on recommendations

Project Manager, Illinois Water Law Assessment. Dr. Feather led a team that conducted a review of Illinois water law in light of prominent water management challenges in the State. The analysis addressed key water resources challenges in light of existing law and where modification to the law or statutes might lend improvement to the key challenges. This was a high visibility study that involved a series of focus groups across the State to understand the nature of water resource problems and where key stakeholder groups suggested improvements could be made. The results have been used by Illinois Department of Natural Resources in framing water resources legislation.

Project Manager, Southern Nevada Water Demand and Conservation Analysis. Dr. Feather led a team of analysts for this initiative, which was provided over several years. He provided a detailed analysis of water demands in the rapidly growing desert region that supported a major water supply argumentation project. He worked in close concert with Las Vegas Valley Water District and other major water purveyors in the region. He developed forecasts using IWR-MAIN. Dr. Feather conducted survey of residential and business customers regarding attitudes, beliefs and practices tied to water use in conservation.

Thomas E. Nye, Ph.D., P.E.

Technical Advisor – Hydrologic & Hydraulics

Education

Ph.D. – Applied Marine Physics, University of Miami, 1992

B.S. – Civil Engineering, Southern Illinois University, 1987

B.S. – Geology, Southern Illinois University, 1987

Registration

Professional Engineer: Florida and Texas

Years of Experience

With CDM Smith: 16

Total Years: 20

Dr. Nye's extensive professional expertise in water resources includes stormwater, groundwater, and river modeling, watershed planning, operations, permitting, and conceptual design. He serves as team leader and technical specialist in the development of stormwater master plans (SWMPs); and is a Technical Review Committee member for stormwater management projects, as well as integrated surface water, groundwater and design projects. His model experience includes various versions of the U.S. Environmental Protection Agency's Stormwater Management Model (SWMM), the U.S. Army Corps of Engineers' Hydrologic Modeling System (HEC-HMS) and Adaptive Hydraulics Model (ADH), and the U.S. Geological Survey's MODFLOW.

Dr. Nye is also participating in ongoing research and development of integrated surface water /groundwater tools and has developed the Dynamic Floodway Utility (DFU), a tool used to perform floodway analysis for FEMA Flood Insurance Studies using SWMM. He has also developed pre- and post-processing tools for stormwater and groundwater models. His previous experience includes academic research in various water resources topics.

Lead Modeler, Stormwater Modeling, New Orleans Redevelopment Authority (NORA). Dr. Nye was the lead modeler for additional SWMM stormwater modeling for the City in the neighborhoods of Pontchartrain Park and Gentilly Woods (Pontilly). The HMGP project used stormwater best management practice (BMP) solutions that provided \$13.5 million in flood mitigation throughout Pontilly. The modeled design solution incorporated the re-purposing post-Katrina un-restored residential lots and other existing green spaces into urban pocket parks with stormwater detention and wetlands as well as additional Low Impact Development (LID) and detention. Dr. Nye as the task leader for the model conversion from the City-wide plan, and supervised the addition of the pocket parks, LID controls, and detention to the model.

Lead Modeler, Stormwater Modeling and Sea Level Rise Analysis, South Miami Heights Water Treatment Plant. Dr. Nye conducted SWMM stormwater modeling for the C1 Basin in Miami-Dade County to estimate potential flood levels under various sea level rise scenarios. Tasks included model update, boundary condition evaluations and estimating how the saltwater barrier structure would operate under higher tailwater conditions.

Task Leader, Stormwater Modeling, City of Miami Beach Stormwater Model Update. Dr. Nye was the technical reviewer for the City of Miami Beach's Stormwater Master Plan modeling in 2012-2012. Dr. Nye was the task leader to update the models to account for various levels of sea level rise in 2012. Tasks included raising boundary conditions and analyzing alternatives to mitigate flood problems. Additionally, Dr. Nye trained City staff in use of the EPA SWMM in both 2012 and 2014.

Lead Modeler, Stormwater Modeling, City of New Orleans, Louisiana, Department of Public Works. Dr. Nye conducted SWMM stormwater modeling for the City of New Orleans Drainage Improvement Plan. Tasks included model setup, calibration, and alternative evaluations. He directed a team of seven modelers in the development of 15 neighborhood-scale models of up to 3000 nodes each that encompass the entire city. He wrote multiple sections of the report including Model Development, Design Alternatives/Methodology and the System Assessment Summary.

Lead Modeler, Stormwater Modeling, Integrated Water Management Strategy (IWMS) for Saint Bernard Parish and the East Banks of Jefferson and Orleans Parishes, Greater New Orleans. Dr. Nye was the lead modeler for additional SWMM stormwater modeling in New Orleans for the IWMS, which proposes comprehensive and sustainable investments in flood protection and drainage infrastructure for the city. This project is an international collaboration to ensure higher standards of safety, lower flood risks, and enhanced quality of life for Southeastern Louisiana.

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Task Leader, Stormwater Modeling, Charleville Australia Emergency Response System (EMS). Dr. Nye conducted stormwater modeling for the Murweh, Paroo, Quilpie and Bulloo Shires in Queensland Australia as part of the creation of an EMS for the area based upon XP-SWMM modeling and a GIS-based warning tool. The shires can input forecast rainfall into the tool, which then provides an input file for the model. Once run, the model results may then be imported back to the tool. The EMS predicts where critical stages in the shires are likely to be breached and the shires may then send warnings as appropriate. Dr. Nye built and calibrated the models, as well as aided in the design of the tool and report writing.

Lead Modeler, Stormwater Modeling, Kingdom of Saudi Arabia (KSA) Harrats Project and Phase II Floods Project. Dr. Nye led a team of nine modelers in conducting HEC-HMS stormwater modeling for KSA. For the Harrats Project, more than a dozen basin scale models (up to as large as the state of Connecticut) were developed to perform integrated surface water, groundwater analysis of the Kingdom as part of a water resource analysis. Dr. Nye developed the methodology and pilot models, trained the team and reviewed the remaining models. For the Floods Project, Over 60 watersheds are being analyzed in HEC-HMS and HEC-RAS to develop flood analysis at priority locations throughout the Kingdom. Dr. Nye has developed the pilot model and trained the team.

2D Modeler, ADH Modeling , Free Flow Power (FFP), Pittsburgh, Pennsylvania. Dr. Nye conducted ADH modeling on the SMS model platform for two dams in the Allegheny River, pre- and post-design of FFP modifications. Tasks included model build and report writing.

Project Engineer, Stormwater Modeling, Dallas Love Field Airport (DAL), Texas. Dr. Nye conducted SWMM stormwater modeling for the Stormwater Drainage Master Plan (SDMP) for Love Field. Tasks included building the model from GIS, survey and plans, model validation, and alternative evaluations including airport-wide conveyance and detention options. He wrote multiple sections of the SDMP report and reviewed the entire plan. A 2D version of SWMM was built and used to aid in the preparation of the 1D model that was delivered to the client.

Sewer Modeling, South Essex Sewerage District, Danvers, Massachusetts. Dr. Nye developed the collection model in SWMM for the South Essex Sewerage District. He review the GIS data and As-built plans to build the 3400-pipe segment model. He processed flow monitoring data from 40 stations with SSOAP and spreadsheet analysis to estimate minimum flows, dry weather flows and wet weather flows. Dry weather flow patterns were developed and wet weather RTK values

were estimated. The model was calibrated to the 40 meters, for base flow and dry and wet weather flows. Dr Nye also wrote multiple sections of the report.

Task Leader, Stormwater Modeling, Austin-Bergstrom International Airport (ABIA), Texas. Dr. Nye led three modelers and conducted SWMM stormwater modeling for the ABIA Stormwater Drainage Master Plan (SWMP) Update. Tasks included model review and revision, validation, and alternative evaluations including airport-wide conveyance and detention options and three detailed preliminary localized site investigations. He wrote multiple sections of the SWMP and reviewed the entire plan.

Task Leader, Stormwater Modeling, Daytona Beach International Airport (DBIA), Florida. Dr. Nye led the team that conducted SWMM stormwater modeling for the DBIA Stormwater Master Plan (SWMP). Tasks included model review and revision, and alternative evaluations including airport-wide conveyance and detention options. He also wrote multiple sections of the SWMP.

Task Leader, Stormwater Modeling, Fort Lauderdale Executive Airport (FXE), Florida. Dr. Nye led the modeling team that conducted SWMM stormwater modeling for the FXE Stormwater Master Plan (SWMP). Tasks included model build, validation, and alternative evaluations including three detailed preliminary localized site investigations. He wrote multiple sections of the SWMP and reviewed the entire plan.

Modeler, Hydrologic Modeling, Los Angeles County Drainage Area (LACDA), California. Dr. Nye conducted HEC-HMS and GeoHMS modeling of the Los Angeles and San Gabriel Watersheds in Los Angeles County (1,480 sq. mi.). Tasks included converting the existing HEC-1 models to HEC-HMS, using ArcHydro and GeoHMS tools to delineate/validate subbasins, and to develop a more refined, gridded HMS model of the Sepulveda Dam Watershed. He also wrote the report for the U.S. Army Corps of Engineers.

Lead Modeler, Stormwater Modeling, City of Fort Lauderdale, Florida. Dr. Nye conducted SWMM stormwater modeling for the City of Fort Lauderdale Stormwater Master Plan (SWMP), including model setup, calibration, and regional alternative evaluations for water quality and quantity improvements. He directed a team of four modelers in the development of neighborhood-scale models in the city to perform flood control measure evaluations. He wrote multiple sections of the SWMP including Water Quantity Modeling, Regional Alternatives and Local Alternatives. He reviewed the other sections of the SWMP.

Gul Khan, P.E.

Technical Advisor - Ecological Restoration

Education

B.S. - Civil Engineering, University of North Carolina, Charlotte, NC, 1989

B.S. - Mathematics, University of Punjab, Pakistan, 1984

Registration

Professional Engineer: New Jersey, New York, and Washington, DC

Years of Experience

With Louis Berger: 21

Total Years: 26

Mr. Khan has over 26 years of professional experience that includes over 20 years of experience on Army Corps Civil Works projects. In the past 10-years, he was principal/program manager on five (5) Civil Works A/E and Planning IDCs that involved planning studies and designs for ecosystem restoration, flood damage risk management, navigation and environmental projects. Mr. Khan is an expert on civil works programming and project delivery and has participated several industry-government sessions.

Mr. Khan has been responsible to assemble project teams and develop teaming agreements, perform contract negotiations, perform QA/QC on scope and proposal negotiations, and overall project management. Mr. Khan has also managed the oversight of several design teams that include coastal, navigational, civil, hydrology/hydraulic, geotechnical, environmental science, surveying, mechanical, electrical, structural, geotechnical and cost estimating disciplines.

The typical tasks included QA/QC of investigations, surveys, feasibility studies,

engineering analysis, numerical modeling, design and preparation of construction plans, specifications and cost estimates in accordance with USACE guidelines.

USACE New York, Hackensack Meadowland Ecosystem Restoration Program. As Principal-in-Charge, Mr. Khan was responsible for extensive coordination with Hackensack Meadowland Commission, USACE, US Fish and Wildlife, USEPA, NJDEP and NOAA as well as NJMC. Several studies performed to support the feasibility study. They included, Project Management Plan, Meadowlands Environmental Site Investigations Compilations (MESIC), Meadowlands Comprehensive Environmental Restoration Implementation Plan (MCRIP), Programmatic EIS and Environmental Assessment (EA). Also performed extensive geotechnical and HTRW investigations to develop baseline data. Also lead several public outreach and stake holders meetings.

New Jersey Department of Environmental Protection (NJDEP), Environmental Assessment Field Contractor for Environmental and Historic Preservation Reviews. Principal-in-Charge. Responsible for providing on-call environmental review services to prepare Tier 2 Site Specific Environmental and Historic Preservation Reviews in accordance with HUD 24 CFR Part 58 and NEPA regulatory requirements. The primary purpose of these reviews is to help the state determine if residences and other structures impacted by Superstorm Sandy meet the necessary state and federal environmental, historic/cultural, and ecological requirements for Community Development Block Grant – Disaster Recovery (CDBG-DR) funding reimbursements related to structural rehabilitation, rebuilding, or demolition. A key component of Louis Berger's work is streamlining the environmental, historic and ecological review process such that reviews are "fast-tracked" to energize long term post-Sandy recovery while complying with all applicable regulatory requirements. To date, approximately 300 individual environmental and historic preservation reviews of storm impacted residences have been completed throughout the state.

NJOEM and NJDEP, Recovery Response to Superstorm Sandy, New Jersey. Principal-in-charge. Responsible for Louis Berger's New Jersey-based response to Superstorm Sandy. Also oversaw initial recovery response of debris removal for 18 municipalities in Ocean and Monmouth counties. This action required mobilization of hundreds of monitors.

USACE New York/NOAA/Port Authority of NY/NJ and NJDEP: Woodbridge Creek Wetland Restoration and Mitigation Site, Woodbridge, NJ. Program Manager. Scope included investigations, surveys, bio-bench marking, concept designs, and full design and contract documents. The project included excavating and grading site elevations in Phragmites-dominated areas to lower elevations that can better support a brackish marsh community to restoring intertidal marsh and open water habitats for two sites (17 acres and 36 acres). Project items included mobilization and site access; soil erosion and sediment controls; habitat restoration, including grading, fill placement, and landscaping; and recreational facilities, including

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observation platforms/shelter, boardwalks, and a nature trail. Project Received ACEC NJ and Coastal America Spirit Awards as well as Commendation Letter from the Town Mayor.

New Jersey Office of Emergency Management (NJOEM)/ Toms River, New Jersey, Private Property Debris Removal Program (Federal Emergency Management Agency [FEMA] funded), Superstorm Sandy, New Jersey. Principal-in-charge. Responsible for Louis Berger's New Jersey-based response to Superstorm Sandy that also included private property debris removal (PPDR) for 300 single-family houses. Program included database development, private property access arrangement, and oversight of debris removal process.

USACE New York, Gerritsen Creek Ecosystem Restoration – Section 35, NY. Program Manager. The project site is approx. 65 acres. The goal of the project is to create approx. 30-acres of the tidal marsh and enhance additional 12-acres. Project also involves issues related to waste. The scope of project included subsurface investigations, plan formulation and ICA, engineering design, plans and specifications and MCACES cost estimates. The major deliverable of the project are Draft and Final ERR combined with Environmental Assessment; Alternative Formulation Briefing; and Plans and Specifications. Project also involves public presentation and extensive coordination with NYC-NRG to address recreational elements of the project.

Marsh Resources Inc., MRI Wetland Mitigation Site, Phase 1, 2 and 3, Bergen County, NJ. Chief Civil/Geotechnical Engineer. Scope of services included preparation of subsurface investigation program; geotechnical engineering analysis that included bearing capacities for the proposed embankments, slope stability and settlement analysis; preparation/review of tidally-controlled wetland mitigation plans and recommendations for the construction of the mitigation site. Also responsible to provide engineering direction and lead reviewer on MRI -3 project.

USACE New York, Minish Waterfront Park, Newark, Tidal Wetland Restoration Design. [DESIGN: 2008, CONSTRUCTION: NA] Program Manager. The scope of work included field investigations including bio-bench marking, bathymetric/topographic surveys, tidal gage, subsurface investigations including sediment sampling, geotechnical engineering, and preparation of plans, specifications (SPECINTACT) and cost estimates (MCACES) and close coordination with NJDEP.

USACE New York, Jamaica Bay Ecosystem Restoration Program. Program Manager. Project includes 6-restoration sites. Scope of work involves Shoreline recession analysis, slope stability analysis, wind wave & vessel analysis,

shoreline stabilization design including concept plans and cost estimates, RMA Modeling for Dead Horse Bay, and geotechnical engineering. Louis Berger also provided technical review of the preliminary conceptual restoration design by others.

USACE New York, Finderne Site Green Brook Wetland Mitigation Project, Raritan River, NJ. Program Manager on concept design of over 75-acres of wetland mitigation project. The scope of work include project study maps, bathymetric, aerial and topographic surveys, photogrammetry, GIS applications, environmental sampling, testing and analysis, geotechnical design, H/H analysis, environmental permitting, cost estimates using MCACES and preparation of preliminary design and technical reports.

USACE New York, Long Hill Flood Protection, New Jersey. Principal. Project included Levees, Floodwalls, Pump Stations and Wetland Mitigations. Task order scope included review of an existing 90% design submittal, preparation of design deficiencies, additional electrical and pump system designs, permitting, incorporating of Dr. Check comments, preparation of OMRR & R manual, submittal of 100% and final deliverables.

USACE Baltimore/DCDOT, 17th Street Levee and Flood Protection Project, Washington DC Mall, Washington, DC Principal. This is high profile flood protection project on DC Mall area. Project included levee, temporary flood wall, fixed flood wall, landscaping and pump station designs. Task order scope included overall program management for DCDOT, civil and structural design, mechanical and electrical reviews, cost estimates, NCPC and other regulatory coordination/approvals, and coordination with all stake holders including NPS. For USACE Baltimore, provided reviews, OMRR&R and Title 2 services.

Michael S. Schultz, P.E.

Technical Advisor - Geotechnical Engineering

Education

M.S. – Civil Engineering, Massachusetts Institute of Technology, 1981

B.S. – Civil Engineering, Worcester Polytechnic Institute, 1975

Registration

Professional Engineer: New Jersey, New York, Massachusetts (1981), Connecticut, New Hampshire, Maine, Texas, Rhode Island, Louisiana, Florida, Washington, D.C.

Years of Experience

With CDM Smith: 24

Total Years: 39

Mr. Schultz is a geotechnical engineer and senior vice president with 39 years of experience. He currently manages the geotechnical and tunnel engineering services division of CDM Smith and provides consulting, project and program management, senior technical review, and direction on complex geotechnical engineering efforts including those involving geotechnical engineering aspects of water, water resources, wastewater, environmental remediation, transportation, and facilities projects. Projects he provides assistance for often involve deep excavation support systems, deep shafts and pump stations, tunneling, soil improvement systems including jet grouting, ground freezing and other grouting techniques, dams and levees, and foundation designs in all market sectors. Recent experiences and a sampling of project experience with an emphasis on projects in Florida are shown below.

Project Director, New York City Economic Development Commission, Harbor Siphons Project, New York, New York. Mr. Schultz is currently serving as the project director for a CDM Smith/HMM Joint Venture for the design and construction services of a 1.75-mile long water pipeline between Brooklyn and

Staten Island. The pipeline will be constructed in a 12-foot diameter tunnel crossing underneath the entrance to New York Harbor located north of the Verrazano Bridge. The tunneling will be accomplished using an earth pressure balanced shield tunnel boring machine (EPB TBM) and will use gasketed concrete liners as the primary support. The joint venture, worked closely with all stakeholders, evaluated cut-and-cover options and tunneling options to complete the project. Shafts on Staten Island and in Brooklyn, will be constructed using either slurry wall or ground freezing for temporary support.

Senior Quality Reviewer, DC Water and Sewer Authority (DC Water) CSO Tunnels, Washington, D.C. Mr. Schultz served as a senior quality reviewer and as part of the team for the preparation of the risk register, facility planning, and the preliminary design of 13 miles of 15- and 23-foot inside diameter (ID) combined sewer overflow (CSO) tunnels in the nation's capital. The project involves design and implementation of an exploration program of 47 borings including three marine borings. Borings drilled in this phase of the program were extended to depths ranging from 125 to 250 feet, to develop sufficient subsurface data to make geotechnical recommendations on the various tunnel alignment options and to develop preliminary costs for the selected alignment. In addition to the borings, the exploration program included geophysical testing, in-situ testing with pressuremeter, and slug testing. Sampling was performed using both pushed, drilled, and driven tube samples for laboratory testing. As a result of the hydraulics and geotechnical evaluations, the tunnels are expected to be both in rock and soil.

Project Director and Engineer-of-Record (EOR), Remedial Design and Construction Services, Alcoa Site Remediation, Massena, New York. Mr. Schultz led the remedial design and construction services CDM Smith provided to Alcoa for remediation of 14 hazardous waste sites in Massena. Construction costs for this 8-year program were estimated to be in excess of \$250 million. The remedial design and construction has been completed on all 14 sites. Mr. Schultz has been the EOR on over half of the design projects. Projects completed under his direction included the closure of three hazardous waste landfills, the excavation and/or solidification of two marshes, the excavation and groundwater extraction of a spent potlining landfill, and the groundwater extraction system design of one of the closed landfills. Geotechnical engineering aspects of these project included the design of soil-bentonite slurry walls to depths of 55 feet, leachate collection systems installed using polymer slurry, groundwater extraction trenches under bipolymer slurry, geosynthetic and geocomposite clay liner caps, solidification/stabilization of PCB contaminated soils, and closure designs over very soft sensitive clay.

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Engineer-of-Record (EOR), M Street Tunnels Washington, D.C. As part of the project team for the Division E – M Street Diversion Sewer Project of the DC Clean Rivers Projects for DC Water, Mr. Schultz served as the EOR for the tunnel design for two tunnels: 1,014 linear feet of 48-inch and 1,313 linear feet of 108-inch sewer. Design was performed and specifications developed to allow the bidders to select the method of tunneling (microtunnel or conventional), ground modification, and lining support systems.

Engineer-of-Record (EOR), Tunnel Design, Tingey Street Microtunnel, Washington, D.C. As EOR for design of this design-build project, Mr. Schultz is in responsible charge of the design of this 72-inch reinforced concrete pipe microtunnel that is approximately 1,200 linear feet long. Extensive 3D modeling using FLAC 3D was performed to evaluate the effect of jacking loads on the brick-lined Tiber Creek Tunnel which is in very poor conditions. Design also required ground modification consisting of permeation grouting to protect the East Side Interceptor sewer and jet grout columns to support the Tingey Street sewer in soft clay and miscellaneous fill.

Geotechnical and Tunneling Task Leader, Hartford MDC, CSO Program Management Project, Hartford, Connecticut. Mr. Schultz is currently serving as a task leader for geotechnical and tunneling aspects of the Hartford MDC Clean Water Project. CDM Smith is serving as the Program Manager for the project. Currently the South Hartford Conveyance and Storage Tunnel is being designed. This project consists of a rock tunnel with a minimum finished diameter of 18 feet approximately 4 miles long and includes a rock cavern pump station and associated shafts and CSO diversion structures and outfall drop shafts and connections.

Senior Technical Reviewer, Geotechnical Services for the Brightwater Conveyance Tunnel System, King County, Washington. Mr. Schultz served as a senior technical reviewer and quality analysis/quality control (QA/QC) auditor for CDM Smith's services for an influent and out fluent conveyance system designed for King County. CDM Smith has been providing the geotechnical engineering services for an estimated 20 miles of tunnels at depths in soil of more than 250 feet with diameters ranging from 8 to 20 feet in diameter.

Senior Technical Consultant/Project Manager, Contract E02CN15, South Boston Piers, Russia Wharf and Fort Point Channel Tunnel, Boston, Massachusetts. Mr. Schultz served as the senior technical consultant and project manager for CDM Smith's services to the contractor for the ground freezing and New Austrian Tunneling Method (NATM). tunnel underneath the Russia Wharf and Graphic Arts Building as part of the Massachusetts Bay Transportation Authority's (MBTA's)

Silverline Tunnel currently under construction in Boston.

CDM Smith's services included reviewing the design and ground freezing aspects of the NATM tunnel under the 6-story Graphic Arts Building located in the South Station area of Boston. CDM Smith provided expert opinions on the technical specifications, review of the subsurface characterizations in terms of the ground freezing design, reviewed the heave and settlement monitoring during the test section freeze, and provided general consulting services to the contractor on the ground freezing system as it relates to the NATM tunnel.

Senior Technical Consultant, Geotechnical Engineering and Tunneling Alternatives Study, Waterbury, Connecticut.

For the City of Waterbury's Main Carrier Relief Sewer (MCRS) project, Mr. Schultz directed the geotechnical engineering studies that included the evaluation of alternatives for tunneling, pipe jacking, and deep open construction techniques through downtown Waterbury. Major design considerations included reducing construction impacts to traffic, drilling and blasting in deep rock cuts next to numerous brick buildings and utilities, water control, tunneling, and pipe jacking alternatives along portions of the alignment, river crossings, etc.

Project Manager, Landfill Closure Design and Construction Services, Various Locations.

Mr. Schultz has provided technical expertise and project management for the design and construction of more than two dozen landfill closures, solid waste transfer stations, and the hydrogeologic assessment at municipal and hazardous waste landfills throughout New England and New York. He managed the geotechnical engineering aspects for the closures of municipal landfills in Holden, Millbury, and Sandwich, Massachusetts. He directed the geotechnical engineering design aspects of solid waste transfer stations in Martha's Vineyard and Falmouth, Massachusetts; and Hillsborough, New Hampshire.

Engineer of Record / Lead Geotechnical/Tunnel Engineer, Confidential Client, Intake Structure, Tunnel and Deep Pump Station Design, Rockland County, New York.

Mr. Schultz is currently serving as the geotechnical and tunneling lead for the design of a raw water line intake structure, pipeline, and conveyance system by tunneling and deep pump station (approximately 85feet deep) as part of CDM Smith's design for a water treatment system and plant. The intake structure is being designed to pull raw water from the Hudson River in water depths in excess of 40 feet. The subsurface conditions include very soft river sediments and deposits at depths greater than 75 feet and will require pile support. The pump station will be constructed beneath the pump station building and will pump raw water to the treatment plant.

Lawrence Pesesky, AICP

Technical Advisor - Planning

Education

M.S. - Geography, Rutgers University, 1986
B.S., Agricultural Economics, Cornell University, 1978

Registration

American Institute of Certified Planners

Years of Experience

With Louis Berger: 29
Total Years: 36

Mr. Pesesky is senior vice president of planning with Louis Berger, specializing in analyzing the effects of transportation projects, and assessments of cumulative and indirect impacts. He has more than 26 years of experience in preparing and managing environmental impact statements (EISs), permit applications, and related studies. In addition to understanding the technical methodological requirements of such studies, he is also thoroughly familiar with the requirements of environmental laws, including the National Environmental Policy Act (NEPA), the Clean Air Act, and the Clean Water Act, as well as those of the Safe, Accountable, Flexible, Efficient, Transportation for Equity Act: A Legacy for Users. (SAFETEA-LU).

Principal-in-charge and Project Manager, New Jersey Turnpike Authority (NJTA), Environmental Consultant for Interchange 6 to 9 Widening Program.

Of this \$10.4 million consultant contract for the permitting of this \$2.5 billion construction program. Managed the delivery of services by Louis Berger and five subconsultants.

Deputy Project Manager, NJTA, Interchange 11 to Interchange 15E, EIS and Permits, New Jersey. Responsible for day-to-day management of the preparation of the EIS and permit applications for this 16-mile highway widening project. Permits issued for this project included Section 10 and 404 (U.S. Army Corps of Engineers [USACE]), Bridge Permit (U.S. Coast Guard), and Freshwater Wetlands, Waterfront Development, and Water Quality Certificate (New Jersey Department of Environmental Protection [NJDEP]). Coordinated the federal and state review process and the response to public comments.

NJTA, Interchange 8A to 9 Widening, Environmental Permits. Responsible for ensuring 18 Soil Erosion and Sediment Control Plans were in compliance with Soil Conservation District requirements. Prepared a conceptual design for the management of potentially contaminated stream sediments that met the approval of NJDEP officials issuing the project Water Quality Certificate.

Project Manager, NJTA, Truck Service Area EA, Cranbury, New Jersey. Responsible for preparation of the EA that evaluated the impacts of the proposed 200-truck facility in central New Jersey. Key issues evaluated included impacts on air quality and noise and the project's effect on a nearby historic district. Participated with the Turnpike Authority in its public hearing.

Project Manager, NJTA, Vince Lombardi Service Area Park and Ride Expansion EA, Ridgefield, New Jersey. Responsible for the preparation of the EA that evaluated the impacts of the proposed addition of 1,000 parking spaces to the existing facility. Key issues evaluated included impacts on air quality and potential effects on an endangered species colony. Developed conceptual plan for stormwater quality management that met with approval of NJDEP officials.

Project Manager, NJTA, Circle of Mobility Pre-Feasibility Environmental Screening Study, Bergen and Hudson Counties, New Jersey. Of the evaluation of conceptual plans to determine the potential environmental impacts of this comprehensive multimodal transportation improvement plan. The plan encompassed two new interchanges on the New Jersey Turnpike, busways, fixed guideways for light rail, and other capital improvements in a 20-mile study corridor. The study provided a consortium of state and interstate agencies as a basis for prioritizing project components.

Project Manager, NJTA, Retrofit Noise Barrier Study and Design. Of study aimed to prioritize neighborhoods for noise barrier construction. The study covered all neighborhoods bordering the Turnpike and involved developing a ranking system for barrier construction based on sound levels, neighborhood age, and barrier effectiveness. Input for the ranking was from noise measurements, noise modeling, barrier design and costing, historical aerial photo interpretation, and land use surveys.

Senior Environmental Scientist, NJTA, Interchange 15W-A, Environmental Studies. Responsible for collecting baseline data and evaluating all natural resource impacts associated with the

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construction of this proposed interchange in the Hackensack Meadowlands. Prepared water quality sampling plan and collected surface water and sediment samples for analysis. Interpreted analytical results to characterize the quality of the surface water system. Analyzed the effect of the project on the transport of sediments contaminated with mercury in Berry's Creek.

Deputy Project Manager, NJTA, Preliminary Engineering and Environmental Investigations for Interchange 6 to 9 Widening Program, Burlington, Mercer, and Middlesex Counties, New Jersey. With responsibility for developing the statement of need, the alternatives analysis, the EIS, and environmental permitting strategy for the 35-mile roadway widening program. The studies, including the EIS, were completed in less than two years. Implementation of the environmental permitting strategy through a separate contract resulted in construction of this mega-project commencing two years later.

Deputy Project Manager, NJTA, Interchange 11 to Interchange 15E, EIS and Permits, Middlesex, Union, and Essex Counties, New Jersey. Responsible for the preparation of the EIS and permit applications for this 16-mile highway widening project. Permits issued for this project included Section 10 and 404 (USACE), Bridge Permits (U.S. Coast Guard), and Freshwater Wetlands, Waterfront Development, and Water Quality Certificate (NJDEP).

Principal Transportation Planner, NJTA, Interchange 1 Toll Plaza Relocation Preliminary Engineering and Environmental Investigations, Pennsville Township, New Jersey. Responsible for the location study of alternative sites supporting the preferred site for design development.

Principal-in-charge, New Jersey Transit, General Planning Consultant Services, New Jersey. Of this on-call task order agreement. Five task orders have related to concept feasibility planning of discrete segments of the proposed Central New Jersey Route 1 Bus Rapid Transit (BRT) Plan.

Principal Transportation Planner, New Jersey Highway Authority, Driscoll Bridge (Garden State Parkway over Raritan River) Widening, Woodbridge and Old Bridge Townships, New Jersey. Responsible for developing the statement of need and environmental permit strategy.

Project Manager, New Jersey DOT (NJDOT), Transportation Conformity Regulation, SIP Revision for New Jersey. Responsible for developing Clean Air Act conformity criteria and procedures that comply with the EPA conformity rule. Prepared a Policy Report on background and issues, and guided public workshops and technical advisory committee meetings. The regulations will be used to assess conformity

between the SIP and transportation plans, programs, and projects in New Jersey.

Project Manager, NJDOT, U.S. Route 21 Freeway Extension Draft EIS, Passaic and Clifton, New Jersey. Supervised the preparation of the draft EIS for a three-mile highway extension project in Passaic and Bergen counties. Project involved synthesizing results of individual technical environmental studies into a cohesive document. Responsibilities included ensuring the document met NEPA and FHWA requirements.

Project Manager, NJDOT, Transportation Conformity Regulation, SIP Revision, New Jersey. Responsible for developing Clean Air Act conformity criteria and procedures that comply with the EPA conformity rule. Prepared a policy report on background and issues, and guided public workshops and technical advisory committee meetings. The regulations will be used to assess conformity between the SIP and transportation plans, programs, and projects in New Jersey.

Project Manager, NJDOT, Route 21 Freeway Extension Draft EIS, Passaic and Clifton, New Jersey. Supervised the preparation of the draft EIS for a three-mile highway extension project in Passaic and Bergen Counties. Project involved synthesizing results of individual technical environmental studies into a cohesive document. Responsibilities included ensuring the document met NEPA and FHWA requirements.

Atlantic County, Atlantic City Airport Master Plan, Atlantic City, New Jersey. Prepared an inventory of water resources and wetlands in the 8.4-square-mile facility located in the New Jersey Pinelands Protection Area. Assessed the impact of the proposed construction of runways on the water quality of streams that feed municipal reservoirs adjacent to the facility, and on wetlands which contain unique pine barrens vegetation. Evaluated project compliance with the New Jersey Pinelands Protect Act.

Deputy Project Manager, PANYNJ, Port Authority Trans-Hudson-Newark International Airport Connection Feasibility Study, Newark, New Jersey. With primary responsibilities for overseeing ridership, environmental, urban development, revenue, and cost effectiveness analyses of alternatives as part of a feasibility study of extending Port Authority Trans-Hudson (PATH) rapid transit service.

Senior Transportation Planner, PANYNJ, Interstate Network Analysis. Responsible for the environmental and community impact components of risk assessments of alternative candidate capital improvements to interstate crossings between New Jersey and New York.

Michael J. McCloskey, P.G.

Technical Advisor - Site Investigation/Remediation

Education

B.S. - Geoscience, Montclair State College, 1978

Registration

Professional Geologist: Pennsylvania, Georgia, Florida, North Carolina, South Carolina, and Tennessee

Years of Experience

With Louis Berger: 18

Total Years: 32

Having served as an New Jersey Department of Environmental Protection (NJDEP)-approved project and senior manager on its four previous remedial investigation/remedial action selection (RI/RAS) term contracts, as well as leading several environmental investigations for the New Jersey Treasury Division of Property Management and Construction (DPMC) over the past 10 years (Marlboro Park and Hospital Sites). Mr. McCloskey has more than 30 years of experience in a variety of complex remedial investigations, remedial action analysis and development, remedial action implementation, technical report preparation, project management, and senior level management activities. This experience includes site history research and analysis, preparation and implementation of site sampling and remedial investigation plans (SSIP), remedial investigation reports (RIR), remedial action selection (RAS) analysis and reporting, and direct

project interface with clients, attorneys, subcontractors, internal personnel and regulatory agency representatives at all levels. He is experienced in managing, evaluating and reporting on complex environmental investigations of all typical site media of concern. As Louis Berger's vice president of geo-environmental services, Mr. McCloskey has been assigned to provide senior level management services for RI/RAS and other environmental investigations.

NJDEP, Cleveland Industrial Center (CIC), RI/RAS Term Contracts. Project and Senior Manager. This comprehensive RI was initiated by Louis Berger in 1999 to characterize and delineate on-site and off-site soil and groundwater conditions, and identify and delineate the sources and extent of the contaminated media. The on-site work included the investigation of 24 areas of concern (AOCs) identified as potential sources of on-site PCB and metals soil contamination and/or regional chlorinated solvent groundwater contamination. As project manager, Mr. McCloskey oversaw the development and implementation of a BIR and an SSIP (1999) designed to investigate and delineate contamination and suspected sources at these AOCs and on a regional basis. The remedial investigation field activities were conducted from 2000-02, and the 2003 final RIR reporting the findings of that investigation was submitted to NJDEP in 2003. The RIR included the findings of the site related geophysical investigations, soil investigations, groundwater investigations, surface water and sediment sampling, and BEE. The conclusions of the RIR focused on the suspected sources of the contamination in various media, the interpreted migration pathways, and potential off-site receptors. These RIR conclusions were used to analyze and develop focused Remedial Action Selections (RAS) and cost estimates for soil removal/remediation actions in 2006, as well as to develop and implement a SVE pilot test for on-site groundwater source contamination.

NJDEP, Matteo Iron & Metal, RI/RAS Term Contracts. Project and Senior Manager. Mr. McCloskey managed a team that implemented and completed (1999 -2004) an extensive RI and RAS that included existing file review, work plan development, information for subcontractor bids (IFBs), various field related remedial investigations of all site media and contaminants, evaluated and reported all historic and investigative derived data in an RI Report (RIR), and subsequently evaluated and reported viable remedial actions to be used for potential solutions for the site's known environmental issues in the Final RAS Report. The extensive RI and RAS studies included: soil borings; groundwater monitoring well installation; soil, sediment, groundwater and surface water sampling; hydraulic conductivity and pump testing; groundwater contamination and flow modeling for natural attenuation potential; and an extensive natural resources evaluation of environmentally sensitive areas. In addition to these standard RI procedures, Louis Berger also prepared, implemented and provided reporting for a sitewide Aquatic Biota Study (ABS) designed to assess and evaluate the potential impacts of site related contamination on the local aquatic flora and fauna. The results of RI and the ABS were used, along with other human health and ecological risk factors, to assist in developing subsequent corrective remedial action studies, evaluations and analyses, and proposed remedies as evaluated and presented in the Final RAS Report.

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NJDEP, Black Brook Wells Site, East Hanover Township, New Jersey. Project and Senior Manager. Responsible for the planning and execution of a groundwater investigation addressing potential contamination source(s) thought to be related to a non-certified former landfill. Investigative tasks included a BEE and wetland delineation, monitoring well installation, geophysical investigations, groundwater sampling and modeling, and ecological and receptor evaluations. Project management responsibilities also included data evaluation, presentation and subsequent reporting. In addition to these typical RI related tasks, Mr. McCloskey also provided litigation support via expert level testimony in a deposition as a fact witness regarding Louis Berger's RI related work on this project.

NJDEP, Allendale Groundwater Investigation, Upper Township, New Jersey. Project and Senior Manager.

Responsible for the planning and execution of a regional groundwater investigation addressing widespread gasoline and chlorinated solvents in South Jersey a residential community. RI field and other investigative tasks included vertical and horizontal groundwater screening, monitoring well installation and sampling, tidal studies, evaluation of local hydraulic conductivity, geophysics, groundwater sampling and subsequent modeling, and ecological and receptor evaluations.

Other Relevant Project under NJDEP RI/RAS, Remedial Design and Landfill Closure Design Term Contracts. Project and Senior Manager on more than 20 RI/RAS projects for various remedial investigations (RI), remedial action selection evaluations (RAS), remedial design and landfill closure related environmental assessments to address contamination and owner non-compliance issues at numerous industrial sites on three previous NJDEP RI/RAS term contracts, plus NJDEP Remedial Design and Landfill Closure Design contracts. Work included senior level project management of required development of workplans (including detailed health and safety plans), fieldwork and investigations, preparation of RI/RAS reports and remedial action recommendations, as well as senior level QA/QC review of many of the subsurface and geological investigations and reporting tasks associated with these programs. Issues being addressed on current assignments include USTs/ASTs, solvent and fuel contaminated groundwater and soil contamination, indoor air concerns, surface water and sediment investigations, and ecological issues related to RI/RAS studies.

Technical Consultant to Special Master, U.S. District Court-Ordered Remediation, Honeywell Study Area 7, Jersey City, New Jersey. Initially served as project manager,

and subsequently as technical reviewer, for the Berger team that was selected as technical consultant to Special Master, Senator Robert G. Torricelli. The Special Master was appointed by the federal judiciary to oversee all aspects of Honeywell International's compliance with a Court Order to remediate chromium contamination caused by historic disposal of Chromium Ore Processing Residue (COPR) into former tidal flats of the Hackensack River. The case was brought against Honeywell by The Interfaith Community Organization, a Jersey City, group made up of various churches. The cleanup, which is estimated to cost in excess of \$400 million, includes (1) excavation of one million cubic yards of COPR over the 34-acre site expanse; (2) investigation and remediation of chromium-contaminated sediments in the Hackensack River; and (3) investigation and remediation of a deep groundwater plume, as appropriate.

New Jersey Turnpike Authority, On-Call Soil and Groundwater Remedial Investigations and Remedial Systems Designs Contract. RI Project Manager responsible for oversight of remedial investigations. Initially reviewing and evaluating the previous investigations of gasoline releases at two service areas to determine supplemental investigations needs to allow completion of remedial action workplans.

New Jersey Transit, General Engineering Consultant Program – Environmental Engineering Services Contract. Task Manager for oversight and implementation of due diligence, site investigation and remediation at rail, bus and maintenance facilities throughout the state of New Jersey.

Port Authority of New York/New Jersey, Multiple Environmental Services and Program Management Contracts. For New York City and New Jersey Airports as well as PATH Train System and Tunnels, Lead Geologist/Technical Review responsible for QA/QC and implementation of projects involving environmental and/or geotechnical investigations at multiple sites.

New Jersey Department of Transportation, RI and RAW Projects, Newark and Elizabeth. Senior Geologist responsible for the development and implementation of investigation workplan for contaminated sites in right-of-way corridors for three different highway projects. Includes development of remedial alternatives and workplans in support of highway design.



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Stacie L. Anderson

HUD CDBG-DR Compliance

Education

M.P.A. – Master of Public Administration,
Florida State University, 2003

B.S. – Political Science, Chestnut Hill College,
Philadelphia, Pennsylvania, 1995

Years of Experience

With CDM Smith: 2

Total Years: 12

Ms. Anderson possesses 12 years of professional experience in project management and operational activities for fast-paced, high profile government entities. Her expertise includes public/private and public/public partnerships, community relations, outreach, media relations, publication development and event planning. Ms. Anderson also possesses skills in federal reporting regulations and reporting systems, contract management, and intergovernmental relations. Additionally, she has more than seven years of experience working with the U.S. Department of Housing and Urban Development's (HUD) Section 3 regulations.

Section 3 Technical Specialist, New Jersey Department of Environmental Protection (NJDEP) Sandy NEPA Compliance Term Contract, New Jersey. Ms.

Anderson serves as a Section 3 Technical Specialist for the NJDEP Sandy National

Environmental Policy Act (NEPA) Compliance Term Contract. She advises the program for policies and procedures related to achieving Section 3 compliance. She also reviews and prepares all Section 3 reporting documents.

Section 3 Technical Specialist, Governor's Office of Storm Recovery, State of New York. Ms. Anderson serves as a Section 3 Technical Specialist for the New York Governor's Office of Storm Recovery project. She advises the program for policies and procedures related to achieving Section 3 compliance. She also reviews and prepares all Section 3 reporting documents.

Management Specialist, Illinois Disaster Recovery Services and City of Minot Disaster Recovery Services. Ms. Anderson is responsible for tracking performance and financial data in the HUD Disaster Recovery Grant Reporting System (DRGR) for both the State of Illinois and Minot, North Dakota's disaster recovery projects. She is responsible for maintaining Action Plans and Quarterly Performance Reports (QPR) for both projects. She continuously analyzes data for reporting deficiencies and programmatic issues. Ms. Anderson is responsible for overseeing the closeout process for all State of Illinois grants.

PRIOR TO CDM SMITH

Community Development Block Grant Program (CDBG) Department of Economic Opportunity (formerly Community Affairs) Government Operations Consultant (March 2008 – March 2013). Ms. Anderson performed environmental review functions for all CDBG grants. She released funds based on federal compliance with NEPA.

Ms. Anderson served as project manager for the State of Florida's 5-year Consolidated Plan for the expenditure of federal funds administered by the state. She was responsible for preparing action plans for each allocation of federal funding. She was also responsible for preparing annual performance reports.

Ms. Anderson was responsible for tracking more than \$290 million in disaster recovery grant dollars funded for projects in federally-declared disaster areas through the HUD DRGR System. She was responsible for reporting on performance measures, accomplishments and beneficiary data. Ms. Anderson continuously analyzed data for reporting deficiencies and programmatic issues.

Ms. Anderson was responsible for the oversight and implementation of the State of Florida's Section 3 compliance process for all CDBG programs. In this capacity, she provided training and technical assistance via workshops and webinars to local governments and consultants on Section 3 regulations. She reviewed all subgrantee submissions of the Section 3 Summary Report. She managed the contract to develop a Section 3 and Minority Business Enterprise training program and guidebook for subgrantees. Other responsibilities while in this role included processing audits, contractual payments, closeout documents, civil rights measures, and Minority Business Enterprise (MBE) documents.

Ms. Anderson was responsible for submitting annual performance report, contractual obligations report, and quarterly performance reports to HUD for the State of Florida Disaster Recovery Initiatives.

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She was responsible for writing Action Plans and Substantial Amendments for the Disaster Recovery Initiative.

Other responsibilities while in this role included processing audits, contractual payments, closeout documents, civil rights measures, Section 3 and Minority Business Enterprise (MBE) documents.

Due largely to Ms. Anderson's efforts, the State of Florida received a \$26.6 million disaster recovery enhancement grant to support recovery from the 2008 storm series and to mitigate future damages.

Ms. Anderson served as a technical assistance and training consultant to the CDBG Program, in both the traditional and disaster recovery programs. She also coordinated various technical assistance and training programs for CDBG, including both internal and external opportunities for development.

Ms. Anderson managed contracts with outside vendors for technical assistance and training programs.

**Project Manager, Special Projects Administrator 1/
Customer Service Advocate, Miami-Dade County Florida,
May 2006 – February 2007.**

Ms. Anderson served as the project manager for special projects and initiatives, including the BlueBook program, a county-wide employee database that serves the county in times of emergency and natural disasters. Ms. Anderson served as the Government Information Center liaison for the Disaster Assistance Employees Program.

**Public Relations Specialist II, Florida Department of
Community Affairs (DCA), Tallahassee, Florida, March
2002 – May 2006.**

Ms. Anderson managed the Florida DCA media and outreach programs for the Division of Housing and Community Development (HCD). The division manages more than \$750 million in both federal and state grants allocated to Florida's communities. Ms. Anderson served as spokesperson for agency on HCD issues; wrote statewide press releases, media advisories, and news stories. Ms. Anderson coordinated intergovernmental programs with environmental organizations. She coordinated DCA events such as 20-Year Growth Management Retrospective, Hurricane Symposium, Long Term Recovery Workshops, and Hazardous Weather Awareness Week.

Jennifer Gonzalez, AICP, LEED Green Associate, ENV SP HUD CDBG-DR Compliance

Education

M.A. - Environmental Policy, Lehigh University, 2009

B.A. - International Relations, Lehigh University, 2008

Registration

American Institute of Certified Planners
Envision Sustainability Professional
LEED Green Associate

Years of Experience

With Louis Berger: 2
Total Years: 6

Ms. Gonzalez is a senior planner focusing on environmental sustainability, climate adaptation and resiliency projects. Her environmental policy experience includes the preparation of environmental review documents pursuant to the National Environmental Policy Act (NEPA), HUD 24 CFR Part 58, and associated regulations such as the Coastal Zone Management Act. She has also coordinated community outreach, stakeholder engagement, and visioning sessions to facilitate relationship-building among various agencies, nonprofit groups and private sector businesses. She presently serves on the Steering Committee of New Jersey's Urban Water Solutions Initiative, and is a member of the Awards Jury for the New Jersey Future Smart Growth Awards. Formerly serving the Department of Planning & Economic Development for the County of Passaic, she provided sustainability guidance, benchmarking and policy recommendations to the administration and governing body, as well as led the development of the first sustainability plan and green streets design guidelines adopted by a county in the State of New Jersey. Ms. Gonzalez was instrumental in developing the Hoboken Green Infrastructure Strategic Plan, which received a 2014 Outstanding Plan Award from APA-NJ, and

four CDBG-DR funded New York Rising Community Reconstruction plans, which received Rising to the Top Awards from the Governor of the State of New York. Ms. Gonzalez holds a certificate from the American Institute of Certified Planners (AICP), is a LEED Green Associate, Envision Sustainability Professional, and Senior Fellow with the Environmental Leadership Program (ELP).

Deputy Project Manager and Environmental Planner, New York State Governor's Office of Storm Recovery / Housing Trust Fund Corporation, Rebuild by Design Living with the Bay HUD NEPA/ SEQRA EIS Scoping and Alternatives

Development Process, Nassau County, New York. Louis Berger is providing environmental review services for the public scoping process for a combined SEQRA/NEPA EIS for Phase I of the Living with the Bay project, developed through Rebuild By Design (RBD) Competition. Key project challenges include its conceptual nature, interagency coordination across levels of government, and the need to evaluate alternatives that consider different combinations of project components, as well as different designs of those project components, while meeting the purpose and need of flood risk mitigation, ecorestoration, and improved quality of life. Through agency feedback regarding permitting infeasibility of the original RBD sluice gate concept, Ms. Gonzalez is working with GOSR and Louis Berger's coastal engineers to develop more feasible, cost-effective and implementable coastal protection alternatives. Following alternatives development, Ms. Gonzalez will be responsible for coordinating a team of several specialized subconsultants to develop a project description, technical approach, Positive Declaration, NOI EIS, Early Floodplain Notice, and Draft Scoping document, as well as host two public scoping meetings and coordinate with federal, state and local agencies to ensure a streamlined environmental review and permitting process.

Environmental/Transportation Planner, NJ Transit, Hoboken Green Infrastructure Strategic Plan, Hoboken, New Jersey.

Ms. Gonzalez served as the lead planner on a strategic plan identified place-based sustainable stormwater management and flood control strategies for the City of Hoboken with a focus on access to transit infrastructure. Ms. Gonzalez analyzed impervious coverage, land use and sub-surface conditions within the City to determine siting constraints and developed a green infrastructure framework that identifies opportunities for strategic implementation of green infrastructure BMPs to achieve maximum benefit at the lowest cost. She also helped develop an implementation agenda that outlined regulatory mechanisms, priority projects and local partnerships for integrating green infrastructure into capital improvement and private development projects.

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Deputy Project Manager and Environmental Planner, New York State Governor's Office of Storm Recovery / Housing Trust Fund Corporation, Suffolk Sewers HUD NEPA/SEQRA Environmental Assessments, Suffolk County, New York.

Louis Berger is preparing NEPA environmental assessments and conducting SEQRA coordinated 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. Project challenges include tailoring an expedited environmental review process for distinct projects with a similar purpose and need, induced growth, and interagency coordination across State, County, Village, and Town agencies. Ms. Gonzalez is responsible for project management and administration across technical areas and developing four environmental assessment documents to facilitate agency coordination.

Deputy Project Manager and Resiliency Planner, New York State Governor's Office of Storm Recovery / Housing Trust Fund Corporation, NY Rising Community Reconstruction Plans, Staten Island, Nassau County, Brooklyn and Queens, New York. Louis Berger provided technical planning services to the State of New York to develop critical resiliency plans for community reconstruction in Staten Island, Brooklyn, Queens and Nassau County, New York. Ms. Gonzalez assessed the key vulnerabilities and needs of each community, evaluated risk, and developed projects, programs and actions for long-term recovery and community resiliency. Through this process, Ms. Gonzalez coordinated communication with several local and state New York government entities and guided community planning committees in prioritizing the most effective reconstruction strategies. She led the cost-benefit analysis efforts and participated in dozens of community planning and public engagement meetings. The result are comprehensive reconstruction plans with fact-based and cost-effective projects that creatively integrate rebuilding recommendations with actions to increase economic opportunity.

New York City Economic Development Corporation, HUD NEPA Environmental Assessment for Saw Mill Creek Wetland Mitigation Bank, Staten Island, New York.

As part of the Mitigation and Restoration Strategies for Habitat and Ecological Sustainability (MARSHES) initiative, EDC is pursuing the first Mitigation Banking Instrument (MBI) in New York City to facilitate both the long term improvement and protection of critical coastal resources, and provide a predictable, efficient and environmentally responsible process to mitigate wetland habitat impacts resulting from the construction of public and private projects. Louis Berger designed the wetland mitigation bank that will restore,

enhance and maintain 68.94 acres of wetland habitat, and prepared all associated permits and CEQR Environmental Assessment Statement. As the project has now received CDBG-DR funding, Louis Berger prepared an Environmental Assessment per HUD 24 CFR Part 58. Ms. Gonzalez is responsible for the alternatives chapter, with a focus on the site selection criteria and process for selecting Saw Mill Creek as the preferred alternative.

Deputy Project Manager and Resiliency Planner, New York City Economic Development Corporation, Raise Shorelines Citywide Study, New York, New York. Louis Berger is presently working with Moffat & Nichol on a waterfront site selection study to evaluate shorelines citywide that are at risk for the potential impacts of climate change. Ms. Gonzalez is helping to develop and execute a robust, systematic approach to prioritize the shorelines at risk of increasing high tide inundation and erosion from sea level rise, using a well-defined methodology, extensive data collection and analysis, state-of-the-art tools, and comprehensive ranking criteria. This includes accounting for risk reduction projects proposed by other agencies, and developing discrete projects with cost estimates to improve the resilience of at-risk shorelines. The result will be the conceptual design and prioritization of distinct shoreline protection projects for which NYCEDC has allocated \$100 million in implementation funding.

Environmental Planner, National Park Service, NEPA Environmental Assessment for Fort Tilden, Queens, New York. Louis Berger is assisting the National Park Service in preparing an Environmental Assessment (EA) to evaluate a range of management alternatives to address changes to access and visitor safety at Fort Tilden Beach brought about by Superstorm Sandy. The purpose of the project is to reduce the risks of damage to the beach from coastal storms, protect critical cultural and natural resources, ensure safe public beach access and provide opportunities for recreation and visitor experience. Ms. Gonzalez is responsible for facilitating an alternatives workshop series to develop alternatives that meet the project purpose and need, with an emphasis on improving natural shoreline processes along Fort Tilden in the vicinity of the existing bulkhead and groin system.

Rebecca S. Jablon, AICP, LEED® AP HUD CDBG-DR Compliance

Education

M.C.R.P. – City and Regional Planning, Georgia
Institute of Technology, 2006

B.A. – Urban Studies, University of
Pennsylvania, 2001

Registration

American Institute of Certified Planners (AICP)

Years of Experience

With CDM Smith: 9

Total Years: 14

Ms. Jablon is a city and regional planner with 14 years of experience on an array of projects involving transportation, sustainability and environmental planning. With demonstrated success leading multidisciplinary teams, she is adept at performing environmental reviews conforming to National Environmental Policy Act (NEPA) requirements for a variety of disaster recovery and infrastructure projects.

Environmental Advisor, CDBG Disaster Recovery Program, New Jersey. Ms. Jablon aided the New Jersey Department of Environmental Protection (NJDEP) as they began the environmental effort to assist the State of New Jersey in Superstorm Sandy recovery efforts, as part of the Community Development Block Grant Disaster Recovery (CDBG-DR) Program. Ms. Jablon helped determine the general level of environmental review required for various program activities, and drafted the certificates of exemption and categorical exclusion documentation (not subject to 24 CFR 58.5) for applicable activities. She aided in the development

of the environmental review forms, and the finding of no significant impact and request for release of funds. She also helped develop the processes for completing such forms and worked with the State to complete nine broad review environmental assessments.

Technical Director, CDBG Disaster Recovery Program, New Jersey. Ms. Jablon, as part of the CDBG-DR Program project team, is serving as the technical director. She oversees the work of a multidisciplinary team of environmental scientists, engineers, planners and architects and supervises the completion of the Environmental Review Records (ERRs) per the U.S. Department of Housing and Urban Development (HUD) NEPA requirements. Together, the team has completed environmental reviews for more than 1,200 rehabilitated or reconstructed homes throughout the nine most impacted counties in New Jersey, as well as seven stand-alone environmental assessments involving reconstruction of multi-family homes, buyout of storm-damaged homes, and infrastructure improvements at a water treatment plant.

Project Planner, LCA Small Diversion Environmental Impact Statement at Convent/Blind River, St. James Parish, Louisiana. Ms. Jablon was part of the project team developing an Environmental Impact Statement (EIS) for the U.S. Army Corps of Engineers (USACE) for a freshwater diversion from the Mississippi River to the western portion of Maurepas Swamp and the Blind River in St. James Parish, Louisiana. Ms. Jablon conducted a recreation evaluation according to the USACE Unit-Day Value method. She also developed the recreation and socioeconomic sections of the EIS.

Task Manager, CDBG Disaster Recovery Program, Minot, North Dakota. Ms. Jablon is part of the CDBG-DR Program project team, leading the environmental effort to assist the City of Minot in roadway and utility infrastructure redevelopment and enhancements, as well as a variety of acquisition, buyout, rehabilitation, reconstruction and reimbursement programs, affecting approximately 1,000 households whose homes were damaged or destroyed by a June 2011 severe flooding event. Ms. Jablon supervises a team of environmental scientists and planners and oversees the completion of the ERRs per the HUD NEPA requirements. To date, the team has completed seven tiered environmental assessments, 778 site-specific reviews, ten stand-alone environmental assessments (including one developed to meet both HUD and the U.S. Economic Development Administration requirements), two categorical exclusions and one exemption.

Task Manager, CDBG Disaster Recovery Program, Ward County, North Dakota. Ms. Jablon was part of the CDBG-DR Program project team; she led the environmental effort to assist Ward County in the removal of all existing structures from acquired properties by way of a variety of means, including demolition, salvage or auction (whereby the winning bidder would relocate the structures). The project provided an urgent need by allowing the County to have better access to, and expand upon, existing flood control options and allow property owners the opportunity to move to safe and livable housing. Ms.

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Jablon oversaw the completion of two tiered environmental assessments and nearly 100 site-specific environmental reviews per the HUD and State of North Dakota NEPA requirements. In addition, Ms. Jablon led the environmental review effort for a proposed project under the CDBG-DR program involving elevation of a roadway segment that is routinely flooded. This environmental assessment conformed to the State and Federal NEPA regulations.

Task Manager, CDBG Disaster Recovery Program, Harris County, Texas. Ms. Jablon was part of the Harris County CDBG-DR Program project team, assisting more than 600 households whose homes have been damaged or destroyed by Hurricane Ike. Ms. Jablon supervised a team of environmental scientists and planners as they developed ERRs for each eligible site and she reviewed each ERR for accuracy and quality. She developed an annotated template to serve as a go-by for the environmental documentation required under NEPA, as administered by HUD. In addition, Ms. Jablon served as the client's environmental point of contact.

Project Planner, Gulf Coast Regional Infrastructure Program, Mississippi. Ms. Jablon was a member of the project team for the MDA's Gulf Coast Regional Infrastructure Program. The NEPA documentation process was compressed and occurred simultaneously with conceptual design and property acquisition in order to speed the infrastructure recovery along the Mississippi Gulf Coast, as per the Governor's mandate. Ms. Jablon oversaw the completion of several ERRs, and worked with the team to complete a series of Environmental Assessments for various combinations of new water or wastewater treatment facilities, pump stations, and distribution or collection areas.

Task Leader, HUD Environmental Review of Proposed Long Term Workforce Housing Projects, Mississippi. Ms. Jablon provided regulatory guidance and support to organizations proposing projects under the Mississippi Development Authority's (MDA) Long Term Workforce Housing Program. The Program was administered by the MDA on behalf of HUD using funds aimed at stimulating recovery from Hurricane Katrina. Ms. Jablon determined the level of environmental review required, provided assistance in preparing required environmental documents, reviewed the documents and provided guidance to ensure full compliance with HUD regulations.

Project Planner, CDBG Disaster Recovery Public Housing Program, Mississippi. Ms. Jablon was a member of the project team conducting on-site inspections of potential public housing sites along the Mississippi Gulf Coast in order to ascertain their environmental feasibility. She prepared

Environmental Assessments on behalf of the CDBG-DR Division of the MDA.

Project Planner, Housing Plan, Southern Plaquemines Parish, Louisiana. Ms. Jablon, as part of the project team that developed a housing recovery plan for Southern Plaquemines Parish, Louisiana, evaluated pre- and post- Hurricane Katrina infrastructure and socioeconomic data. The plan's aim was to guide the parish in stimulating reconstruction of its housing stock in a sustainable fashion.

Transportation Planner, CDBG Disaster Recovery Neighborhood Master Plan, Galveston, Texas. Ms. Jablon was part of the project team developing the Neighborhood Master Plan, as part of disaster recovery efforts from Hurricane Ike. The Plan consolidated and coordinated social, environmental, and economic planning at the neighborhood scale. The Plan consisted of 17 distinct documents that focus on neighborhood-planning areas within the city. Ms. Jablon composed the transportation component of each neighborhood plan and developed recommendations to address local residents' transportation and environmental concerns. In addition, she facilitated several neighborhood meetings in order to garner community feedback and insight into priorities for post-hurricane recovery.

Transportation Planner, Airport Expansion Environmental Assessment, Randolph County, Georgia. Ms. Jablon identified and evaluated the potential environmental impacts of a runway expansion at the Lower Chattahoochee Regional Airport, located in Randolph County, Georgia. She prepared an Environmental Assessment (EA) under Federal Aviation Administration (FAA) guidelines and NEPA requirements.

Transportation Planner, Aviation Environmental Assessment, Tallahassee, Florida. Ms. Jablon was part of the project team identifying and evaluating the potential environmental impacts of the expansion of a runway and the leveling of another at the Tallahassee Regional Airport, in Tallahassee, Florida. She prepared components of the EA in conformance to FAA and NEPA guidelines. Ms. Jablon was responsible for the Affected Environment section as well as the Cumulative Impacts, Environmental Justice, Compatible Land Use, and Energy Supplies, Natural Resources and Sustainable Design elements.

Kristen D. Ahlfeld, PP, AICP

Community Outreach/Stakeholder Support

Education

M.C.P. - City Planning, University of Rhode Island, 1997

B.A. - Marine Affairs, University of Rhode Island, 1994

Registration

Professional Planner: New Jersey

Years of Experience

With FHI: 10

Total Years: 17

Ms. Ahlfeld has 16 years of experience conducting and managing a variety of large and small transportation planning and public outreach projects. She draws on a broad range of planning skills that she has developed from working on regional and community-based planning projects. Her focus is on community planning, multi-modal corridor planning, transportation demand management, environmental documentation and public engagement. Ms. Ahlfeld is thoroughly familiar with all aspects of project management and planning and she is adept at addressing the essential elements of each task with great attention to detail. Through her experience, Ms. Ahlfeld understands that identifying project issues and opportunities, understanding staffing needs, and bringing a broad range of stakeholders on board early in the project are key goals to a successful planning process and ultimately contribute to a successful project.

ENVIRONMENTAL DOCUMENTATION AND PERMITTING. Ms. Ahlfeld has participated in the preparation of several National Environmental Policy Act (NEPA)-compliant environmental impact statements and environmental assessments for a variety of federal, state, and private clients for commuter rail feasibility studies, BRT corridors, proposed rail stations, and other highway improvements. Her experience also covers the NEPA public information process requirements and related documentation. Kristen also has a broad understanding of the environmental permitting process and has provided oversight on the preparation of federal USACE and state-level permits in New York and Connecticut.

TRANSPORTATION PLANNING. Ms. Ahlfeld has participated in transportation planning and multi-modal corridor studies which focused on the linkage of transportation and land use as well as the safety of corridor users. Kristen has experience in collecting and analyzing data for short- and long-range transportation plans, corridor studies, congestion management programs, and bicycle and pedestrian planning projects. She has participated in several transit and rail corridor studies, transit needs assessments, welfare-to-work studies, and regional transit feasibility studies. She has also developed conceptual-level recommendations for circulator shuttle services, marketing, and incentive programs in mixed-use environments.

PUBLIC INVOLVEMENT. Throughout her career, Kristen has participated in public information workshops and made presentations to county planning commissions, boards of supervisors, neighborhood advisory committees, and the general public as part of transportation and environmental planning projects. She has been involved in large consensus-building exercises as part of agency coordination as well as meeting planning and the preparation of presentation materials such as scripts, power point presentations, and presentation boards and handouts. She has also been involved in conducting one-on-one stakeholder interviews for a variety of transportation planning projects. Ms. Ahlfeld's exemplary written and oral skills allow her to communicate effectively with all stakeholders.

FHWA Post Hurricane Sandy Transportation Resiliency Study, Northern New Jersey, New York and Connecticut.

Through a grant from the Federal Highway Administration (FHWA), MPO's and state departments of transportation in New York, New Jersey, and Connecticut are coming together to assess the vulnerability and resiliency of specific transportation assets to climate change and extreme weather events. FHI is assisting the project team with transportation data collection and facilitation of several project guidance committee meetings and technical experts meetings. Ms. Ahlfeld is serving as FHI's project manager.

RFK Bridge Bronx Toll Plaza Rehabilitation, Randall's Island, New York. The Metropolitan Transportation Authority (MTA) Bridges and Tunnels is undertaking a rehabilitation of the Bronx Toll Plaza on the RFK Bridge. As part of a larger team, FHI is responsible for preparing the Stormwater Pollution Prevention Plan (SWPPP), Notice of Intent (NOI), and the Joint Permit Application for

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NYSDEC Section 401 Water Quality, freshwater wetlands and tidal wetlands as well as USACE Section 404. As FHI's project manager, Ms. Ahlfeld is leading a team of biologists and other staff through tasks to complete the required state- and federal level documentation. Ms. Ahlfeld was also responsible for the completion of the New York SEQR Environmental Assessment Short Form (EAF) and also prepared updates to sections of a Supplemental Environmental Assessment based on project design changes.

Central Bergen Bicycle And Pedestrian Plans | Bergen County, New Jersey. Bergen County is developing Bicycle and Pedestrian Plans for eight municipalities in the Central Bergen area. The plans will begin to identify the safety and mobility improvements necessary to encourage more walking and bicycling to and from major destinations in the area. FHI is leading the public outreach and stakeholder coordination efforts for this project. As FHI's project manager, Ms. Ahlfeld is working closely with the project team to develop and maintain a project website (www.centralbergenbikewalk.com), support project technical advisory committee meetings, and inform and obtain feedback from the public and stakeholders through several public workshops and focus group meetings.

NJTPA Public Outreach For Regional Transportation Planning, Northern New Jersey. FHI is the lead consultant firm working with the NJTPA in collaboration with the Together North Jersey (TNJ) Consortium to develop a coordinated, innovative approach for public outreach to support the development of both the NJTPA Regional Transportation Plan (RTP) update (Plan 2040) and the TNJ Regional Plan for Sustainable Development (RPSD). Together, these two plans will guide and direct planning activities in the NJTPA region for land use, transportation, economic, and environmental/conservation initiatives in the future. Ms. Ahlfeld serves as FHI's Logistics Task Leader, working closely with NJTPA and TNJ on the scheduling, staffing and equipment needed for an estimated 42 public workshops that will be conducted in 18 subregions over the 18-month project.

Super Bowl XLVIII Transportation Management Plan, Secaucus/Meadowlands, New Jersey. The National Football League's Super Bowl XLVIII was played at MetLife Stadium in the New Jersey Meadowlands on Sunday, February 2, 2014. The Game brought upwards of 150,000 to 200,000 guests to its various events during Super Bowl Week. Unlike a typical NFL game in the Meadowlands, Super Bowl guests were predominantly from outside the region and many did not have a private vehicle available or, if they did, would not be able to drive and park at the stadium; this was the first "Mass Transit Super Bowl". Ms. Ahlfeld was FHI's Project Manager

for this project. As part of a two-day peer review session with state-level transportation and security advisors and representatives from previous Super Bowl and mega-event host cities, Ms. Ahlfeld facilitated in-depth discussions of transportation lessons learned and potential risks to Super Bowl transportation, ranging from severe inclement weather, to rail, roadway, and/or infrastructure impacts and/or failures.

Melissa Pineda

Community Outreach/Stakeholder Support

Education

B.S. - Marketing, Kean University, 2004

Years of Experience

With FHI: 1+

Total Years: 9

Ms. Pineda has experience in public involvement on projects for government agencies, consultants, and universities. She has worked on several public involvement and outreach programs throughout New York and New Jersey. She has organized and facilitated numerous focus groups, stakeholder meetings, agency meetings and public meetings for several federal, state, and local agencies. She led efforts including stakeholder management, media relations, Web site design, partnering, public workshops, and community outreach offices.

New York City Department of Design and Construction, East Side Coastal

Resilience. Ms. Pineda is assisting in many of the public engagement efforts on this project, which aims to build a more resilient Manhattan through flood protection measures in the Lower East Side, East Village, and Gramercy Park neighborhoods. The study area, covering one of the world's most diverse and dense urban areas, requires extensive community outreach efforts. Ms. Pineda is supporting in coordinating stakeholder engagement meetings and public open houses.

FHWA Post Hurricane Sandy Transportation Resiliency Study, Northern New Jersey, New York and Connecticut.

Through a grant from the Federal Highway Administration (FHWA), MPO's and state departments of transportation in New York, New Jersey, and Connecticut are coming together to assess the vulnerability and resiliency of specific transportation assets to climate change and extreme weather events. FHI is assisting the project team with transportation data collection and facilitation of several project guidance committee meetings and technical experts meetings. Ms. Pineda is assisting with the committee and the technical experts meetings and other outreach presentations.

NY Rising Community Reconstruction Program. Ms. Pineda is coordinated public involvement services of the Reconstruction Program for the borough of Staten Island and Southeast Queens in New York City and the Five Towns area along Long Island's southwestern shore. FHI lead the public outreach for these efforts, considered a critical element in development of these plans. Ms. Pineda coordinated with a local Community Planning Committee and with the community as a whole, utilizing meetings, electronic communication, and survey techniques to help develop resiliency projects for this area.

Port Authority of NY & NJ (PANYNJ), JFK and LaGuardia Part 150 Study, Newark and Teterboro. Ms. Pineda is assisting on an historic project undertaken by the PANYNJ to study airport noise compatibility for Newark, Teterboro, John F. Kennedy and LaGuardia Airports in Queens, New York & New Jersey. The project will map noise levels generated by the airports and recommend mitigation measures. Ms. Pineda is assisting the project with public involvement services that will include formation and facilitation of a Technical Advisory Committee and its meetings as well as public workshops, public hearings and other informational meetings for stakeholders and the general public.

NJTPA, Public Outreach For Regional Transportation Planning, Northern New Jersey. FHI is the lead consultant firm working with the North Jersey Transportation Planning Authority in collaboration with the Together North Jersey (TNJ) Consortium to develop a coordinated, innovative approach for public outreach to support the development of both the NJTPA Regional Transportation Plan (RTP) update (Plan 2040) and the TNJ Regional Plan for Sustainable Development (RPSD). Together, these two plans will guide and direct planning activities in the NJTPA region for land use, transportation, economic, and environmental/conservation initiatives in the future. Ms. Pineda is assisting with the logistics of the outreach events for this project.

Connecticut Strategic Transportation Plan. For the Connecticut Department of Transportation, Ms. Pineda is assisting with the development of a statewide strategic transportation plan. In support of this effort Ms. Pineda is assisting with the planning and implementation of more conventional outreach for the planning process that includes various kinds of face-to-face meetings, workshops, presentations, and media involvement.

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Federal Railroad Administration, Northeast Corridor

Future (NEC Future) EIS. The purpose of this project is to create a 40-year vision for the northeast rail corridor, running from Washington, D.C. to Boston. Ms. Pineda has contributed to the public involvement component of this project, providing support at five public meetings. She has prepared meeting materials, coordinated the meeting set-up, and collected comments from each outreach session.

NJ Transit, Northern Branch Preliminary Engineering

Services. For NJT's Northern Branch Corridor Project, which is assessing the feasibility of restoring passenger rail service in eastern Bergen County, Ms. Pineda is coordinating public hearings for the Draft Environmental Impact Statement as well as compiling the public comments that come in as part of the NEPA Process. Ms. Pineda is also responding to and coordinating questions from the public via the project website and creating and maintaining mailing lists.

Port Authority of NY&NJ (PANYNJ), US Route 1&9/I-278

Interchange Missing Links. Ms. Pineda is coordinating the public involvement and agency coordination for the environmental review of this transportation improvement study in Linden and Elizabeth, NJ. She is assisting with organizing meetings of the study's Technical Advisory Committee, as well as public information meetings. She also provides input to the project's web page and meeting presentations.

PRIOR TO JOINING FHI

North Jersey Transportation Planning Authority (NJTPA),

Coordinated Human Services Plan, 2008. As part of the NJTPA Regional Coordinated Human Services Transportation Plan effort, Ms. Pineda assisted with the outreach component of a study to develop a 3-C planning process and regional coordinated human services transportation plan for northern New Jersey. Responsibilities included setting up and participating in a series of focus groups with disabled, senior, and low-income users of paratransit in the NJTPA region. In addition, Ms. Pineda assisted in coordinating meetings of the project's steering and stakeholder committees, as well as public meetings to present the draft plan.

New York State Thruway Authority (NYSTA)/New York State Department of Transportation (NYSDOT) Tappan

Zee Hudson River Crossing Project. As part of a consultant team working with NYSDOT, Ms. Pineda is assisting with coordination of public outreach and managing the project database. She is coordinating public workshops, public hearings materials, and media relations.

Ryan Walsh, PP, AICP

Community Outreach/Stakeholder Support

Education

M.S. - Urban Planning, Columbia University
Graduate School of Architecture, 2007

B.S. - Geology and Environmental Studies,
University of Oregon, 2001

Registration

Professional Planner: New Jersey
LEED Green Associate, 2013

Years of Experience

With FHI: 1
Total Years: 8

As a planner and public involvement specialist, Mr. Walsh has worked on transportation planning and public involvement projects across the country. He has experience conducting research for transportation programs as well as interviews and surveys for community planning initiatives. Mr. Walsh is certified to conduct planning charrettes by the National Charrette Institute, and has great facility in the use of on-line social media as an innovative tool for public involvement programs.

Port Authority of NY & NJ (PANYNJ), Part 150 Study, JFK & LaGuardia. Mr. Walsh is assisting on an historic project undertaken by the PANYNJ to study airport noise compatibility for John F. Kennedy and LaGuardia Airports in Queens, New York. The project will map noise levels generated by the airports and recommend mitigation measures. Mr. Walsh is assisting the project with public involvement services that will include formation and facilitation of a Technical Advisory Committee and its meetings as well as public workshops, public hearings and

other informational meetings for stakeholders and the general public.

City of Stamford Westside Transportation Study. For the City of Stamford, Mr. Walsh is assisting on a study to develop policies and recommendations that will improve multi-modal mobility within the West Side neighborhood of Stamford as well as connectivity to the Stamford Intermodal Center and the Downtown. In support of this effort, Mr. Walsh is conducting data collection, land use and bicycle and pedestrian network analysis, and development of transportation investment scenarios. Mr. Walsh is also coordinating and facilitating stakeholder outreach for this project.

NJTPA Public Outreach for Regional Transportation Planning, Northern New Jersey. FHI is the lead consultant firm working with the North Jersey Transportation Planning Authority in collaboration with the Together North Jersey (TNJ) Consortium to develop a coordinated, innovative approach for public outreach to support the development of both the NJTPA Regional Transportation Plan (RTP) update (Plan 2040) and the TNJ Regional Plan for Sustainable Development (RPSD). Together, these two plans will guide and direct planning activities in the NJTPA region for land use, transportation, economic, and environmental/conservation initiatives in the future. Mr. Walsh assists this effort with the management of electronic outreach tools including the interactive engagement website EngageNorthJersey.com, online surveys, and text message based surveys.

Connecticut Strategic Transportation Plan. For the Connecticut Department of Transportation, Mr. Walsh is assisting with the development of a statewide strategic transportation plan. In support of this effort Mr. Walsh is overseeing an intensive online engagement process that incorporates the MindMixer interactive platform and social media tools. Mr. Walsh is also assisting with the planning and implementation of more conventional outreach for the planning process that includes various kinds of face-to-face meetings, workshops, presentations, and media involvement.

New York City Department of Transportation (NYCDOT), Green Infrastructure. Mr. Walsh is the project manager for the NYCDOT Green Infrastructure project. He is assisting the NYCDOT with an interagency effort that includes the Department of Environmental Protection (DEP) and the Department of Parks and Recreation (DPR) to site and review locations for right-of-way bioswales, Stormwater Greenstreets, and other green infrastructure in the street right-of-way. Mr. Walsh provides general oversight to other DOT green infrastructure consultants, scheduling field visit investigations of potential sites and management of field reports. Mr. Walsh provides both intra- and interagency coordination to resolve siting conflicts. Mr. Walsh also assists on other green infrastructure-related activities including drafting of grant funding proposals, the development of a staff and consultant training manual, and assistance with social media and communications.

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NY Rising Community Reconstruction Program. Mr.

Walsh coordinated the public involvement services of the Reconstruction Program in Staten Island, New York. Mr. Walsh coordinated with a local Community Planning Committee and with the community as a whole, utilizing meetings, electronic communication, and survey techniques to help develop resiliency projects for this area.

PANYNJ LaGuardia Parking Mitigation Strategies.

Mr. Walsh assisted in the evaluation of public parking deficit mitigation strategies as part of the upcoming LaGuardia Redevelopment Program. The firm was tasked with evaluating options for enticing travelers to the airport to opt for mass transit or shuttles as a method of transportation rather than personal cars or taxis to reduce demand for parking spaces during construction. The firm also developed a public outreach and messaging plan to inform the region about the potential for delays, parking deficits, and options for alternative means to get to the airport during this important project.

North Carolina Turnpike Authority (NCTA) Outer Banks Transportation.

For the NCTA, Mr. Walsh is serving as Project Manager for HSH's stakeholder involvement efforts on an Environmental Impact Statement for the Mid-Currituck Bridge Project, which proposes to improve transportation efficiency and provide enhanced hurricane evacuation for the Outer Banks area of the state. In this capacity, he planned and coordinated Citizen Informational Workshops, Formal Public Hearings, and meetings for elected officials. He provided oversight for and assistance with production and distribution of printed materials, and drafted reports summarizing public comments for the Environmental Impact Statement process.

PRIOR TO JOINING FHI

NJ Transit Local Demonstration Project, 2012-2013

HSH is a specialized sub-consultant to the North Jersey Sustainable Communities Consortium brought on to facilitate outreach to North Jersey municipalities and counties.

Mr. Walsh planned and facilitated three (3) workshops to inform the New Jersey municipalities and counties of the Local Demonstration Program (LDP), a component of the Regional Plan for Sustainable development. Some of the public involvement activities include researching and reserving meeting space to hold the workshops, developing a mailing list, developing and managing a registration system,

coordinating with meeting facilities, and day-of coordination for all three meetings.

Hudson County Jersey City/Hoboken Subregional Transportation Study, 2010-2011

Mr. Walsh led the public outreach on a multi-jurisdictional transportation study for Hudson County, New Jersey. The study resulted in recommendations for increasing safety for pedestrians, bicyclists, drivers, transit users, and improving connections in a developing area between the cities of Jersey City and Hoboken. Mr. Walsh planned a series of large public meetings to engage stakeholders and involve the public in all stages of the study's development, from visioning to final recommendations. Mr. Walsh facilitated small group, subject-focused discussions on transit, bicycle and pedestrian issues, and auto traffic.

Stuart Z. Koperweis

Funding, Financing and Grants Management

Education

M.A. - International Trade and Economic Policy,
American University, 1980

B.A. - Political Science, C.W. Post College/Long
Island University, 1978

Years of Experience

With Millennium Strategies: 3

Total Years: 37

As Senior Vice-President at Millennium Strategies, LLC, Mr. Koprweis brings an especially valuable combination of both public and private sector experiences in community outreach and economic growth. He has been instrumental in developing alliances and partnerships with numerous statewide organizations; as well as assisting both municipal governments and private corporations from New York to Colorado by providing financial incentives for real estate highest/best uses and economic development / impact analysis. Mr. Koprweis is dedicated to expediting and facilitating public / private partnerships to encourage Economic Revitalization and Growth (ERG).

Mr. Koprweis has participated in and credited with the phenomenal revitalization of Jersey City; creating various new programs including a block long Art Mural to

promote economic growth. His involvement in Asbury Park has been seen as a catalyst for the artistic economic resurgence. This work of combining the Arts with Economics continues today as a founder of the Center for Creative Placemaking (CCP) at Bloomfield College.

Prior to joining the firm, Mr. Koprweis was owner of his consulting firm, S3X Associates, LLC where he represented numerous Improvement Districts and other economic interests throughout the State of New Jersey. He was Director of Government/ Corporate Relations for Downtown New Jersey, Inc., (a statewide organization working with downtowns) and continues to serve on their board of Directors; provided marketing and business development for Hudson County Community College's Certificate Program as well as an adjunct professor for Fairleigh Dickinson University.

Major Projects

- Directed the stimulation of industrial and commercial growth in Jersey City to increase the tax base and revitalize distinct business corridors in the City.
- MLK/NDC Joint Venture Partnership to build an \$18m community Shopping Center.
- Government and Corporate Relations review legislation as it impacts development for downtowns; provide statewide coordination of economic development
- Associate Professor Marketing for Non-profits; Public/Private Partnerships
- Five Year Strategic Plans for Economic Development
- Transit Oriented Development – Impact on local government and community reports
- Revitalization/Development reports on local/regional economies and businesses
- ERA – Economic Revitalization Audits
- Special Improvement Districts (SID) Studies, Development and Management (Partial Listing)
 - Keyport Bayfront Business Cooperative, Keyport
 - Business District Alliance of Fort Lee, Fort Lee
 - South Paterson and 21st Avenue, Paterson
 - Main Street Business Alliance, Inc., Hackensack

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- *Bergenfield SID, Bergenfield*
- *Merchantville Partnership, Merchantville*
- *City of Asbury Park, Asbury Park*
- Red Bank Partnership, Red Bank
- Journal Square Restoration Corporation, Jersey City
- Central Avenue, Jersey City
- McGinley Square, Jersey City
- Historic Downtown, Jersey City
- Bloomfield Center Alliance, Bloomfield
- Township of Teaneck, Cedar Lane SID, Teaneck

Finance & Management

- Managed a \$360 million budget, 2,200 employees, and 10 City Departments
- Turned failing company into one of most respected urban economic development organizations in the state. Took annual operating budget from \$1.1 million to over \$35 million with 25 employees; created two subsidiary non-profit companies for financing local community development projects.
- Funded 60 projects totaling \$55 million, producing over \$2 billion investments.

David M. Jenkins

Funding, Financing and Grants Management

Education

B.A. - Political Science with Minor in History,
Elon University, 2006

Years of Experience

With Millennium Strategies: 3
Total Years: 9

As a Grants Manager for Millennium Strategies, Mr. Jenkins is responsible for the procurement of a wide range of funding to support various initiatives on behalf of municipalities, counties, private non-profit and for profit entities in New Jersey and New York. He is responsible for the development and management of the firm's Disaster Recovery and Sustainability Division, which has successfully procured and managed over \$71 million in client funding since inception. Additionally, Mr. Jenkins led the creation of and continue to manage the firm's Housing Rehabilitation Division. He manages the administration of CDBG funded projects through the Small Cities Public Facilities and Housing Rehabilitation programs on

behalf of New Jersey municipalities and leads the creation of strategic funding plans for clients to enable the development of critical projects

Mr. Jenkins led Hurricane Sandy recovery efforts for the community of Ocean Grove, including the development and advocacy of FEMA Appeals, reversing eligibility and procuring \$3.5 million for rehabilitative measures. He also interfaced with local, state and federal agencies to ensure the successful procurement and management of \$17.6 million in Hurricane Sandy disaster recovery funding for impacted coastal communities. Mr. Jenkins as helped in the procurement of more than \$50 million in public and private funding for assigned clients over a 3-year span.

Chief of Staff, Assembly Majority Leader Joseph P. Cryan, , Union and Trenton, New Jersey, October 2008-July 2012. Mr. Jenkins was responsible for drafting and developing all of the Assemblyman's prime-sponsored legislation. In this position, he also:

- Developed and advocated for a broad portfolio of legislation concerning high school redesign, state testing, municipal budgeting, open public records act, electric vehicles, election finance reform, housing inspections, telecommunications deregulation, higher education, and renewable energy
- Staffed Assembly Budget Committee hearings focused upon the intricacies of a \$30 billion budget, and the unique concerns of each department in state government
- Worked with senior policy-makers throughout New Jersey in order to translate policy agendas and advocacy initiatives to the Assemblyman during the 213th, 214th, and 215th New Jersey Legislatures, including the Assemblyman's tenure as Chairman of the Assembly Education Committee, New Jersey Democratic State Committee, and Majority Leader of the General Assembly
- Assisted the Majority Leader in responding to individual caucus concerns regarding committee hearing agendas, chairmanship issues, legislative leadership concerns, caucus priorities, and policy review
- Attended a wide-range of political and civic conferences, fundraisers, and events in order to develop relationships with non-profit organizations, trade associations, contract lobbyists, local and statewide elected officials, party chairpersons, and legislative leadership during the 2008 Presidential, 2009 Gubernatorial, 2010 Congressional, and 2011 State Legislative Elections
- Was responsible for constructing and releasing policy letters and speeches advocating or opposing legislative proposals in response to inquiries from constituents, interest groups, elected officials, and government entities as a liaison for the Chairman of the Assembly Education Committee and Majority Leader in the development of hearing agendas during the 213th and 214th Legislative Sessions
- Maintained the Assemblyman's press contact database; drafted and circulated press releases regarding proposed legislation, upcoming events, and political viewpoints

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- Facilitated and prepared the Assemblyman for radio and televised interviews hosted by top tri-state area outlets such as NBC 4 New York, 1010 WINS, WCBS 880, News 12 New Jersey, and New Jersey Network
- Worked in unison with the Majority Leader in fundraising for the Democratic Assembly Campaign Committee, raising nearly \$3 million during the 2011 general election cycle in order to help Democratic Assembly Members meet budget needs in competitive campaigns throughout the State of New Jersey
- Led the planning and facilitation of fundraising events for the Election Fund of Joseph Cryan including an annual "March Madness" event, Summer Golf Outing, and Fall Breakfast as the key point of contact for follow up to over 200 attendees, profiting over \$172,500 in 2011
- Campaigned on behalf of the Majority Leader by managing a base of local elected officials, organizing field operations for election-day efforts, developing comprehensive targeted direct mailings, organizing phone banks, and assisting local campaigns in Union Township and Union County
- Networked, tracked, and reported on various campaigns throughout United Kingdom
- Researched manifestoes of each political party for the May 2005 election

Assistant Manager, Enterprise Rent-A-Car, Paramus and Ridgewood, New Jersey, December 2006 – October 2008.

As assistant manager, Mr. Jenkins:

- Managed a top-ranked office in customer service that accrued \$2 million in annual revenues, and a team of seven employees
- Maintained rental fleet of 170 vehicles
- Marketed local accounts and grew rental fleet and profits by over 25 percent in volatile economy
- Set and achieved office and employee goals concerning profitability, customer service, and personal growth
- Interviewed and hired interns and management trainees; trained employees to solve customer problems
- Was responsible for tracking and following up on all receivable accounts

Intern, The New Politics Network, London, England, January – June 2005. As an intern, Mr. Jenkins:

- Developed supporters and mailings in association with a campaign advocating for changing the United Kingdom's House of Lords into a completely democratically elected body of public officials

Bernadette P. McPherson, Esq.

Funding, Financing and Grants Management

Education

B.A. - Political Science and English, La Salle University, 1983

J.D. - Temple University School of Law, 1986

Registration

New Jersey Bar Association

Years of Experience

With Millennium Strategies: 2+

Total Years: 32

Ms. McPherson is a Senior Vice President of Millennium Strategies and an Adjunct Assistant Professor at the John Jay College of Criminal Justice in New York, NY.

Freeholder, Bergen County, N.J. Board of Chosen Freeholders, January 2003 – 2011, Chair 2005-2006. Ms. McPherson served three terms on the legislative body of State of New Jersey's largest county, representing 70 municipalities, forging close relationships with officials at all levels of government and strong ties to the business and non-profit community.

Mayor, Borough of Rutherford, New Jersey, 2000 to 2007. Ms. McPherson represented 18,000 residents and secured over \$11 million in grants and state aid over the course of eight years. She gained knowledge and expertise in grant funding, downtown revitalization, context sensitive design initiatives, planning and zoning, municipal budgeting, emergency preparedness, and local public

contract law. Ms. McPherson established a sponsorship program to provide special events and celebrations like Fourth of July Fireworks, Holiday Festivals, and the Borough's 125th Anniversary Celebration at no cost to the residents without the use of tax dollars by forming public/private partnerships. She created the Borough's first Visioning Committee with community representatives and public meetings to establish long-range planning goals for the Borough's future in physical, recreational, economic, and community/cultural development.

Councilwoman, Borough of Rutherford, New Jersey, 1999. Ms. McPherson served as the Borough's first Councilwoman Liaison to the Fire Department. Responded to calls to understand the duties of a volunteer department and the demands placed on them and their families. She successfully advocated for the adoption of the Length of Service Award Program (LOSAP) which provides incentives to volunteers for response to calls and for a state grant to provide a Special Services Unit to be used at fire scenes to refill breathing apparatus.

Director for Outreach and Operations and Co-Chair of Pascrell for Congress, August 2012- November 2012. Ms. McPherson coordinated outreach to all candidates on the ballot and directed operations for the successful campaign of Congressman Bill Pascrell in N.J.'s 9th Congressional District in the November 2012 Presidential Election.

Pascrell for Congress Bergen County Liaison, January 2012-June 2012. Ms. McPherson coordinated outreach to Bergen County organizations, elected officials, and voters in the historic Democratic June primary victory of Congressman Bill Pascrell in the 9th Congressional District, State of New Jersey.

Democratic Legislative District 36 Chair, Bergen County, New Jersey, 2010 - Present. Ms. McPherson facilitates communication and coordinate GOTV efforts with the District's municipal chairs, candidates, and state, county, and local party and elected officials.

Rutherford Democrats, Campaign Coordinator, Rutherford, New Jersey, 1999 - present. Ms. McPherson coordinates campaign strategy, fund-raising, and GOTV efforts with state, local, and county party officials for all Rutherford Democratic candidates. District 1 County Committee member.

Wilson Goode for Mayor, 1983. Ms. McPherson served as a field volunteer in the election of Philadelphia's first African-American Mayor.

Community Service Awards

2013 Powerful Women in the NAACP Susan B. Anthony Award Bergen County, NJ Chapter of the NAACP

in recognition of a commitment to social justice and community activism for all people of color.

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Irish American Law and Order Leaders of 2012 Award

Irish Echo, the Oldest Irish American Newspaper, New York, NY

in recognition of leadership in the law and law enforcement
community.

Spirit of King Woman of Excellence 2012 Award Mount Calvary

Baptist Church, Englewood, NJ

in recognition of keeping Doctor Martin Luther King's spirit
alive.

The Williams Center 2007 Williams Award

William Carlos Williams Center for the Arts, Rutherford, New
Jersey in recognition of leadership, vision, and support for the
Arts.

President's Medallion, December 2006 Felician College,
Rutherford, New Jersey

in recognition of service to the community as Mayor of
Rutherford.



Technical Resources

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Virginie Amerlynck, AICP

Socioeconomics and Environmental Justice

Education

MRP, City and Regional Planning
Master of Law

Registration

American Institute of Certified Planners

Years of Experience

With Louis Berger: 9
Total Years: 14

Ms. Amerlynck is a principal economist at Louis Berger specializing in fiscal and economic impact analysis, stated preference survey design, discrete choice analysis, travel demand modeling, ridership/traffic and revenue forecasting, and demographic and labor market analysis. In recent years, she designed and administered several large stated preference surveys that supported rail ridership and managed lane forecasts for private and public clients throughout the United States. Throughout her career, Ms. Amerlynck conducted numerous economic impact assessments that analyzed the impact of institutions, facilities, programs, initiatives, and infrastructure projects on the regional, state, and city economies.

New York City Economic Development Corporation (NYCEDC), Raise the Shorelines Citywide Study, New York, New York. Principal Economist. The goal of the Raise Shorelines Citywide Study is to identify New York City (NYC)

shorelines that are at-risk to damage caused by rising sea levels and/or erosion and to develop and prioritize potential standalone projects based on the available funding. The study starts with the 43 mile of shorelines that are "vulnerable" or "at-risk" to high tide flooding in the 2050s based on 32 inches of projected sea level rise. The project prioritization approach takes into account a wide variety of aspects related to land use, economic, public service, presence of socially vulnerable populations, and permitting requirements. Task included estimating local and citywide economic impact of the proposed project as part of the third phase of the three phase evaluation approach. Professional Services: 2015

New York State Governor's Office of Storm Recovery (GOSR), Second Anniversary Report, Task Manager. Louis Berger assisted in preparing a two-year Superstorm Sandy anniversary report for the New York State Governor's Office of Storm Recovery. The report details the state's progress with Superstorm Sandy recovery and resiliency implementation efforts. Specific tasks included project management and review and quality control of economic impact analysis. Professional Services: 2014

New York State Governor's Office of Storm Recovery (GOSR), Unmet Needs Analysis, Project Manager. Louis Berger assisted in preparing unmet needs analysis required by HUD as part of the GOSR Action Plan. Specific tasks included updating previous analysis using updated data sources and developing alternative approaches to assess remaining needs. Professional Services: 2014

New York City Economic Development Corporation, NEPA Environmental Assessment for Saw Mill Creek Wetland Mitigation Bank, Staten Island, New York. As part of the Mitigation and Restoration Strategies for Habitat and Ecological Sustainability (MARSHES) initiative, EDC is pursuing the first Mitigation Banking Instrument (MBI) in New York City to facilitate both the long term improvement and protection of critical coastal resources, and provide a predictable, efficient and environmentally responsible process to mitigate wetland habitat impacts resulting from the construction of public and private projects. Louis Berger designed the wetland mitigation bank that will restore, enhance and maintain 68.94 acres of wetland habitat, and prepared all associated permits and CEQR Environmental Assessment Statement. As the project subsequently received CDBG-DR funding, Louis Berger prepared an Environmental Assessment per HUD 24 CFR Part 58. Tasks included preparing environmental justice analysis. Professional Services: 2015

New York State Governor's Office of Storm Recovery / Housing Trust Fund Corporation, Suffolk Sewers SEQRA/

NEPA Environmental Assessments, Suffolk County, New York. Louis Berger is preparing NEPA environmental review documents and conducting SEQRA coordinated 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. Project challenges include tailoring an expedited environmental review process for distinct projects with a similar purpose and need, induced growth, and interagency

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coordination across State, County, Village, and Town agencies. Tasks included developing socioeconomic section of scoping document. Professional Services: 2014

New York City Economic Development Corporation (NYCEDC) and New York City Mayor's Office of Sustainability, Analysis of Job Creation in PlaNYC, New York, New York. Senior planner/economist. Analyzed job creation impacts of PlaNYC 2030, New York City's 2030 plan for a sustainable future outlining strategies related to land, air, water, energy, and transportation. PlaNYC 2030 includes 127 separate initiatives of which 65 are expected to have job creation effects. Tasks included reviewing and compiling budget information for the initiatives provided by city agencies, reviewing existing economic impact studies, and analyzing the direct, indirect, and induced employment impact of the initiatives based on employment coefficients from the BEA National Input-Output Tables and RIMSII multipliers using Excel and Access. Professional Services: 2007

DCOP, Green Jobs Demand Analysis, Washington, DC. Senior planner/economist. Estimated current green jobs in the District of Columbia and forecasted future demand for green jobs based on the District of Columbia's environmental initiatives and programs and other trends toward sustainability. Specific tasks included estimating current number of green jobs; creating a database tool in Microsoft Access that serves the dual purpose of estimating the current number of green jobs in Washington, DC and serving as a storage location for information about green business programs and trends throughout the United States; researching public and private green initiatives and practices in Washington, DC and in the United States; creating assumptions module of green labor demand forecasting model; and summarizing Washington, DC labor market analysis. Professional Services: 2008

9/11 Memorial, Economic Effects of 9/11 Memorial. Senior planner/economist. Estimated the impact of the 9/11 Memorial operations on the economy of New York City, New York State, and the United States. Impacts were driven by 9/11 Memorial operational expenditures, employee household spending, and visitor spending. Localized impacts on Lower Manhattan were studied as well. Specific tasks included analyzing visitor survey data, conducting input-output analysis with IMPLAN, writing reports, and developing presentation materials.

Lower Manhattan Development Corporation, Final Report 2001-2006, New York, New York. Senior planner/economist. Estimated regional economic impacts of funding for parks and streetscape improvements, culture and

tourism efforts, education and facilities grants, World Trade Center (WTC) memorial, and other initiatives. Tasks included estimating the direct, indirect, and induced economic impact of the LMDC using the IMPLAN input-output modeling system and assisting in the development of tables, maps, and text for the final report for release to stakeholders and public. Professional Services: 2006

Duncan Kisia

Socioeconomics and Environmental Justice

Education

Master's in Public Policy

Bachelor's in Civil Engineering

Years of Experience

With Louis Berger: 7

Total Years: 11

Mr. Kisia is a senior economist with Louis Berger, specializing in econometrics and time series analysis, risk assessment, cost-benefit analysis, regional economics, socio-economic impact analysis, market research and transportation planning. Mr. Kisia was the recipient of the 2012 Fred Burggraf Award issued by the Transportation Research Board (TRB) for outstanding paper in the field of aviation by a researcher under 35 years of age. Prior to joining Louis Berger, he also established significant expertise in the areas of transportation engineering, planning and design as a civil engineer at AECOM Transportation (formerly DMJM+Harris).

New York Metropolitan Transportation Council (NYMTC), 2050 Socioeconomic Demographic Forecasts, New York, New York. Project manager. Developing county-level population and employment forecast model for the 31-county extended metropolitan planning region including New York City, Long Island, Mid-Hudson and northern New Jersey regions. Forecast developed from comprehensive cohort-component demographic analysis and econometric evaluation of employment, labor force demand and immigration demand. Designing model for traffic analysis zone allocation to support long range transportation plan, including evaluation of land use constraints and climate change considerations. 2013 to Present

PANYNJ, Port Authority Trans-Hudson Rail Transit System Extension to Newark Liberty International Airport Feasibility Study, Market analysis task manager. Conducted a detailed market analysis supporting a study evaluating the engineering and economic feasibility of extending Port Authority Trans- Hudson (PANYNJ) Rail service from Newark Penn Station to the airport facilities at Newark Liberty International Airport (EWR). Mr. Kisia also supervised the planning and logistics efforts required to mobilize and manage the team of field survey staff participating in the extensive data collection effort. Professional Services: 2008-2011

PANYNJ, Toll Revenue Forecast Risk Analysis Model, New York and New Jersey. Senior economist. Developed a risk analysis model using Monte Carlo simulations to evaluate toll revenue forecasting risk. This effort accounted for real-world correlations between all input variables prior to simulation in the spreadsheet risk model. The analysis outputs were used to: obtain upper and lower boundaries of traffic forecast volumes over a 15 year time horizon; support the development of risk adjusted forecasts; and rate the probability of obtaining the deterministic traffic volume predicted by Louis Berger's econometric models. The outputs of this risk model were used to assess the potential deviations in toll revenues collected by the agency in support of their long term capital planning efforts.

Federal Highway Administration (FHWA), New Title VI Environmental Justice Issues in Statewide and Metropolitan Planning, Benefits and Burdens Assessment Technical Assistance. Transportation policy analyst. This study provided technical assistance to select Metropolitan Planning Organizations (MPOs) interested in the assessment of the benefits and burdens of their future transportation plans. The technical assistance plan follows the issuance of corrective action notices from FHWA certification reviews and is intended as a remedy for MPOs at risk of non-compliance. 2008

New York City Economic Development Corporation and New York City Mayor's Office of Sustainability. PlaNYC Job Creation Analysis. Senior economist. Assisted in the analysis of the employment impacts generated by the Mayor of New York City's PlaNYC 2030, a plan outlining environmentally sustainable development strategies for New York City. PlaNYC 2030 consisted of 127 initiatives designed to enhance New York City's ability to accommodate a growing population in a greener city. An analysis of 65 of the plan's 127 initiatives was conducted using interviews and data collected from secondary sources encompassing several issue areas such as land use, water supply network, water quality, air quality, transportation, and energy. The study measured both the direct and indirect employment impacts of each initiative and provided an occupational portfolio of permanent employees. 2007-2008

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Washington D.C., Economic Partnership and the DC Office of Planning, Green Collar Jobs Demand Analysis, Washington D.C. Senior economist. Participated in a team developing estimates of future demand for green collar jobs resulting from DC's Green Building Act and other green initiatives and programs. Created a detailed demographic profile of the chronically unemployed population in Washington D.C. that was used in augmenting the outputs of the job demand model. The demand model, along with training and user guides, was handed off to the WDCEP and DC Office of Planning for use as a tool to support both workforce development programming and green economic development efforts. A report on best practices of programs focused on green industries, green collar workforce development, and on bringing hard to employ populations into the workforce was also developed as part of this study. 2008

PANYNJ, World Trade Center Construction Project Risk Management, New York. Senior economist. PANYNJ developed a World Trade Center (WTC) Construction Recovery Plan designed to address the WTC Construction Site's continued exposure to significant cost and schedule overruns. To support this effort, Mr. Kisia assembled a cost risk model using @Risk software and Monte Carlo simulation to quantify the potential range in the construction costs of the WTC Transportation Hub. The cost risk analysis effort involved a review of the cost estimate methodology to isolate potential areas of concern, the conduction of interviews with key construction management staff to provide expert opinion on the quantification and identification of additional elements of risk, and the development of risk mitigation strategies to be adopted as part of the overall project risk management plan.

Confidential Client, High-Speed Intercity Passenger Rail Feasibility Study, Northeastern United States. Task manager. Led the financial and economic feasibility assessment of a potential high-speed rail investment through detailed evaluations of existing travel market data and the application of advanced market research techniques. The density of urban concentrations in the Northeastern region of the U.S. required travel assessments of multiple city/station pairs of widely varying trip lengths. These travel conditions therefore necessitated the evaluation of additional intercity travel purposes that extended beyond the traditional distinctions of business/non-business trips – the study went on to address travel by a large number of intercity commuters as well as significant volume of airport access trips. The study effort involved the design of a stated preference (SP) survey that was presented to potential riders in the travel corridor.

Discrete choice analysis techniques were used to analyze the SP survey data, and to thereby derive statistical models of intercity travel behavior. Additional efforts were made to determine the high-speed rail service's potential impacts on airport choice decisions at a select number of multi-airport regions within the travel corridor. Mr. Kisia oversaw the development of a brand new intercity travel demand model that was customized to represent the volumes of intercity travel observed within the study area, and that applied the mode choice models obtained from the SP survey data. The travel demand model generated ridership forecasts that supported a variety of business planning activities through a revenue optimization analysis that identified differentiated fare structures – each tailored to specific travel classes, trip purposes, and the multiple trip lengths/station pairs along the project corridor. Ridership and revenue forecasts were used to design the high-speed rail service plan profile in support of bottom-line financial and economic feasibility assessments.

Confidential Client, Intercity Passenger Rail Feasibility Study, Florida. Project manager. Led the economic feasibility assessment of a conventional intercity rail investment through detailed evaluations of existing travel market data and the application of advanced market research techniques. This effort involved the design of a stated preference (SP) survey that was presented to potential riders in the travel corridor – including the large volume non-residents (international and domestic) visiting the multiple tourist attractions scattered across the State of Florida. The survey instrument was translated into Spanish to address some of the language barrier considerations identified during project scoping. Discrete choice analysis techniques were used to analyze the SP survey data, and to thereby derive statistical models of intercity travel behavior. Mr. Kisia was the architect of a brand new long-distance intercity travel demand model – customized to represent the volumes of long-distance intercity travel observed within the study area, and also oversaw the modifications to the regional MPO model that were required to reflect travel attitudes observed from the short-distance SP survey data. The travel demand model generated ridership forecasts that supported a variety of business planning activities through a revenue optimization analysis that identified differentiated fare structures – each tailored to specific travel classes, trip purposes, and the multiple trip lengths/station pairs along the project corridor.

Albert Racciatti AICP, PP

Socioeconomics and Environmental Justice

Education

MCRP - City and Regional Planning

M.A. - International Relations (Concentration in Political Economy)

B.S. - Industrial and Labor Relations

Registration

Licensed Professional Planner: New Jersey

American Institute of Certified Planners

Years of Experience

With Louis Berger: 14

Total Years: 24

Mr. Racciatti is vice president in Louis Berger's transportation and regional planning practice, specializing in regional economics, infrastructure finance, and market research. Since joining Louis Berger, he has managed projects and lead tasks in travel demand and revenue forecasting, demographic forecasting, project delivery risk assessment, indirect and cumulative impact analysis, economic impact assessment, survey research, and policy studies on the connection between transportation and land use.

North Jersey Transportation Planning Authority, Demographic Forecasting Model Update, Newark, New Jersey. Project manager. Updated the agency's Demographic-Economic Forecasting Model (DEFM) for use in development of 2040 Regional Transportation Plan. Model was originally developed by Louis Berger and used in 2030 and 2035 planning cycles. Model update incorporates latest information on land use/land cover, regional travel patterns, and economic outlook. Update considers enhancements for small-scale land use analysis.

Updated model provides direct link to agency GIS data and developing techniques for visualization of results at various levels of geography.

North Jersey Transportation Planning Authority (NJTPA), Project Prioritization Criteria Update, Newark, New Jersey.

Project manager. Evaluated project prioritization criteria used by North Jersey Transportation Planning Authority (NJTPA) to advance projects to the Transportation Improvement Program (TIP). Developed recommendations on revisions and additions to current criteria to reflect regional capital improvement investment strategy, developments in Office of Smart Growth and regional plans, and requirements of SAFETEA-LU. Researched prioritization systems used in other MPOs and New Jersey Department of Transportation and NJ Transit. Refining criteria scoring system, data inputs, and process. Worked with NJTPA members and other regional stakeholders through focus groups and meetings to identify issues with current criteria and potential enhancements.

NJTPA, Demographic Forecasting and Model Development, Newark, New Jersey. Project manager. Designed spreadsheet-based population and employment forecasting model for development of official 2030 population and employment forecasts for the northern New Jersey metropolitan planning organization. Model tracks recent trends in birth, death, and migration rates, labor-force participation, workplace employment, and journey-to-work, along with anticipated changes in local area accessibility, and development capacity. Routines automated through Visual Basic macros allow for development of baseline forecasts and scenario-based analysis through a user-friendly interface enabling adjustments to key variables reflecting local area conditions, conformity with the State Development and Redevelopment Plan (SDRP), "smart growth," transit-oriented development and other policy considerations. Model development conducted in coordination with key stakeholder agencies (Office of Smart Growth, Department of Transportation, Department of Labor, neighboring MPOs, and county and local governments).

New Jersey Turnpike Authority, Environmental Constraints Analyses, New Jersey Turnpike. Analyst. Conducted survey of existing and potential land uses along two major turnpike transportation corridors utilizing local maps, master plans, interviews with officials, and site visits. Compiled database of community facilities, parks, residential neighborhoods, road/rail networks, utilities, and other land use elements proximate to an existing transportation facility that could serve to constrain future improvements. Contributed text and tables detailing socioeconomic and transportation network constraints to the final report, and assisted with the preparation of a constraints map including all man-made and natural environmental features in the study area.

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Union County Department of Economic Development, Raritan Valley Line Transit-Oriented Development Study, Union County, New Jersey. Researcher. Developed performance measures and designed evaluation matrix for land use, transportation, marketing/retail opportunities, environmental issues, and transit-oriented development (TOD) policies and rank the 10 municipalities to identify the top ten municipalities with the most opportunities for redevelopment.

New Jersey Transit/Transit Link Consultants, Access to the Regions Core, EIS and FTA New Starts Application, New York, New York. Analyst. Assisted in development of framework for indirect and cumulative impact and environmental justice analysis for major regional transit rail tunnel study. Reviewed data and methodology for GIS mapping on travel time savings used in estimation of impacts and benefits for EIS and FTA New Starts funding application.

Private Client, Toll Road Traffic and Revenue Due Diligence, Austin, Texas. Project director. In support of potential equity investor's due diligence, led examination of traffic and revenue performance on existing toll road concession, developed independent assessment of model inputs including demographic indicators, economic performance, value of time and other variables. Assessed inputs to traffic and revenue model and developed alternative forecasts scenarios to establish forecast risk and demand sensitivity. Provided advice on toll operations assumptions. Professional Services: 2015

Private Client, SH-288 Managed Lanes Forecast, Houston, Texas. Project manager. Developed an investment-grade forecast of T&R for 10-mile managed lanes project. Oversaw development of regional and sub-area travel demand model including detailed volume and travel time model calibration. Validated toll model assignment by applying model to existing toll roads in region. Identified revenue maximizing toll schedule for peak and off-peak time periods. Produced forecast of future socio-economic conditions and developed alternative forecast scenarios and sensitivity tests. Produced detailed annual T&R forecast outputs for 50-year concession period. Developed presentation materials for sponsor management team, investors, and rating agencies. Prepared information for potential inclusion in investment offering statement.

Private Client, Indiana Toll Road Traffic and Revenue Lenders' Advisor, Indiana. Project manager. In support of lenders examination of traffic and revenue performance, developed independent assessment of model inputs including demographic indicators, economic performance, value of time and other variables. Assessed inputs to traffic and revenue model and developed alternative forecasts scenarios to

establish forecast risk and demand sensitivity. Provided advice on toll operations assumptions.

New York Metropolitan Transportation Council (NYMTC), 2050 Socioeconomic Demographic Forecasts, New York, New York. Project director. Developing county-level population and employment forecast model for the 31-county extended metropolitan planning region including New York City, Long Island, Mid-Hudson and northern New Jersey regions. Forecast developed from comprehensive cohort-component demographic analysis and econometric evaluation of employment, labor force demand and immigration demand. Designing model for traffic analysis zone allocation to support long range transportation plan, including evaluation of land use constraints and climate change considerations.

New York Metropolitan Transportation Council, Public Information, Demographics, and Travel Survey Staff Augmentation Services. Project director. Managing contract to provide on-site staff augmentation services to one of the largest metropolitan planning organizations in the nation. On-site positions include the agency's public information officer, demographic and economic specialist, and census and travel survey specialist. Provide support services and quality assurance on an as needed basis including review of deliverables and research support. Provided assistance with methods for allocation of demographic forecasts to Traffic Analysis Zone (TAZ) level.

Port Authority of New York and New Jersey (PANYNJ), WTC Program Financial and Schedule Risk Analysis, New York, New York. Deputy project manager. Served on risk management team for the reconstruction of permanent commuter railway station, common infrastructure, memorial, and commercial towers under construction at the WTC site in Lower Manhattan. Prepared project risk register and monthly tracking tools through interviews and coordination meetings with project managers, schedulers, cost estimators, and stakeholders. Assembled cost simulation model (using @Risk spreadsheet software) to evaluate uncertainty in the budget for activities in design, procurement and construction. Participated in development of risk schedules (using PertMaster schedule tool for Primavera 6) and identified linkages between project schedule and cost. Reported results through presentation of probability distributions and risk-adjusted performance measures. Developed contingency and float drawdown profiles in accordance with Federal Transit Administration (FTA) guidance for grantees. Coordinated with FTA on elements of Project Execution Plan (PEP) including Risk Management and Contingency Management Plans.



Ian Miller, MAFF

Socioeconomics and Environmental Justice

Education

M.S. - Economics, Rensselaer Polytechnic Institute, 1992

B.A. - Economics, SUNY at Buffalo, 1984

Registration

National Association of Certified Valuers and Analysts, Master Analyst in Financial Forensics

Years of Experience

With Louis Berger: <1

Total Years: 28

Mr. Miller is an applied economist/project manager with experience in economic, financial and environmental consulting at the national and international level. A large part of his career has been devoted to the planning and evaluation of sustainable infrastructure projects. His experience includes lead economist/financial analyst roles on major infrastructure projects funded by multilateral financial institutions. Sector experience includes water supply and wastewater treatment, transportation (bridges & highways), solid waste management (including landfill-gas-to-energy), energy (LNG, gas storage, pipelines), renewables (wind, solar, hydro, waste-to-energy), coal fired power, social infrastructure and ecosystem restoration projects. Mr. Miller has also worked on natural resource damages assessments, EIS/EAs, economic impact analyses, litigation support, cost benefit analyses, economic feasibility studies and socio-economic impact studies (NEPA). He has developed financial and economic models used to appraise

infrastructure projects. Mr. Miller also has government water management and policy experience gained from working as lead economist at the South Florida Water Management District.

Forest/Habitat/Functional and Monetary Valuation, Sterling Forest, New York. Project Manager. Mr. Miller managed an E & E natural resource damage assessment team of biologists and economists in support of the characterization and valuation of natural resources on a property located along the New York/New Jersey Watershed adjacent to the boundary of Sterling Forest. In addition to the hydrologic benefits associated with the property's role in sustaining the watershed, the valuation addressed the area's unique habitat and ecosystem and potential low-impact recreational value, as well as the pollutant removal benefits associated with the forest canopy. The objective was to develop a credit value to be used in the compensatory restoration process being negotiated between the client and the New Jersey Department of Environmental Protection. The professional diversity and experience of Mr. Miller's E & E team enabled rapid completion of a comprehensive environmental valuation with minimum cost, impressing both the client and regulators.

Central Everglades Planning Project, USACE/SFWMD. Team Economist. Mr. Miller contributed to a multi-disciplinary, multi-agency study in support of the Central Everglades Planning Project (CEPP) that identified a full range of ecosystem services that could be affected by the large-scale restoration of central Everglades. The team monetized the economic value of a subset of ecosystem services, and found that the project would potentially increase many ecosystem services that have considerable value to society. The ecosystem services monetized within the scope of this study were a subset of the difference between the future-with the Central Everglades Planning Project (CEPP) and the future-without CEPP, and totaled ~\$1.8 billion USD at a 2.5% discount rate.

Comprehensive Everglades Restoration Plan (CERP), North Palm Beach Project. Lead Economist. For the South Florida Water Management District (SFWMD) and the United States Army Corps of Engineers (USACE), Mr. Miller provided economic analysis support for this ecological restoration feasibility study being conducted as part of development of the Comprehensive Everglades Restoration Plan (CERP). The project involves routing and modifying hydro-patterns (sheet flow) to restore ecological systems in a study area covering over 700 square miles in Palm Beach and Martin Counties. For the Alternatives Formulation Briefing (AFB) and the Integrated Project Implementation Report (PIR)/EIS, he first calculated annual worth equivalents from projected lifecycle capital and O&M costs of alternative management measures (alternatives) and flow way comparisons, and then applied Cost Effectiveness Analysis and Incremental Cost Analysis techniques using the USACE Institute of Water Resources IWR-PLAN cost effectiveness software. The software identified the minimum cost envelope used to assess the incremental costs and benefits (habitat units) of the alternatives (by scale), in order to arrive

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at efficient alternatives and to identify the preferred plan. Mr. Miller also completed the socioeconomics report and applied the IMPLAN (Impact Analysis for Planning, MIG, Inc.) input-output model to estimate regional economic impacts during the construction and operational phases. The work was conducted according to guidance provided in Engineer Regulation 1105-2-100 and the Economic and Environmental Principles for Water and Related Land Resources Implementation Studies of USACE.

Evaluation of Costs and Potential Benefits for Carbon Capture and Sequestration. New York State Energy Research and Development Agency (NYSERDA). Task Manager. As part of a feasibility study for NYSERDA examining the potential for Carbon Capture and Storage (CCS) to be developed and implemented in NYS, Mr. Miller managed Task 6: Evaluation of Costs and Potential Benefits for Carbon Capture and Sequestration. The costs of carbon capture and storage (CCS) are recognized as a significant challenge to development and commercial applications addressing control of anthropogenic carbon dioxide (CO₂) emissions. The analysis included a literature review on cost studies, and estimated lifecycle capital and O&M costs for a 100 MW-e nameplate (gross) capacity Oxy-Coal Circulating Fluidized Bed (CFB) capable of capturing over 98% of the CO₂ produced by the pilot plant. Potential financial revenues and public economic benefits were estimated, including avoided health and environmental damages. The sensitivity analysis evaluated the effect of varying the size of federal grants on the cost of electricity from the Project.

Energy and Economic Impact Analysis of Ice Boom Effect on Space- and Water-Heating Consumption. Lead Economist. The ice boom reduces the frequency and duration of ice runs from Lake Erie into the Niagara River. This, in turn, diminishes the probability of large-scale ice blockages in the river which can cause flooding, ice damage to docks and shore structures on the river, and reductions of flow to the hydro-electric power plant intakes. The Ice Boom Study examined several hypothetical heating energy consumption scenarios based on increases in heating degree days (HDD) of various magnitudes compared to normal conditions attributable to the Lake Erie and Niagara River ice boom. The objective of the economic study was to evaluate the foregone consumer expenditures on other goods and services associated with incremental heating energy consumption increases for both residential and nonresidential buildings. The total economic impacts to Erie County were measured in the one mile area near the ice boom and the City of Buffalo using the IMPLAN model.

South Miami-Dade County Watershed Study and Plan, South Florida. Lead Economist. Mr. Miller was E & E's lead economist for this multiyear, multimillion-dollar study for the South Florida Regional Planning Council (SFRPC). The watershed plan is needed to help protect Biscayne Bay from impacts caused by rapid population growth and sprawl, altered timing and volumes of freshwater flow, nonpoint-source pollution from urban runoff, and agricultural-related pollution. The economic analyses consisted of population forecasting and housing demand analysis, economic forecasting, water demand analysis using PLMC IWR-MAIN software, infrastructure assessment, fiscal impact analysis, integrated environmental economic cost benefit analysis, and financial analysis and planning. The economic tasks contributed towards identifying the preferred land use scenario and plan using Smart Growth management principles. The technical review committee advising SFRPC and providing peer review of the consultants were nationally recognized experts in Smart Growth development, fiscal and development impact analysis, and ecological economics. In September 2007, the South Miami-Dade Watershed Study and Plan was awarded the 2007 FAPA Award of Excellence by the Florida Chapter of the American Planning Association.

Southern Coastal Highway Improvement Project: Segment 1 – Harbour View to Port Antonio & Segment 2 – Negril to Mandeville-Economic Feasibility Study Report-Prepared for the National Works Agency, Kingston, Jamaica.

Lead Economist. Mr. Miller applied the HDM-4 (Highway Development and Management Model) to prepare an economic analysis (cost benefit analysis) of the proposed preferred alternatives for each main segment and each individual construction section. The HDM-4 model was applied to estimate the following user benefits: travel time savings, vehicle operational cost savings, reduced public agency lifecycle maintenance expenditures, and the value of reduced accidents. Mr. Miller assessed accident statistics to estimate the "with" and "without project" accident frequencies (per 100m veh. km), and the monetized benefits associated from accident reductions for fatalities, serious accidents and property damages. The cumulative benefits were compared to the cumulative lifecycle costs of the preferred alternatives by assessing the economic internal rates of return (EIRR) and net present values (NPVs per each segment and for the combined project as a whole). Mr. Miller also estimated the economic benefits of the construction phase of this major highway project on the economy of Jamaica.

Mitchell C. Heineman, PE, BCEE, D.WRE

Hydrologic, Hydraulic and Water Quality Modeling

Education

M.S. - Water Resources Engineering, Stanford University, 1987

B.S. - Geology and Geophysics, Yale University, 1983

Registration

Professional Engineer: Massachusetts

Years of Experience

With CDM Smith: 28

Total Years: 32

Mr. Heineman has 32 years of experience specializing in hydrology, hydraulics, and modeling of urban sewer and drainage systems. He also has experience in water quality evaluation and modeling, data systems planning and management, oceanographic studies for outfall siting, and groundwater contamination investigations. He developed CDM Smith's NetSTORM software, which is used worldwide for collection system modeling and precipitation statistics analysis. Through CDM Smith's staff training program, Mr. Heineman leads collection system modeling courses, and developed a web-based training course in statistical analysis of precipitation data. Mr. Heineman has made numerous contributions to development of USEPA's SWMM model since 1994. He has developed SWMM models in all types of collection systems in over 40 communities worldwide, and is skilled in application of DHI's MOUSE and Wallingford Software's InfoWorks collection system models.

Project Engineer/Modeling Director, Boston Water and Sewer Commission (BWSC) CSO and Stormwater Planning Projects, Massachusetts. Mr. Heineman has participated in numerous studies for the BWSC sewer system. In 1989-1990, he authored a database and model for analyzing combined sewer overflows (CSOs) and issuing quarterly NPDES permit reports. He updated the model several times over the next 5 years to reflect changes in the sewer system. In 1994, he developed flow estimates for a system-wide facilities plan. In 1996, he led modeling to assess sewer separation in combined sewer areas tributary to the Stony Brook Conduit. In 1997-1998, Mr. Heineman assessed flood mitigation alternatives for the Stony Brook Conduit and Back Bay Fens. In 1999-2000, he developed engineering solutions to mitigate chronic flooding in Boston's South End. From 2001-2004, he provided technical guidance for data acquisition efforts preliminary to construction of BWSC's system-wide models. From 2005-2007, he led development of a 5700 node model of Boston's separate and combined sewer systems and a 3400 node model of its drainage systems. In 2007, he led hydraulic modeling in support of sewer separation planning for the Bulfinch Triangle area in downtown Boston.

Project Engineer, CSO, Sewer, and Stormwater Planning Projects, Various Locations. Mr. Heineman has developed sewer and drain system models for numerous municipal clients, including Haverhill, Montague, Worcester and Lynn, Massachusetts; Manchester and Nashua, New Hampshire; Hartford, Connecticut; East Providence, Rhode Island; Philadelphia and Pittsburgh, Pennsylvania; Indianapolis, Indiana; and Ho Chi Minh City, Vietnam. Mr. Heineman participated in a comprehensive sewer system evaluation for the Philadelphia Water Department, developed portions of the hydraulic model, and led development of a NetSTORM model of the city's complex combined sewer system, which included more than 150 regulator structures. As the principal developer of NetSTORM, he has also provided guidance for sewer system studies for the Allegheny County Sanitary Authority (Pittsburgh); Indianapolis; Orange County, California; the Singapore Water Board; and other cities.

Modeling Director, Nine Mile Run CSO and Streamflow Evaluations, Pittsburgh, Pennsylvania. For the Pittsburgh Water and Sewer Authority, Mr. Heineman led development of a detailed computer model of linked combined and sanitary sewer systems in 2000-2001. Five-year continuous simulations were performed to assess CSO characteristics and identify system constraints. For the City Planning Department and the U.S. Army Corps of Engineers, the sewer system model was coupled to a surface water hydraulic model of the Nine Mile Run stream to support a habitat restoration project. The models were run for 20 years to evaluate overbank flood frequency.

Project Engineer, Surface Water Hydrology Studies, Various Locations. For Pitman-Moore Industries in Allentown, Pennsylvania, he conducted a NPDES permit variance study. The 2-year field program evaluated surface and groundwater flow conditions and water quality near an industrial plant that discharged treated effluent to Jordan Creek, a tributary to the Lehigh River. He collected

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aquatic life samples and performed water quality, stream gaging, and groundwater level measurements. In Puerto Rico, Mr. Heineman used DAMBRK in conjunction with a watershed hydrology model to evaluate flooding in the Rio Espiritu Santo floodplain. The headwaters of the river are located in a tropical rainforest, which receives the greatest annual rainfall in the United States. In approving the floodplain revision request, FEMA acknowledged that the study area was uniquely complex and that the study successfully used innovative analysis methods.

Project Engineer, Watershed Monitoring Program

Assessment, São Paulo, Brazil. For the São Paulo water and wastewater agency SABESP, he conducted a study of hydrology and water quality of its Guarapiranga watershed. Mr. Heineman interviewed agency personnel, collected and reviewed 25 years of data, recommended improvements for data collection methods and analytical methods, and worked with programmers to develop an integrated data management and analysis system.

Project Engineer, Surface Water Hydrology Studies,

Various Locations. Mr. Heineman analyzed tributary inflows to Wachusett Reservoir for the Massachusetts Water Resources Authority (MWRA) to be used as input to a hydrodynamic model of the reservoir system. He developed synthetic streamflow records for each tributary to the reservoir based upon gage data collected at other nearby streams, as well as from computed discharges from other reservoirs located within the Wachusett watershed. In a 1988-1990 study, Mr. Heineman studied the water quality impacts of combined sewer overflows and riverine discharges into Boston Harbor using computer models of tidal flow and circulation in tandem with a SWMM watershed and sewer model and a QUAL2E model of the Charles, Mystic, and Neponset Rivers. He calibrated the models to simulate fecal coliform fate and transport in Boston Harbor, and configured the models to represent planned future conditions and various CSO control strategies.

Project Engineer, Groundwater Resource Evaluation and Contaminant Transport Assessment, Various Locations.

Mr. Heineman has developed groundwater flow and contaminant transport models using CDM Smith's DYNSSYSTEM software for municipal and private clients in New York, New Jersey, Massachusetts, New Hampshire, and Florida. He developed flow and transport models of the LiPari Landfill in Pitman, New Jersey for the USEPA. The models were used to support analyses evaluating the performance of an active batch flushing system located within an 11-acre landfill that had polluted nearby waterways. He also developed a model of the

Plymouth, Massachusetts aquifer system to evaluate pollutant loadings to receive waters that would result from proposed land disposal of treated wastewater effluent.

Systems Analyst and Computer Programmer, Water Resources Database Systems.

Mr. Heineman has led in-country database management consulting and training projects for the Sultanate of Oman's Ministry of Water Resources under the U.S. Agency for International Development (1990-1991) and for the Environmental Protection Agency of Punjab (Pakistan) under World Bank sponsorship (1992). In 1994-1995, he produced a database management system for the Massachusetts Division of Capital Planning and Operations that was used to screen and rank priority environmental matters on state properties for remediation. In 1996, he was a principal developer of the Massachusetts Watershed Management Toolkit, a set of computerized tools to facilitate viewing and analysis of watershed data and selection and development of hydrologic models. He has also authored databases and models for cataloging and analyzing storm sewer flows that has been applied in several Massachusetts communities.

Project Engineer, Ocean Outfall Studies, Various Locations.

Mr. Heineman has analyzed effluent and stormwater flows in ocean embayments, estuaries, and surface waters. He has participated in ocean outfall siting studies for the South Essex (Massachusetts) Sewerage District, New Bedford and Plymouth, Massachusetts, the City of San Diego, and the Republic of Singapore. For the South Essex Sewerage District, he managed the oceanographic assessment of the candidate outfall sites. He supervised development, calibration, and application of numerical models to the study area, and assessed the physical oceanography. For New Bedford, Mr. Heineman developed and applied a particle tracking model that was used to evaluate the impacts of candidate outfall sites, conducted an assessment of seasonal fluctuation of dissolved oxygen content in the New Bedford Outer Harbor, and prepared mixing zone analyses for determining compliance with state and federal water quality criteria. In Plymouth, he conducted an in-depth analysis of tidal currents within Plymouth Harbor that led the state regulatory authorities to renew the town's discharge permit and keep the near-shore outfall.

Gary W. Mercer, P.E.

Hydrologic, Hydraulic and Water Quality Modeling

Education

M.E. - Fluid Mechanics and Hydrology, Cornell University, 1980

B.S. - Civil and Environmental Engineering, Cornell University, 1979

Registration

Professional Engineer: Massachusetts

Years of Experience

With CDM Smith: 30

Total Years: 33

Mr. Mercer has over 30 years of experience in water resources investigations and engineering design for watershed, combined sewer systems, water supply, wastewater, drainage and flood control. His expertise spans the fields of hydrology, hydraulics and water quality, and includes the civil engineering aspects of these disciplines. He is skilled in the use and development of a variety of engineering computer programs.

Technical Director, Combined Sewer Overflow (CSO) Long Term Control Plan, Hartford, Connecticut. For the Metropolitan District Commission in Hartford, Connecticut, Mr. Mercer directed the development of the CSO Long Term Control Plan (LTCP) for the District. The work included monitoring, modeling, evaluation of alternatives, regulatory agencies interaction, and public outreach. The chosen CSO abatement program includes expansion of the wastewater treatment plant, sewer separation, and tunnel and consolidation pipes. Work now continues on implementation of the program.

Project Manager, Modeling Element the Rouge River National Wet Weather Demonstration Project, Detroit, Michigan.

Mr. Mercer was the manager of the modeling element for the Rouge River National Wet Weather Demonstration Project in Detroit, Michigan. For this EPA Grant project, a detailed wet weather water quantity and quality model has been developed which accurately simulates the water quality in the Rouge River from all watershed discharges, including stormwater, combined sewer overflows (CSOs), treatment plants, and groundwater. The computer models RUNOFF, TRANSPORT, and WASP are being applied.

Project Manager, Hydraulic Modeling, Singapore. In Singapore, Mr. Mercer conducted hydraulic modeling of the nation's 9,000-ft-long Bukit Timah urban drainage system (including an open canal of 26 m to 100 m in width) to support sizing and detailed design of proposed improvements.

Technical Director, Water Quality Modeling Study, Indianapolis, Indiana. Mr. Mercer was the technical director of the water quality modeling study of the White River for the City of Indianapolis, Indiana. For this project, a watershed/water quality model is being developed for the 2,400-square-mile White River watershed. The models examine the water quality impacts of CSO discharges on the river system. The SWMM and WASP models are being used for this project.

Project Manager, Surface Water Analysis, Plymouth, Massachusetts. For the Town of Plymouth, Massachusetts, Mr. Mercer has performed surface water analysis to assess the potential impacts of a 4-mgd wastewater infiltration system on nearby rivers and ponds. This analysis has included a field sampling plan, data analysis and computer models of the surface water systems. A key focus of the analysis has been the increase of nitrate in the surface from the infiltration facility and its potential to increase algal growth in the surface waters.

Project Manager, Water Quality Study, Chicago, Illinois. Mr. Mercer completed a study that examined the water quality in approximately 200 miles of the Chicago Waterway and the Upper Illinois River as part of the Metropolitan Water Reclamation District of Greater Chicago's NPDES requirements. The water quality model QUAL2E-UNCAS was used to simulate the water quality, and to examine various levels of improvements in the District's three large water reclamation plants.

Technical Director, MultiSmp Water Quality Model, Columbus, Ohio. For the Port Columbus Airport in Columbus, Ohio, Mr. Mercer is directing the development of a water quality model of the Big Walnut Creek using the MultiSmp model. The model simulates the dissolved oxygen changes in the creek from deicing events at the airport. The model is being used to set the BOD limits for the Airport NPDES permit being issued by the Ohio EPA.

Technical Director, Water Quality Model, Kent, Ohio. For the City of Kent, Mr. Mercer oversaw the

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development and application of a water quality model using QUAL2E to simulate the impact of the city's WWTP discharge on the Cuyahoga River. This work was performed to contest an NPDES permit issued by the Ohio EPA. The study was successful by providing an accurate assessment of the river system and by setting appropriate permit limits.

Project Manager, Cocheco River Water Quality Study.

Mr. Mercer served as the project manager of the Cocheco River Water Quality Study where he evaluated the relative pollutant loadings in the river from several sources including a wastewater treatment plant and assessed methods to achieve water quality standards. Alternatives considered included nitrification, relocation of outfall and in-stream improvements.

Modeling Director, Boneyard Creek Flood Study,

Champaign, Illinois. Mr. Mercer was the modeling director of the Boneyard Creek Flood Study for the City of Champaign, Illinois. This study examined the extent of the flooding on this urbanized watershed and developed flood control alternatives for the creek.

Project Manager, Water Quality Study, Sao Paulo, Brazil.

Mr. Mercer has worked on many international, as well as domestic projects. He was project manager in the water quality study of the Tiete River and Billings Reservoir system in Sao Paulo, Brazil. The study used the QUAL2E-UNCAS and WASP models to examine the water quality benefits on 290 km of rivers and reservoirs of five scenarios of new interceptors and treatment plants; the construction cost of the improvements is estimated to be \$3 billion.

Project Manager, Water Quality Model, Asuncion,

Paraguay. For the City of Asuncion, Paraguay, Mr. Mercer developed a water quality model for Asuncion Bay and the Rio Paraguay. This work was done to evaluate the benefits of the water front redevelopment that was being undertaken by the city. The models simulated the benefits of constructing sewers and treatment plants to reduce bacteria and algae levels in the bay.

Project Manager, Merrimack River Watershed Study,

Lowell, Massachusetts. Mr. Mercer is managing the Merrimack River Watershed Study. This \$2 million study, jointly funded by the U.S. Corps of Engineers and the five major combined sewer overflow (CSO) communities on the Merrimack River, is developing a comprehensive water resources plan for the river. Mr. Mercer directs the work and coordinates interactions with the U.S. Corps, CSO communities, and the regulatory agencies. The study is collected source and instream flow and water quality data and developed a thorough understanding of the water quality in the Merrimack River. The best alternatives to control pollutants were

evaluated using an extensive model of the watershed.

Technical Director, CSO Long-Term Control Plan

(LTCP), Indianapolis, Indiana. Mr. Mercer completed the development of the CSO LTCP for the Indianapolis, Indiana. Indianapolis has one of the largest combined sewer systems in the US with a combined sewer area over 50 square miles which contains over 130 CSO regulators. Over a 5-year period, while negotiations with the regulatory agencies were ongoing, Mr. Mercer oversaw the monitoring, modeling, evaluation of alternatives, outreach to the public and the development of the selected CSO plan for the city. The recommended CSO abatement plan, which cost \$1.8 billion, includes expansion of the wastewater treatment facility, relief interceptors, satellite storage/treatment facilities and a large central tunnel.

Presenter, SWMM Model Training for CSO Facilities Plan

Reviewers. For the New England Water Pollution Control Commission, Mr. Mercer presented a seminar for SWMM Model Training for CSO Facilities Plan Reviewers. This two-day seminar presented various SWMM models to Region I EPA and state agencies

Project Engineer, CSO LTCP, Springfield, Ohio. For the City of Springfield, Mr. Mercer is assessing compliance with water quality standards and developing compliance strategies for the city. And he recently started work on a CSO Long-term Control Plan for the City of Springfield, Ohio.

Project Manager, CSO Master Plan, Fall River,

Massachusetts. Mr. Mercer also directed the CSO Master Plan for the City of Fall River. The city recently initiated the first stage of its CSO abatement program, which ultimately included upgrading the WWTP and the construction of a 20-ft diameter storage tunnel. The CSO Master Plan evaluated alternative methods of CSO control and system improvements. Recommendations were developed that will save the city \$23 million.

Project Manager, Land-Based Modeling, Manchester, New

Hampshire. Mr. Mercer completed the land-based modeling (SWMM) of the combined sewer system in Manchester. For this CSO study, a detailed hydraulic model of the interceptor system was developed to assess the conveyance capacity of the system. In addition, a continuous model (STORM) was used to determine the long-term annual values discharges, frequency and duration of CSOs.

Kirk S. Westphal, P.E.

Hydrologic, Hydraulic and Water Quality Modeling

Education

M.S.—Civil & Environmental Engineering, Tufts University, 2001

B.S.—Aerospace Engineering, Boston University, 1991

Registration

Professional Engineer: Massachusetts

Years of Experience

With CDM Smith: 14

Total Years: 24

Mr. Westphal has over 20 years of experience as an engineer and water supply planner. He has directed projects across the United States and abroad involving water supply planning and management, river basin planning, reservoir system management, water and energy, water quality, and integrated resource planning.

Task Manager, Blind River Diversion Study, U.S. Army Corps of Engineers and Louisiana DNR. Mr. Westphal directed the development of an operations evaluation model for the diversion of Mississippi River water to the Blind River and through adjacent areas of Maurepas Swamp. The goals of the diversion were to help regenerate cypress and tupelo growth throughout the swamp, and the model was used to screen alternative diversion locations, capacities, and operating rules for their ability to hydrate the swamp, replicate natural periodicity in water levels, and prevent the backflow of potentially saline water from downstream Lake Maurepas. The model was used in tandem with a detailed hydraulic model (HEC-

RAS) of the canal and swamp network, and the two tools shared information to promote informed decision making about the overall system dynamics and response to different alternatives.

Task Manager, Lake Okeechobee Fast Track Study (LOFT), Florida. As part of the Comprehensive Everglades Restoration Program (CERP), Mr. Westphal directed the development of an operations model of a series of stormwater treatment reservoirs (constructed wetlands) using STELLA software. The reservoirs have been conceptually designed to help remove phosphorus from water flowing to Lake Okeechobee via the state's canal system. The model integrated information from groundwater, runoff, and treatment models and was used to guide the selection of capital projects and help outline future operating rules.

Project Manager / Technical Lead, Systems Model for Housing Recovery in New Orleans, Joint Research Project with MIT and New Ecology, Inc. Mr. Westphal is leading a research team in the development of a systems dynamics tool that studied housing recovery strategies for the City of New Orleans following Hurricane Katrina. The model simulated the costs, benefits, and risk reduction associated with various construction-related policy decisions and building codes.

Task Leader, Flood Control Priorities, Salem, New Hampshire. Mr. Westphal led a group of decision makers and a Citizen's Advisory Panel through a facilitated process of prioritizing investments in flood control. Mr. Westphal employed a multi-criteria decision matrix (EVAMIX) to allow these stakeholders to evaluate all options with numerous criteria, all of which had different relative importance. The process yielded an approved recommendation to the city council on what flood control measures

Technical Advisor, Kingdom of Saudi Arabia Flood Study, Ministry of Water and Electricity, Kingdom of Saudi Arabia. Mr. Westphal directed a team of analysts on the prioritization of 952 sites throughout the Kingdom of Saudi Arabia that could be prone to flooding and flood damage. Mr. Westphal employed a multi-criteria decision matrix (EVAMIX) of actual flood potential, quantifiable risks, and more subjective risks (such as climate change, significance of each site, etc.). The evaluation is recommending 60 sites for further evaluation, based on the combination of high flood potential and the possibility for significant impacts of flood damage. Mr. Westphal also developed a methodology for estimating the potential impacts of future climate change on flood risks throughout the Kingdom.

Harpeth River Water Quality Evaluation, Franklin, Tennessee. As part of an Integrated Water Resource Plan for Franklin, Tennessee, Mr. Westphal directed the calibration and application of a dynamic water quality model of the Harpeth River. The model was used to simulate nutrient and sediment loads, and the response of the oxygen levels in the river to changes in wastewater discharges, drinking water withdrawals, low-head dam removal, and stormwater controls. The work demonstrated conclusively that the river was far more sensitive to upstream influences than to planned water and wastewater needs in the City of Franklin.

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Task Leader, Merrimack River Watershed Assessment

Study, U.S. Army Corps of Engineers. Mr. Westphal directed a comprehensive modeling program for an 80-mile reach of the Merrimack River in New Hampshire and Massachusetts. He also facilitated many stakeholder workshops to solicit criteria for success and help interpret technical results. The study quantified the sources and instream effects of primary pollutants (bacteria and nutrients from CSOs, urban and rural runoff, treatment plants, etc.), and evaluated the cost-effectiveness of various watershed-wide restoration strategies with respect to predicted improvements in river water quality and regulatory compliance. Phase II of the study is underway, and Mr. Westphal is directing new modeling efforts aimed at understanding the dissolved oxygen dynamics in the river and the impacts of water supply withdrawals on water quality.

Technical Advisor, Eastern River Basin District

Management Project, Ireland. Mr. Westphal helped develop an analytical framework aimed at characterizing water body status and assigning appropriate policy-level response plans for the Eastern River Basin District (ERBD) surrounding Dublin, Ireland. Initiated in response to the European Union's Water Framework Directive, the process provided guidance to planners and policy-makers such that legislative "Programmes of Measures" could be formulated to mitigate the pressures on regional water bodies, efficiently improve water quality, and promote sustainability of water resources in the region.

Project Manager, Blackstone River Watershed Assessment Study, Upper Blackstone Water Pollution Abatement

District. Working jointly with the University of Massachusetts at Amherst, Mr. Westphal directed the development of a watershed modeling plan aimed at recommending benefits-based restoration initiatives throughout the basin. The basin has been designated as a National Heritage Corridor due to its significance in producing power and promoting growth during the industrial revolution, and this watershed program is aimed at cost-effectively reducing the impacts of urban and industrial pollutants that impair the beneficial uses of the river.

Technical Advisor, Total Maximum Daily Load (TMDL)**Analysis, Milwaukee Metropolitan Sewerage District,**

Wisconsin. Mr. Westphal provided technical advice on the process of establishing allowable loads in three rivers and their estuary, all draining to Lake Michigan; The Milwaukee River, the Menomonee River, and the Kinnickinnic River. The TMDLs focus on bacteria loads, total phosphorus, and total suspended solids, and Mr. Westphal's work included the establishment of a flow basis, a process for integrating results from the rivers and estuary into uniform water quality targets, and the

reconciliation of time-based bacteria standards with daily allowable loads.

Project Engineer, Receiving Water Quality Study, Charleston Sanitary Board, Charleston, West Virginia.

Mr. Westphal developed a dynamic water quality model using Visual Basic to simulate the Charleston response of the Kanawha and Elk Rivers to over 70 combined sewer outfalls and urban tributaries. The model simulates the transport, decay, and longitudinal dispersion of bacteria and selected metals in the river. Mr. Westphal also helped develop a dynamic hydraulic model of the river system using HEC-RAS. The water quality model was designed to accept dynamic and steady-state input from the HEC-RAS model, as well as from a SWMM-EXTRAN model of the combined sewer system and a SWMM-RUNOFF model of numerous urban tributaries. The model was used to evaluate the effects of CSO control alternatives on regulatory compliance in the receiving waters.

Project Advisor, Assabet River Dredging and Dam

Removal Study, Massachusetts. For the U.S. Army Corps of Engineers, Mr. Westphal helped direct a modeling study that quantified benefits of removing low-head dams and dredging accumulated sediment throughout the Assabet River in Massachusetts. The work involved the integration of hydraulic, sediment transport, and water quality models. Mr. Westphal specifically focused on improving the understanding of the exchange of phosphorus between the water column and sediments under various conditions in the river by developing a steady-state nutrient flux model.

Project Engineer, Connecticut River Pollutant Assimilation Analysis, Metropolitan District Commission, Hartford,

Connecticut. Mr. Westphal developed a near-shore mixing model to evaluate the extent of bacterial contamination in the Connecticut River downstream of combined sewer outfalls in Hartford. The model simulated the downstream dispersion and decay of bacterial indicators as the river flows toward Long Island Sound.

Project Engineer, Water Treatment Plant Intake Relocation

Assessment, Town of Billerica, Massachusetts. As part of a Water Management Act permit application, Mr. Westphal assessed the effects of relocating a water supply intake for the town of Billerica, Massachusetts upstream of its existing location on the Concord River. The study included predictions of the downstream impacts of the relocation on flow levels, dissolved oxygen saturation, biological growth rates, and trophic status of the river.

Abdulai Fofanah, P.E., CFM, D.WRE

Hydrologic, Hydraulic and Water Quality Modeling

Education

M.S. - Water Resources Engineering

B.S. - Civil Engineering

Registration

Professional Engineer: New Jersey, New York, Connecticut, Delaware

Certified Floodplain Manager (CFM)

Diplomate, Water Resources Engineer (D.WRE)

Years of Experience

With Louis Berger: 14

Total Years: 16

Mr. Fofanah is a Professional Engineer with more than 16 years of water resources engineering experience. Mr. Fofanah's primary areas of expertise are in the field of stream restoration design; water budget modeling; highway culvert and drainage system design; detention/retention basin design; watershed modeling; hydrologic and hydraulic modeling; freshwater and tidal wetland design; numerical/analytical and wave/coastal processes modeling; sediment transport modeling; and environmental impact assessment. Mr. Fofanah's technical/modeling experience include HEC-RAS/GeoRAS, HEC-HMS/GeoHMS, RiverCAD, SPAW Model, CHANLPRO, SMS, RMA2, CMS-Flow, CMS-Wave, GMS/MODFLOW, MIKE SWMM, BASINS 4, WinTR-55, HYDRAFLOW Hydrographs, AutoCAD Civil 3D, ArcGIS, PKFQWin, HydroCAD, ArcSWAT Model, Flux32 model, and CulvertMaster.

Richard P. Kane Natural Area Wetland Mitigation Bank, Carlstadt and South Hackensack, NJ. Hydrology and hydraulics Project Engineer for the wetland mitigation design of the Richard P. Kane Natural Area Wetland Mitigation Bank in

Carlstadt and South Hackensack, NJ. The project objective is to provide, through wetland banking, economically efficient and flexible off-site compensatory mitigation opportunities for New Jersey transportation agencies seeking to develop within and in accordance with all relevant Federal, State and local regulations and guidance. For the proposed tidal marsh component, work involved the use of the U.S Army Corp of Engineers two-dimensional RMA-2 computer model to simulate tidal circulation through three proposed inlet channels to the 240 acres parcel. Since the project involves the construction of a perimeter berm on a floodplain to confine the daily tidal flows within the proposed tidal wetland mitigation bank site, extensive hydrologic flood routing was conducted to determine the impact of the perimeter berm on flooding impacts. Work also involved the preparation of several regulatory permit applications. Also developed an excel spreadsheet water budget model for the freshwater parcel of the site to determine the required hydroperiod of the proposed freshwater forested wetland. Project responsibilities also included coordination with the US Army Corps of Engineers regarding associated projects which affected the modeling boundary conditions and design constraints. Prepared NJDEP, USACE, Bergen Soil Conservation District, and permit applications.

New Jersey Meadowlands Commission ((NJMC), Restoration of Rutherford/East Rutherford Drainage Ditch System, Rutherford/East Rutherford, New Jersey. Senior Project engineer responsible for the hydrologic and hydraulic (H&H) analysis of the Rutherford/East Rutherford drainage ditch system restoration to alleviate persistent flooding of roads and parking lots in the Boroughs of Rutherford and East Rutherford, New Jersey. Work consists of the restoration of flow conveyance to the existing ditches on either side of the New Jersey Transit Bergen County rail line, including channel widening, deepening and slope stabilization, installation of tide gates, and the replacement and/or expansion of the culverts and structures.

New Jersey Meadowland Commission, Meadowlands Mitigation Bank, Phase III Design, Carlstadt, New Jersey. Project engineer responsible for the hydrologic and hydraulic analyses and design of the salt marsh and freshwater wetlands. For the salt marsh area, performed tidal data analysis including estimation of observed and Epoch-based tidal datums for the project area. Also developed an excel spreadsheet water budget model to determine the required hydroperiod of the proposed forested wetland. Designed the inlet and on-site channel layout and configuration for both the freshwater and salt marsh areas. Based on the water budget modeled results, designed the conceptual level plans as well as the finished wetland grading. Assisted in the preparation of soil erosion and sediment control plans.

New Jersey Meadowlands Commission, Harrier Meadows Mitigation Bank, Hackensack, New Jersey. Water resources engineer. Performed basin hydrology and pond hydraulics to redesign existing pond component. Tidal datum analysis based on data from multiple gages at and near the Harrier

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Meadows site was performed as part of a Tidal Assessment and Hydraulics study to determine if tidal influence to Harrier Meadows has been altered.

New Jersey Meadowland Commission, Mill Creek Wetland Bank, Bern Reconstruction, New Jersey. Water resources engineer. Performed hydrologic and hydraulic analysis to reconstruction the wetland berm. Also performed stream stabilization techniques as part of bridge damage assessment and repair plans. Hydraulic analysis included the determination of scour velocities and allowable soil velocities.

New Jersey Department of Environmental Protection, Lincoln Park Tidal Marsh Restoration Project, Hudson County, NJ. Project Engineer responsible for the hydrologic and hydraulic design of the approximately 90-acre Lincoln Park parcel located on the eastern shore of the Hackensack River in Jersey City, New Jersey. Part of my task was to determine the appropriate hydroperiod for the proposed restoration site. Other responsibilities included the design of marsh channel network to meet the design tidal regime and determination of tidal inundation duration of each planting zone; the design of a water control structure along with construction sequencing that was developed to control water during the restoration construction; preparation of soil erosion and sediment control plans; preparation of several regulatory permits that included USACE Nationwide Permit No. 27 as well as approvals related to the NJDEP Coastal Waterfront Development Permit and Tidelands Conveyance, and Hudson-Essex-Passaic Soil Conservation District permit.

U.S. Army Corps of Engineers, New York District, Woodbridge Creek Ecosystem Restoration, Harbor Deepening Mitigation, Woodbridge, New Jersey. Project engineer responsible for the hydrologic and hydraulic analyses of the Woodbridge Creek ecosystem restoration and harbor deepening mitigation in Woodbridge, New Jersey. Specific engineering work included tidal data analysis including estimation of observed and Epoch-based tidal datums for the project area, comparison of tidal datums with other reported datums in the vicinity of the project area. Used the U.S Army Corp of Engineers two-dimensional RMA-2 computer model to simulate tidal circulation through the inlet channels to the entire site. Used the output of the model in the computation of the high and low marsh saturation and inundation times for different proposed planting zones.

U.S. Army Corps of Engineers, New York District, Jamaica Bay Shoreline Stabilization Project, Jamaica Bay, New York. Water resource engineer responsible for the hydraulic and hydrologic analyses and wetland design of Jamaica Bay, Brooklyn, New York. Specific work included sizing and

designing tidal channels to adequately flood and drain the Site using the U.S Army Corps of Engineers two dimensional depth-averaged hydrodynamic numerical model (RMA-2) computer program. Used RMA-2 model results and computed marsh inundation times for the wetland to determine the proposed wetland hydroperiod. Analyzed the stability of the inlet and on-site channels. Prepared hydrologic and hydraulic design report.

William E. Cesanek, AICP, PP Planning

Education

M.C.R.P. - City and Regional Planning, Rutgers University Graduate Program, 1977

B.A. - Urban Planning, Rutgers College, 1975

Registration

American Institute of Certified Planners (AICP)

Years of Experience

With CDM Smith: 28

Total Years: 38

Mr. Cesanek has 38 years of experience in all areas of environmental impact study and permitting. He possesses a comprehensive understanding of New Jersey Department of Environmental Protection regulations and permitting procedures, and federal laws and regulations, e.g., U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (USACE), National Oceanic and Atmospheric Administration (NOAA), Federal Transportation Administration (FTA), and the Department of Housing and Urban Development (HUD). He led the preparation of an Environmental Impact Statement (EIS) for a Special Area Management Plan in the Hackensack Meadowlands District of New Jersey under the direction of EPA and USACE, and served as the assistant project manager for the environmental impact studies required for permitting of a \$1.5 billion project to widen the New Jersey Turnpike.

Project Manager, Environmental Impact Assessment, Hackensack Meadowlands, New Jersey. Mr. Cesanek was the project manager responsible for preparation of an EIS for a Special Area Management Plan in the Hackensack Meadowlands District of New Jersey, under the direction of EPA, the U.S. Army Corps of Engineers, and NOAA. This project identified a regional plan that balanced environmental protection and improvement with reasonable economic development. The SAMP/EIS is regarded as a national model for the coupling of sustainable development and environmental protection. The Hackensack Meadowlands District Commission (HMDC) project was the recipient of the 1996 Engineering Excellence Honor Award from the American Consulting Engineers Council. Mr. Cesanek's accomplishments on the project included: development of a regional geographic information system (GIS) database for the project, with coverages for wetlands, land use, zoning, transportation systems, important wildlife habitats, locations of contamination sources, and utility infrastructure; screening-level analysis of alternative future development scenarios using GIS; and detailed analysis of potential resource impacts using GIS tools. Mr. Cesanek directed the installation of an Arc/Info GIS system at HMDC, and managed training and support for HMDC staff.

Project Manager, Environmental Assessment, City of Linden, New Jersey. Mr. Cesanek directed the preparation of an environmental assessment (EA) for the proposed Linden Airport redevelopment project for the City of Linden, New Jersey. The redevelopment plans for the 188-acre airport site included: the closure of one runway; the demolition and reconstruction of airport facilities; and the release of two parcels of airport land for commercial and industrial development. CDM Smith's preparation of the EA addresses the FAA's environmental review obligations under the National Environmental Policy Act (NEPA), and will allow for the release of airport land to the city for redevelopment. The EA is being conducted in accordance with FAA Order 1050.1D, Policies and Procedures for Considering Environmental Impacts, and FAA Order 5050.4A, Airport Environmental Handbook. The EA systematically examines twenty impact categories to determine the potential significance of impacts associated with both the airport modification and the commercial/industrial development.

Lead Practitioner, Environmental Program Management for Mississippi Long Term Workforce Housing (LTWH) Program and Urban Metabolism Modeling, Multiple Locations, Mississippi. Mr. Cesanek provided senior level expert NEPA guidance in assisting Mississippi Development Authority in complying with HUD environmental requirements. The purpose of the LTWH Program is to provide workforce housing in Katrina-impacted counties on the Mississippi Gulf Coast. Mr. Cesanek guided the development of environmental review protocols, policies, and procedures, and led the application of GIS tools to accelerate reviews.

Project Manager, Federal EIS for Route 92, New Jersey Turnpike Authority. Mr. Cesanek was the project manager for the preparation of the Environmental Impact Statement for a 6.7 mile extension of the NJ Turnpike, which involved wetland fill that triggered EIS preparation. He worked under the direction of the US Army Corps of Engineers as the Lead Agency for the preparation of this EIS, and

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the NJ Turnpike Authority as the permit applicant for the project. He managed the preparation of all components of the EIS, including need, alternatives, and environmental studies of natural and biological resources, socioeconomics, air quality, and noise. He coordinated the Public Scoping and Public Hearing process, and led the preparation of the Final EIS and Response to Comments documentation.

Project Manager, New Jersey Water Supply Authority, New Jersey. Mr. Cesanek managed the preparation of an environmental assessment for the New Jersey Water Supply Authority. This project involved an evaluation of the environmental effects of constructing facilities that would redirect stormwater originating in the City of Trenton from the Delaware and Raritan Canal, a major potable water supply source, to a nearby waterway. Important issues addressed in this project include water quality effects, changes in flooding, sediment transport, construction impacts, and cultural resources.

Project Manager and Program Manager, Philadelphia Water Department Office of Watersheds Support Services. Mr. Cesanek is leading several key tasks for the creation of integrated watershed management plans for 6 major surface water systems draining through the City of Philadelphia. He is also leading PWD's support of planning for sustainable and green revitalization of the Delaware River waterfront. As part of these efforts he managed the creation of three key web sites for provision of public information in support of green development programs, including a watershed center, a combined sewer overflow (CSO) informational site, and a water quality advisory web site. He is coordinating PWD's development of Low Impact Development guidance for development and redevelopment initiatives in Philadelphia. Mr. Cesanek also managed Integrated Watershed & Wetland Mitigation Planning activities for PWD. This project included the creation of a wetland registry listing potential mitigation sites and concept designs that a federal/state permit applicant could use and the exploration of a draft In Lieu Fee compensatory mitigation program under new federal regulations.

Task Leader, Route 130 Vision Plan, Route 130, New Jersey. Mr. Cesanek lead key elements of a Visioning Plan for an eleven-mile corridor of Route 130 in New Jersey, identifying transportation, environmental, economic, and design improvements that will synergistically protect and restore natural resources and enable economic revitalization. He led the development of the Implementation Toolkit for the Vision Plan using innovative form-based overlay planning approaches.

Assistant Project Manager, Environmental Impact Study and Permitting, New Jersey Turnpike Widening, New Jersey. Mr. Cesanek has been extensively involved in environmental impact studies and related permitting. As the assistant project manager for the environmental impact studies associated with a \$1.5 billion project to widen the New Jersey Turnpike, he managed the preparation of all components of the environmental impact statement, including need, alternatives, and environmental studies of natural and biological resources, socioeconomics, air quality, and noise. He coordinated preparation and submission of environmental permits associated with project implementation.

Project Director, Environmental Impact Assessment, Eisenhower Parkway, New Jersey. Mr. Cesanek was the Project Director for the EIS being developed for the northern extension of the Eisenhower Parkway, as proposed by Essex County. The complex federal environmental impact studies included detailed definitions of project needs and alternatives (using traffic modeling and GIS overlay analysis) and identified project impacts and development of mitigation strategies to support project decision-making.

Project Manager, Environmental Impact Studies, Port Authority of Allegheny County Stage II Light Rail Transit Project, Pittsburgh, Pennsylvania. Mr. Cesanek was responsible for the preparation of environmental studies and impact assessments for as many as 30 project expansion sites, including the evaluation of historic resources, decommissioned landfills, known or suspected hazardous waste sites, wetlands, and archaeological sites. He was also responsible for the identification and design of impact mitigation measures, to ensure that impacts to wetlands, floodplains, and water quality were minimized or eliminated, and that the FTA EIS regulations and Record of Decision conditions were fulfilled. Under Mr. Cesanek's direction, the project team worked to ensure compliance with the myriad of federal, state, and local environmental regulations associated with a project of this magnitude, and that each environmental issue is properly identified, defined, and incorporated into the preliminary engineering studies, analyses and final design.



Kate J. Stenberg, Ph.D. Planning

Education

Ph.D. - Wildlife & Fisheries Science and
Regional Planning, University of Arizona, 1988

M.Admin.-Environmental Administration
(Land Use & Business Management), Univ. of
California, 1982

B.A - Biology – Environmental Studies,
Whitman College, 1980

Years of Experience

With CDM Smith: 7

Total Years: 30

Dr. Stenberg has 30 years of experience in wildlife assessment and conservation, planning, environmental documentation, multi-agency permitting, and litigation support. She manages the preparation of environmental documents in compliance with National Environmental Policy Act (NEPA), state environmental policy acts, and other federal regulations and conducts master planning efforts. Her NEPA experience includes the preparation of Environmental Impact Statements (EISs) and Environmental Assessments (EAs) in compliance with agency specific regulations including U.S. Army Corps of Engineers (USACE), Federal Emergency Management Agency (FEMA), and U.S. Department of Housing and Urban Development (HUD). In recent years, Dr. Stenberg has been the project manager for 7 EIS projects, the senior lead on significant portions of six other EIS projects, and has led the production and technical review of over 40 EAs.

Senior NEPA Specialist, HUD, Hurricane Sandy Disaster Recovery Program, New York. Dr. Stenberg completed six Tier II Site Specific NEPA checklists and provided

senior quality assurance/quality control (QA/QC) reviews for 19 additional checklists on individual projects to restore and/or elevate homes damaged by Hurricane Sandy.

Task Lead, HUD, Illinois "IKE" Disaster Recovery Program, Environmental Assessments, Illinois. Dr. Stenberg prepared nine environmental assessments to evaluate potential impacts of proposals for Community Development Block Grants for disaster recovery (CDBG-DR) administered by HUD and the Illinois Department of Commerce and Economic Opportunity. The projects were primarily sponsored by local agencies and related to utility and flood control infrastructure repair and replacement in multiple municipalities throughout Illinois that were affected by storms related to Hurricane Ike. The environmental assessments included an evaluation of potential environmental effects, compliance with relevant Executive Orders and other federal laws, and alternatives.

Project Manager, FEMA, Region X, Tillamook Southern Flow Corridor EIS, Oregon. Dr. Stenberg is leading the NEPA process to evaluate the impacts of the proposed Southern Flow Corridor in the Tillamook Valley intended to reduce flood hazards over 3000 acres and restore 650 acres of tidal wetland habitats. The project would remove levees and restore tidal marsh and channel habitats. Dr. Stenberg provided oversight of the biological and cultural resources surveys, the public involvement process, and the preparation of a scoping report and draft and final EISs. She is also responsible for the preparation of the draft ROD. The project included coordination with three federal cooperating agencies and 8 state and local partner agencies.

Project Manager, USACE, Tulsa District, Eufaula Lake Shoreline Management Plan Revision and Master Plan Supplement EIS, Eufaula, Oklahoma. Dr. Stenberg led the effort to prepare an EIS for the Shoreline Management Plan and Master Plan updates at Eufaula Lake, the largest lake entirely within the borders of Oklahoma. Tasks included extensive studies on recreational use, natural resources, and visual quality around the lake; preparation of a Draft EIS; public meeting preparation and management; and preparation of the Final EIS with responses to public comments. Cumulative impacts were evaluated through a unique study of vegetation change over time.

Task Lead, Metro Wastewater Reclamation District, South Platte River Habitat Restoration, Denver, Colorado. Dr. Stenberg prepared the USACE permit application materials to successfully obtain a 404 permit for Phase II habitat restoration work in the South Platte River. The USACE project manager commented about the application that she "can delightfully report that it is the most clear, concise and competent report I have seen in a very, very long time."

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Task Lead, US Bureau of Reclamation, Klamath River Hydroelectric Facility Removal EIS, Oregon and California.

CDM Smith prepared a NEPA/California Environmental Quality Act (CEQA) EIS/Environmental Impact Report (EIR) to analyze potential impacts related to the proposed removal of four hydroelectric facilities on the Klamath River in Oregon and California for the US Bureau of Reclamation and the California Fish and Wildlife Department. The EIS/EIR will assist the Secretary of the Interior in making a determination on whether removing the dams will advance restoration of the salmonid fisheries of the Klamath Basin and is in the public interest. Dr. Stenberg led the effort to describe and evaluate the connected action of the Klamath Basin Restoration Agreement (KBRA) for the EIS/EIR. This involved preparing project description sections for the EIS/EIR and performing senior review and oversight of the various technical analyses.

Senior Planning Lead, Santa Paula Creek Flood Control Project, USACE Los Angeles District, Santa Paula, California.

Dr. Stenberg has provided senior level review and quality control for a biological assessment and 404(b)(1) analysis on potential effects to listed species prepared for this project to conduct maintenance dredging on a fish ladder and flood control project operated by the US Army Corps of Engineers on the Santa Paula Creek in Ventura County, California.

Project Manager, Table Rock Lake Master Plan Update Environmental Assessment Scoping, US Army Corps of Engineers, Little Rock District, Branson, Missouri.

Dr. Stenberg led the effort to conduct three scoping meetings around Table Rock Lake on the proposed updated of the USACE Master Plan. Tasks included preparation of meeting notices and materials, logistics, conduct of three public meetings and one agency meeting, and preparation of a scoping report. Over 1800 people attended the three public meetings, which were designed to gather meaningful input into the Master Plan development process as well as meet NEPA requirements.

Task Manager, Environmental Permitting, Crystal River Ranch Habitat Enhancement and Streambank Restoration Project, Greenwater, Washington.

Dr. Stenberg led the effort to obtain environmental permits from federal (USACE, NMFS, USFWS), state (WA DOE, WDFW) and local (Pierce County) agencies for this aquatic habitat enhancement and streambank stabilization project along approximately 1 mile of the White River near Mount Rainier. She prepared all permit applications and SEPA documents, managed subconsultants preparing supporting documentation (e.g. survey work, wetland delineations, preparation of a Biological Assessment),

and coordinated the multi-agency reviews of this complex and controversial project.

Task Manager, Environmental and Construction Permitting, Madison Valley Stormwater Long Term Solution Project, Seattle, Washington.

Dr. Stenberg led the effort to obtain environmental and construction related permits for the construction of new conveyance and stormwater detention facilities in Madison Valley, Seattle. Tasks included supporting Seattle Public Utilities staff through a Type V MUP process and leading acquisition of construction permits; reviewing plans and designs and advising the team on potential measures to avoid adverse effects or additional permit reviews.

Task Manager, Maintenance Dredge Biological Assessment and Permitting, Rainier, Oregon. A confidential client required assistance in preparation of USACE Clean Water Act Section 404/10 permit application and a Biological Assessment for Endangered Species Act consultation under Section 7 for a maintenance dredge project in the Columbia River. Periodic dredging is needed to maintain access for ocean-going vessels the dock for delivery of bulk product. CDM Smith conducted sediment evaluations in support of the maintenance dredge application. Dr. Stenberg led the effort to prepare the biological assessment and provided senior level assistance in the preparation of the joint aquatic permit application to the USACE and the Oregon Department of State Lands.

NEPA Documentation Specialist, Environmental Review, Spring Street Wastewater Treatment Plant Phase I

Project, Klamath Falls, Oregon. Dr. Stenberg prepared the Spring Street Wastewater Treatment Plant Phase I Project Environmental Review in support of the City of Klamath Falls' Clean Water State Revolving Fund loan application. The task included coordination with tribes, regulatory agencies with jurisdiction over air, water, biological, and cultural resources. Project included environmental documentation of compliance with the Endangered Species Act and approval of findings by regulatory agencies including EPA, DEQ, and the Oregon SHPO.

Project Manager, FEMA Headquarters, Mitigation Branch AR/A99 Proposed Rule Change Programmatic Environmental Assessment and Biological Assessment.

Dr. Stenberg led the preparation of a draft programmatic EA and draft BA on rule changes to NFIP regulations on Zones AR and A99 that may be proposed in the future. FEMA rated the performance "exceptional" and noted that we "brought innovation to the process".

Deborah Matherly AICP Planning

Education

M.B.A. - Finance

B.S. - Public Administration

Registration

American Institute of Certified Planners

Years of Experience

With Louis Berger: 14

Total Years: 36

Ms. Matherly is a principal planner with Louis Berger. She has more than 36 years of experience with a broad technical and management background in major facets of transportation analysis. She has extensive experience in researching and developing the transportation elements for EIS and EAs. She also brings state-of-the-art national research experience on guidance for outreach and resiliency. She is an expert in outreach to underserved populations, and has led and is heading Transportation Research Board (TRB) guidance efforts on the topic. She is also expert in transportation resiliency planning. She recently led a national study supporting regional resiliency and is currently leading a national study on transit resiliency.

General Services Administration (GSA), FBI Headquarters Relocation EIS, Washington, DC. QA/QC. Supporting the development of the EIS, including

support on relocation site analyses. Reviewing and editing others work, performing QA/QC. Professional Services: 2014, ongoing.

USACE, West Point Environmental Analysis, BRAC, West Point, New York. Technical support. Conducted the traffic analysis for the EA for West Point incorporation of the Marine Academy Preparatory School. The Preferred Alternative necessitates relocating the Motor Pool Department of Logistics. Professional Services: 2008.

General Services Administration (GSA), West Heating Plant EA, Washington, DC. Technical support. Developed the transportation study elements for the GSA proposed disposal of the excess property West Heating Plant near Georgetown. This included developing potential traffic impacts for a reasonable reuse scenario based on DCOP anticipated zoning. Professional Services: 2011-2012.

U.S. Army Environmental Command, Army 2020 Force Structure Realignment Supplemental Programmatic Environmental Assessment, Nationwide. Technical support. Louis Berger provided support to Headquarters, Department of the Army (HQDA) with the management and preparation of a Supplemental Programmatic Environmental Assessment (SPEA) for the Army 2020 Force Structure Realignment PEA that was completed in 2013. The SPEA evaluated the potential direct, indirect, and cumulative environmental and socio-economic impacts of stationing realignments at 30 Army and Joint Basing installations within the United States, including 9 that were not previously analyzed for force reductions in 2013. Ms. Matherly conducted the review and research on potential transportation impacts for the 30 installations and addressed all transportation-related comments for the draft SPEA and draft Finding of No Significant Impact (FNSI) for Army signature and public review within two and a half months from project kickoff. Professional Services: 2014.

USACE, Fort Meade EIS, BRAC, Odenton, Maryland. Technical support. Conducted the traffic analysis for the EIS for Fort George G. Meade, related to incoming personnel associated with the current BRAC actions. The study includes data collection on existing traffic volumes, turning movements, infrastructure, signals, and transit service; as well as proposed land uses, roadway improvements, forecasts of future traffic levels and levels of service, and potential mitigation measures and best management practices (including travel demand management and transit improvements) to improve operations. Professional Services: 2007.

National Cooperative Highway Research Program (NCHRP) Project 08-100, "Environmental Justice Analyses When Considering Toll Implementation or Rate Changes". Deputy Project Manager. Ms. Matherly is supporting the coordination and conduct of this research project to provide guidance to agencies embarking on toll implementation projects or rate changes. The project is developing an analysis framework to ensure that the process determines whether an environmental justice evaluation is required for a specific project; if it is, steps, tools, and recommendations will ensure that agencies and

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entities are equipped for effective and meaningful outreach to traditionally underserved poor and minority populations. Professional Services: 2014 ongoing.

Transit Cooperative Research Program (TCRP), Project A-33, Report 150, "Communication with Vulnerable Populations: A Transportation and Emergency management Toolkit," Washington, DC. Principal investigator. This study developed a practical guide for including vulnerable populations with access and functional needs in the planning, response and recovery stages of an emergency. It provides a clear step-by-step guide with supporting tools (e.g., a letter template for securing executive support, templates for meeting agendas, talking points, etc.) for effectively developing and sustaining outreach efforts in collaboration with partner agencies and organizations, such as public health and community-based organizations. The basic premise is to expand on existing connections to maximize scarce resources and reach people through trusted messengers. Professional Services: 2009-2011; published 2011.

DC Homeland Security and Emergency Management Agency (HSEMA), Community Outreach for September Preparedness Month, Washington, DC. Project Manager. Ms. Matherly led the project to develop four community forums on emergency preparedness for HSEMA during the month of September, 2011, as well as develop a general public advertising campaign. Louis Berger, working closely with DCHSEMA, developed four forums, specifically tailored for and recruiting participants from DC service providers (e.g., nursing homes, Meals on Wheels); DC faith leaders; DC business leaders; and DC youth. Each forum included identification of an appropriate venue and date, targeted personal outreach and tailored presentations and participant folders. The Louis Berger Team developed the "brand" for DC preparedness month, that was carried through to the participant folders, the newspaper ad campaign, and the on-line Google ad campaign. Professional Services: 2011.

Transit Cooperative Research Program (TCRP) Project A-41, "Improving the Resiliency of Transit Systems Threatened by Natural Disasters". Principal Investigator. Ms. Matherly is leading this effort to assist transit agencies nationwide to incorporate resiliency into their corporate culture, in concert with the closely-related culture of safety and state of good repair/ asset management. Professional Services: 2015-2017

NCHRP Project 20-59 (42), Report 777, "Guide to Regional Transportation Planning for Disasters, Emergencies and Significant Events." Washington, DC. Principal investigator. Ms. Matherly led the team to establish this guide for transportation and emergency managers. The

guide describes the basic principles required to achieve multijurisdictional resilience through partnerships with public and private sectors. Case studies and tools support a more comprehensive understanding of threats, interdependencies, and opportunities for jurisdictions and agencies to work together. Professional Services: 2012-2013; published 2014.

Leo Tidd, AICP Planning

Education

M.P.A. - Environmental Science and Policy,
Columbia University, 2006

B.S. - Environmental Studies, SUNY College of
Environmental Science and Forestry, 2004

Registration

American Institute of Certified Planners

Years of Experience

With Louis Berger: 9

Total Years: 9

Mr. Tidd's work at Louis Berger has been focused on conducting environmental analyses for proposed projects and preparing documents to demonstrate compliance with state and federal environmental laws and regulations. He has been lead author and editor of complex transportation project environmental impact statements (EISs) required as a result of prior environmental litigation. On these projects Mr. Tidd has served as the primary author, synthesizing the work of various technical specialists into a logical and concise narrative that addresses regulatory compliance and documents that the transportation agencies took the requisite "hard look" at environmental issues. In addition, he is responsible for technical environmental analyses on topics that include air quality, noise, and indirect and cumulative impacts. Mr. Tidd has extensive experience and training with transportation-related emissions modeling and dispersion modeling with MOVES2010, CAL3QHC/R and AERMOD, including research at the national level to develop guidance and templates to increase the efficiency of quantitative

particulate matter hot spot analysis. Mr. Tidd has also completed training on FHWA's latest Traffic Noise Model (TNM2.5) and FTA's transit noise and vibration impact assessment procedures.

Deputy Project Manager, U.S. Army Corps of Engineers, South Coast Rail NEPA/MEPA Final Environmental Impact Statement, Massachusetts. Mr. Tidd was responsible for managing the preparation of the Final EIS/EIR for the South Coast Rail Project as a third-party consultant to the Corps. Mr. Tidd authored detailed responses to 1,500 comments on the DEIS/EIR in less than a month. The FEIS was released in September 2013. The South Coast Rail project is a proposed \$1.4 billion, 30-mile rail corridor between Boston and Fall River/New Bedford on the south coast of Massachusetts in combination with Smart Growth strategies to support sustainable economic development and minimize impacts.

New Jersey Department of Environmental Protection. Environmental and Historic Preservation Reviews/ New Jersey's CDBG-DR Grant Program. Mr. Tidd prepared noise screening analyses consistent with HUD requirements for approximately 15 environmental assessments of storm recovery projects.

Project Manager, National Cooperative Highway Research Program, NCHRP 25-25 Quick Response Environmental Research for the AASHTO Standing Committee on the Environment. Mr. Tidd currently manages Louis Berger's NCHRP 25-25 on-call research contract, which addresses transportation environmental issues across all disciplines and phases of transportation project development, construction and maintenance. Mr. Tidd was a contributing author to NCHRP 25-25 Task 43: Legal Sufficiency Criteria for Adequate Indirect Effects and Cumulative Impacts Analysis as Related to NEPA Documents, Task 71: Templates for Project-Level Analysis with MOVES, AERMOD and CAL3QHC/R; and Task 89: Establishing Background Concentrations for Particulate Matter Hot-Spot Analysis. He is currently involved with Task 99, which involves development of a peer exchange among State DOTs on the lessons learned from NEPA assignment.

Project Manager, Peninsula Corridor Joint Powers Board (Caltrain), On-Call Environmental Planning and Permitting, California. Mr. Tidd manages an on-call environmental planning contract with Caltrain which has included NEPA reviews (ranging from categorical exclusions to environmental impact statements) for bridge replacements, grade separations and a 20-mile commuter rail extension project. Several of the Caltrain projects have been directly linked to proposed Transit Oriented Development projects. The contract involves management of a large team of subconsultant specialists and timely completion of the environmental review process to meet FTA funding requirements.

Task Manager, Monmouth County, Transportation Audit and Sustainable Transportation Plan, Monmouth County, New Jersey. Mr. Tidd used ICLEI's Clean Air and Climate Protection Software as

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part of an inventory of Monmouth County's transportation-related greenhouse gas emissions.

Task Manager, New Jersey Turnpike Authority, New Jersey Turnpike Interchange 6 to 9 Widening Indirect and Cumulative Impact Analysis, New Jersey. Mr. Tidd was the lead author of a technical report assessing the potential for a major widening project to influence growth patterns, both at a regional scale and at a local scale around interchanges. The study made extensive use of GIS analysis tools to measure past land use change on a watershed basis, identify potentially developable land, and to assess potential future land development impacts.

Task Manager, South Jersey Transportation Authority, Atlantic City Expressway/ Atlantic City International Airport Direct Connector Road Egg Harbor Township, New Jersey. Mr. Tidd prepared air quality screening analyses for a new roadway and interchange in Egg Harbor Township, New Jersey. Mr. Tidd also conducted traffic noise modeling for the project using TNM2.5 and prepared the traffic noise study technical memorandum.

GIS Analyst, New Jersey Turnpike Authority, Garden State Parkway Interchange 125 EIS, New Jersey. Mr. Tidd was responsible for the preparation of mapping for the Interchange 125 environmental constraints report.

Air Quality Task Manager, New Jersey Turnpike Authority, Interchange 8A Improvements, Monroe and South Brunswick Townships, New Jersey. Mr. Tidd prepared the air quality section of the environmental document for a project that involves the reconfiguration of existing roadways and new direct connector ramps in the vicinity of New Jersey Turnpike Interchange 8A.

Task Manager, Williams Transcontinental Gas Pipe Line Company, Woodbridge Lateral Pipeline Project, New Jersey. Task Manager. Mr. Tidd prepared the air quality portion of FERC Resource Report #9, air quality and noise. This effort included a construction emissions analysis to demonstrate General Conformity de minimis thresholds would not be exceeded. In addition to construction equipment and on-road vehicle emissions, the analysis included quantification of fugitive dust emissions consistent with AP-42 methodologies.

Deputy Project Manager, New Hampshire Department of Transportation, I-93 Improvements (Salem to Manchester) Supplemental EIS, New Hampshire. Mr. Tidd was the lead author of the I-93 supplemental environmental impact statement (SEIS), which was prepared in response to a court order requiring analysis of the effects of induced population and employment growth on secondary road traffic and air

quality. The project involves widening I-93 from two-lanes to four-lanes in each direction for a distance of 20 miles between the Massachusetts state line and Manchester, New Hampshire. The previous plaintiffs decided not to challenge the SEIS during the 180-day limitation on claims period that followed the issuance of FHWA's Supplemental ROD on the project.

Deputy Project Manager, Vermont Agency of Transportation, Circ-Williston Transportation Project EIS, Chittenden County, Vermont. Deputy project manager. Mr. Tidd was responsible for editing the EIS and technical reports, creation of a comment database tracking system and was the lead author of the responses to comments on the draft EIS and final EIS. Mr. Tidd's technical accomplishments on this project have included a detailed analysis of wildlife habitat edge effects and fragmentation, a GIS-based wetland mitigation site search analysis, a project-level greenhouse gas emissions analysis, and a deicing salt loading analysis. The Circ-Williston EIS was a "fresh look" at a transportation project that was stopped as a result of environmental litigation just prior to construction.

AmyMarie Accardi-Dey, Ph.D.

Water/Sediment Quality

Education

Ph.D. - Environmental Engineering/Chemical Oceanography

B.S. - Geology

B.S. - Chemistry

Years of Experience

With Louis Berger: 6

Total Years: 17

Dr. Accardi-Dey is an environmental engineer experienced in geochemistry, analytical chemistry, and the study of contaminant fate and transport in surface waters and sediments. She is proficient in assessing analytical data and skilled in developing, evaluating, and implementing new analytical methods/technologies in the field to advance RI investigations. Her experience includes developing UFP QAPP documents with measurement performance criteria, quality control samples, and performance evaluation samples. She has worked with universities and laboratories to implement innovative technologies in the field and develop pre-program IPR studies to validate modified laboratory analytical SOPs. Dr. Accardi-Dey is responsible for the review and critical analysis of data and reports dealing with contaminated sediments/soils, environmental fate and transport

modeling, and water quality evaluations. Dr. Accardi-Dey has presented at the 2012 Design and Construction at Hazardous Waste Sites and the 2012 Sediment Management Work Group; prepared a short course for the 2010 Battelle Contaminated Sediment Conference; and presented at the 2007 and 2009 SETAC conferences. She has completed project manager training, supervisor/HAZWOPER training, and the US Coast Guard Boating Skills and Seamanship Course.

U.S. Army Corps of Engineers, Kansas City District, Bound Brook, Cornell-Dubilier Electronics Superfund Site - OU4, Middlesex County, New Jersey. Deputy project manager and lead chemist. Responsible for leading a remedial investigation (RI) field program, including sediment cores, floodplain soil borings, water column collection, sediment traps, in-situ porewater, habitat survey, bioaccumulation and toxicity testing, hydrodynamic surveys, and geophysical surveys. Collaborated with universities and laboratories to develop QAPP modifications to address sampling with innovative technology, including porewater polyethylene passive samplers, high resolution sediment coring, and sediment traps. Conducted laboratory audits of bioaccumulation/toxicity testing laboratory work and HRGC/HRMS Methods 1668 (PCB) and 1613 (PCDD/F) analytical work. Developed measurement performance criteria for remedial investigation, managed collection of environmental and quality control samples, assessed and provided corrective action for performance evaluation samples, conducted Technical System Audits of field programs, discussed and resolved analytical issues with laboratories and data validators, and managed EDD deliverable for consistency with USEPA Region 2 MEDD format.

U.S. Army Corps of Engineers, Kansas City District, Newark Bay Remedial Investigation/Feasibility Study Oversight, Newark, New Jersey. Deputy project manager and lead chemist. Responsible for leading an oversight program, including (a) review and recommendations on sediment transport model simulations, (b) review and comment on PRP technical documents, such as radiochemistry data from sediment cores, site-contamination investigative reports, and secondary data evaluations, (c) review and comment on PRP RI/FS QAPP and PRP IDW QAPP, and (d) evaluate sediment and water column data to construct a conceptual site model. Oversight work also included working with laboratories to develop modified analytical methods for filtration of small-volume water column samples and analysis of large-volume water column samples. Developed IPR pre-program laboratory work for new large-volume sorption medium (PUF) with HRGC/HRMS Methods 1668 (PCB) and 1613 (PCDD/F), assessed and provided corrective action for performance evaluation samples, reviewed analytical SOP modifications including sample preparation and analysis, and incorporated new measurement performance criteria into QAPP modification. Completed a split sample data comparison and evaluated the potential impacts of water column filter sizes on data that will be used in sediment transport model.

U.S. Army Corps of Engineers, Kansas City District, Lower Passaic River Remedial Investigation/Feasibility Study Oversight, Bergen County, New Jersey. Deputy project manager and lead chemist. Managed oversight activities of fish/decapods sampling (community survey and tissue analysis) and benthic sampling (triad and bioaccumulation samples), reviewed PRP technical

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documents on biological sampling, coordinated with analytical laboratories and human health and ecological risk assessors, collected government sediment, tissue, and toxicity testing and bioaccumulation split samples, managed EDD deliverable for consistency with USEPA Region 2 MEDD format and Equis uploads, managed data validators, and completed split sample data comparison. Supported the USEPA to resolve split sample discrepancy by providing multiple lines of evidence that the government dataset was accurate and precise, and PRP dataset was bias.

U.S. Army Corps of Engineers, Kansas City District, Lower Passaic River Restoration Project, Feasibility Study, Bergen County, New Jersey. Task Leader. Conducted chemical and statistical analyses on sediment data including (a) evaluation of nature and extent of contamination of PAHs, pesticides, and dioxins using forensic techniques such as fingerprinting and principal component analysis, (b) determination of sedimentation rates using radioisotopes and bathymetry, (c) examination of gas chromatography peaks and retention times to evaluate patterns in the PCDD/F congener data, and (d) development of CSM and empirical mass balance using sediment, tissue, and aqueous data. Software included JMP, MS Access, and MS Excel.

USACE, Kansas City District, Berry's Creek, Remedial Investigation/Feasibility Study Oversight, Bergen County, New Jersey. Project manager. Managed the RI/FS oversight program which included managing sub-consultants (including risk assessors, modelers, and laboratories), reviewing PRP technical documents and site-contamination investigative reports on behalf of the USACE and USEPA, developing an oversight program with collection of government split samples, developing community fact sheets, and attending public meetings. Prepared proposals, progress reports, and detailed cost tracking reports for the district.

USACE New York, Lower Passaic River WRDA Restoration, Newark, New Jersey. Project manager for the WRDA-aspect of the Lower Passaic River Restoration Project. Managed the reporting of a dredging pilot study, which was designed to yield information on dredging performance (including productivity, vertical accuracy of target depth and cut lines, and operational controls) and sediment resuspension associated with production environmental dredging, which operated with one mechanical dredge system. Calculations included dredging productivity calculations, working time analysis, accuracy comparisons, determination of the resuspension production and net suspended sediment flux, and export rates occurring during dredging operations.

U.S. Army Corps of Engineers, Baltimore District, Fort Drum Area, Fort Drum, New York. Deputy project manager. Designed, and managed the construction and implementation of a phytoplantation system. The plantation was designed to remediate contaminated sediment and seep waters with willow and poplar trees. As part of the post-monitoring program, responsible for reviewing and interpreting semi-annual sediment and surface water data (organic and inorganic contaminants) to assess efficiency and long-term effectiveness of plantation.

Sharon Bailey, P.E.

Water/Sediment Quality

Education

M.B.A. - College of St. Thomas, St. Paul, Minnesota 1991

B.S. - Cornell University, Ithaca, New York, Civil and Environmental Engineering, 1978

Registration

Professional Engineer: Illinois, Iowa, Michigan, Minnesota, Wisconsin, Oregon, Washington, Alaska

Years of Experience

With Louis Berger: 4

Total Years: 36

Ms. Bailey specializes in the design and construction of facilities for wastewater collection and treatment, solid and hazardous waste management, storm water management, and remediation system design for governmental and industrial clients. Responsibilities have included initial project conception, siting, site investigations, feasibility studies, design and permitting, construction, system startup, and operation.

Principal Environmental Engineer, USACE Kansas City District, Lower Passaic River: Focused Feasibility Study, New Jersey.

Responsible for the layout, conceptual design and cost estimates for remedial alternatives and dredged material management (DMM) options for a Focused Feasibility Study for the lower 8 miles of this estuary as part of the long term remediation of the Lower Passaic River. Prepared site layouts and evaluations, technical memorandum on potential options, and conceptual level costs estimates for potential DMM alternatives. Following the initial public comment period, a Final FFS Report was prepared.

This work has required major revisions to the document over several iterations

to address stakeholder input and modifications to the alternatives being evaluated. Responsible for editing and reviewing engineering aspects of the FFS documents as well as consistency and overall document quality. Prepared conceptual level cost estimates for multiple iterations of alternatives and DMM scenarios as well as present value and cost sensitivity analyses. Currently preparing technical responses to public and stakeholder comments on the Proposed Plan for the Responsiveness Summary.

Principal Environmental Engineer, USACE Kansas City District, Cornell-Dubilier Electronics Superfund Site - OU4 (Bound Brook) Feasibility Study, Middlesex County, New Jersey.

Technical lead on the Feasibility Study for Operable Unit 4 - the cleanup of PCB-contaminated in Bound Brook and surrounding floodplain/wetlands on behalf of USEPA Region 2. For the FS, OU4 was divided into four Remedial Action Areas (RAAs) and remedial approaches evaluated for each. For the sediment and floodplain soils, mechanical dredging and excavation in the dry were evaluated to address site-wide conditions. In addition, three options (hydraulic dredging, in-place capping, and monitored natural recovery) were evaluated to address conditions in limited portions of the study area. For the capacitor debris area, both partial removal and capping and complete removal were evaluated along with on-site treatment and burial, as well as off-site treatment and disposal. Because it was determined to be Technically Impracticable to remediate TCE-contaminated groundwater (OU3), the focus was to control its impacts on surface water; alternatives evaluated included water quality monitoring, pump and treat, permeable reactive barrier, and in-stream reactive capping. And finally, alternatives were evaluated for the 36-inch water main crossing the former CDE facility. For each alternative in the different RAAs, technical feasibility, effectiveness, implementability and other criteria were evaluated along with the present value of the cost. Based on the work performed, the Record of Decision for this site was issued in May 2015. Components of the selected remedy include: (1) excavation and off-site disposal of floodplain soils and Bound Brook sediments followed by monitored natural recovery; (2) excavation and off-site disposal of buried PCB-contaminated capacitors adjacent to the former CDE facility; (3) hydraulic containment of contaminated groundwater adjacent to the Brook; (4) relocation of the water main to protect the integrity of the remedy; and (5) institutional controls.

Principal Environmental Engineer, New York City Department of Environmental Protection, Gowanus Canal Superfund Site Remediation Assistance and Feasibility Study Review, New York.

The sediment in the canal has been contaminated by a mixture of industrial and CSO discharges as well as contaminated groundwater primarily from former manufactured gas plants in the area.

Assisted in the evaluation of a possible interim measure for controlling solids from CSOs discharging

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to the Gowanus Canal evaluating options that were identified in conjunction with NYSDEC. Technical feasibility, expected performance in controlling sediment buildup in the canal and the estimated cost of each option was evaluated. Reviewed engineering aspects of the CERCLA FS prepared by USEPA as well as an addendum to the FS prepared to address initial comments. The review included an assessment of the proposed CSO overflow control system; lateral and vertical extent of the dredging/excavation program; potential impacts of proposed dredging program on the canal and surrounding properties; proposed technologies for dredged materials management; and estimated costs for potential remedies. Providing ongoing assistance to NYCDEP evaluating engineering and cost on potential remedies.

New York City Department of Environmental Protection, Newtown Creek Remediation Assistance, New York. Principal environmental engineer. Review of proposed stormwater sampling program prepared by industrial PRPs for the creek remediation. Evaluated the proposed sampling locations and other areas along the creek that should be sampled based on potential discharge points, site operations, and types of industrial operations.

Senior Project Engineer/Project Manager, H2M/Blackacre Partners, BICC Cables Site: Remedial Action Work Plan (RAWP) and Design/Construction Documents, New York.

Responsible for developing the RAWP for remediation of PCB-contaminated sediment at a former industrial facility on the Hudson River under New York brownfield regulations. Following regulatory approval, prepared construction plans and specifications concurrently with developing the final RAWP under a tight schedule was required to address seasonal conditions as well as an "essential fish habitat" window that restricted the allowable dredging period. Responsibilities included evaluation of dredging alternatives for different zones (based on site access issues and variations in contaminant concentrations); a multi-phased contractor selection process that included discussions of the conceptual level (30 percent) design documents with potential contractors and regulators to improve constructability and facilitate the review process; supplemental design investigation including evaluation of the integrity of remaining structures; a pilot study for use of geotextile bags for sediment dewatering and conceptual level cost estimates for refining the site design; 95 and 100 percent RAWP documents for regulatory review and approval; construction contract documents for bidding and construction services; bidding assistance and contractor evaluation/selection and assistance during construction. Construction was completed on schedule.

Senior Engineer/Deputy Project Manager, Legacy Site Services/Arkema Inc., Final Site Cleanup Activities, Washington. Responsible for a team of scientists and engineers evaluating previous remediation activities at the site and proposing additional activities to complete closure of the facility, a former inorganic chemical production facility located on the Hylebos Waterway. The site had undergone remediation for over 10 years but had not reached regulatory cleanup levels. Contaminants at the site included VOCs (primarily TCA, PCE, hexachlorobutadiene), heavy metals (primarily arsenic), and pesticides. Responsibilities included evaluating the effectiveness of the previous arsenic treatment system, an expanded soil and groundwater sampling program to establish current soil conditions, and evaluating treatment alternatives for remaining contaminants, including monitored natural attenuation.

Solomon Gbondo-Tugbawa, Ph.D., P.E.

Water/Sediment Quality

Education

Ph.D. - Civil Engineering
MBA - Finance and Statistics
M.S. - Environmental Engineering
B.E. - Civil Engineering

Registration

Professional Engineer: New Jersey

Years' Experience

With Louis Berger: 7
Total Years: 16

Dr. Gbondo-Tugbawa has more than 16 years of experience in environmental engineering, geochemistry, hydrology and mathematical modeling. He has experience in fingerprinting sources of pollutants, numerical modeling of watershed hydrology and impact of atmospheric deposition in forests and other ecosystems, surface water contaminant fate and transport, sediments transport, and water body hydraulics and hydrodynamics. He is well versed in a broad range of statistical techniques including univariate and multivariate analysis, geostatistics (kriging) as well as GIS and data visualization techniques. Dr. Gbondo-Tugbawa has served as Visiting Scientist to Syracuse University and continues to advise graduate students in biogeochemistry and water quality modeling.

USACE, Kansas City District for USEPA Region 2, Hudson River PCBs Superfund Site Remedial Design/Remedial Action Oversight, Fort Edward, New York. Technical lead responsible for overseeing data analysis and evaluation tasks to support the remedial design for the dredging remedy selected for the

Upper Hudson River including the identification of target areas for potential dredging, review of pilot studies for determining the potential for water quality impact caused by dredging, developing the basis and approach of design of resuspension control options, including: no containment, silt curtains, and sheetpile walls. Performed chemical breakthrough evaluation for sand cap to control dredging residuals. Technical task leader for the development of peer-reviewed Phase 1 engineering performance standards for dredging resuspension to ensure remediation met the requirements of the 2002 ROD. Evaluated water quality impacts for USEPA's Phase 1 Evaluation Report. Supported Region 2 through Phase 1 peer review; and prepared revised performance standards and decision protocols for Phase 2.

USACE Kansas City District, Lower Passaic River Superfund Study, Newark, New Jersey. Provided technical review of modeling framework, modeling work plan and calibration of hydrodynamic, sediment transport organic carbon and contaminant fate and transport models. Technical task leader for the geochemical and forensic evaluation of dioxin/furans, PCBs, pesticides, PAHs, and mercury, methyl mercury and metals data in sediment, water and biota to support on-going remedial investigation and feasibility study for the River. Used radionuclide dating techniques to develop understanding of the history of contamination at the site. Developed a work plan for sediment coring and water column monitoring for a pilot environmental dredging demonstration study. Led technical evaluation of monitored natural recovery, feasibility of in-estuary silt traps, dredging, and capping as remedial alternatives for managing contaminated sediments. Also performed detailed modeling and test studies for evaluating feasibility of confined aquatic disposal (CAD) in Newark Bay for potential disposal of dredging sediments.

USACE, Kansas City District, Berry's Creek, Remedial Investigation/Feasibility Study Oversight, Bergen County, New Jersey. Technical task leader for the RI/FS oversight program which included reviewing PRP technical documents and site-contamination investigative reports on behalf of the USACE and USEPA. Evaluated historical contaminant data including: mercury and heavy metals, PAHs and PCBs, to characterize their distribution in sediments, surface water and soils. Provided technical guidance in the design of several sampling and monitoring programs and special methyl mercury experiments. Technical review of modeling framework for a hydrodynamic, sediment transport and contaminant fate and transport model that will be used in simulating existing and future condition in the study area.

U.S. Army Environmental Command, Bailey's Creek: Sediment Remediation, Fort Eustis, Virginia. Provided senior level review and input into the design and implementation of a remedial investigation of Bailey Creek, a PCB-contaminated tidal waterway and wetland adjacent to Fort Eustis, VA. The investigation delineated the extent and history of PCB contamination in the estuary

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and provided data to forecast future PCB levels. Reviewed test plans for pilot studies for active capping to control surface sediment exposure.

Arizona Department of Environmental Quality, Lake Mary Region Total Maximum Daily Load, Arizona. Developed, calibrated and applied a watershed hydrologic and mercury cycling model that was used to develop a Total Maximum Daily Load (TMDL) for mercury in the Lake Mary Region in Arizona. Numerical model development included a watershed hydrologic and sediment erosion sub-model, a lake water budget, mercury fate and transport and food chain sub-models. Applied the calibrated model to simulate several management scenarios for reducing the impact of mercury contamination in fish tissue. Presented model framework, rationale and results at a public meeting in Flagstaff, Arizona.

Michigan Department of Environmental Quality, Deer Lake Impoundment Remediation and Feasibility Studies, Ishpeming, Michigan. Technical review of principal responsible party's RI/FS on mercury mass balance for the lake. Provided a detailed review of the scientific literature on factors and mechanics of mercury methylation in aquatic systems. Reconstructed and calculated a water balance, the sources and sinks of total mercury and methyl mercury, and mercury geochemistry in the lake watershed, and established the importance of sediment contamination and the accumulation of mercury in biota. Investigated the feasibility of several remedial actions including: the potential of altering mercury transformation via an aeration system in the lake hypolimnion, and in-situ stabilization of hypolimnetic mercury.

New York State Department of Environmental Conservation, Feasibility Studies for Onondaga Lake Superfund Site, Syracuse, New York. Provided a detailed technical review of preliminary design of two key remedial design actions within Onondaga lake, including: monitored natural recovery for the deep profundal zone and capping of in-lake waste deposit in the southern littoral zone for mercury. Evaluated the remedial design option of monitored natural remediation of mercury contamination in profundal sediments in the lake using a sediment diagenetic model that contained early diagenetic process of bioturbation, diffusion, sedimentation, and calculated the time frame in which this design alternative is expected to achieve sediment mercury and sediment porewater cleanup goals.

New York State Department of Environmental Conservation, Interim Remedial Measures Work Plan for Willis Lakeshore, and Geddes Brook Sites, Syracuse, New York. Performed technical review interim remedial measure work plan for the Willis Lakeshore area by evaluating pre-

design methodology and activities including the suitability of a groundwater/NAPL low permeability sheet pile barrier wall to limit the migration of groundwater contaminated with mercury to the lake, and evaluating the placement of wells for a groundwater/NAPL collection system along Willis Lakeshore. Performed technical review of IRM Work Plan for the Geddes Brook Site, by mapping the areal and vertical extent of mercury contamination in the main channel to determine data gaps, providing preliminary estimates of the design areas and volumes of expected sediment removal during interim remediation.

Thalia Loor, P.E.

Water/Sediment Quality

Education

M.Eng., Environmental Engineering, 2009

B.S., Environmental Engineering, 2006

Registration

Professional Engineer: New York

Years of Experience

With Louis Berger: 5

Total Years: 9

Ms. Loor is a senior environmental engineer practicing in the area of hazardous waste site remediation, including contaminated sediment investigation and remediation. She has served as internal task and technical leader on a number of private and federal projects involving preparation and execution of field programs, remedial investigations, feasibility studies, and remedial design activities and documents including preparation of construction plans, specifications, and cost estimates.

H2M Group: BICC Cables Sediment / Yonkers, NY. Led internal teams in the development and evaluation of remedial alternatives, preparation of a Remedial Action Work Plan, and development of construction drawings and specifications for the selected alternatives. The project involved the removal of over 20,000 cubic yards of sediment at a 100-year industrial facility on the Hudson River. The

main contaminants of concern at the site included PCBs and metals. Contaminated sediment was located under a variety of conditions at the site including in an open cove, under an existing pier-supported building, and under unstable concrete slab and pier structures requiring the development of a variety of removal systems (i.e. mechanical dredging, excavation, and diver assisted hydraulic dredging). In addition, access to portions of the site was limited due to unstable/nonstructural bulkheads that surround the site which impacted appropriate removal technologies. Developed 30/90/100 percent cost estimates and provided assistance during the contractor selection process. Provided engineering assistance during the construction phase of the project.

U.S. Army Corps of Engineers, Kansas City District: Passaic River / Newark, NJ. Engineering task leader and deputy project manager for the Lower Eight Miles of the Lower Passaic River. Managed engineering analyses, volume estimates, and cost estimation tasks to support the development, screening, and detailed analysis of alternatives potentially applicable for remediation of contaminated sediments in the Lower Passaic River. Developed concept designs for engineered sand and habitat caps, dredge material management facilities, and remedial alternatives. Evaluated dredged material management options and prepared conceptual level cost estimates for several remedial alternatives including life cycle cost analyses for each alternative.

New Jersey Department of Transportation: I-287 Glaser's Pond / Franklin Lakes, NJ. This project involves the removal, processing, and disposal of accumulated sediment at a private pond in Franklin Lakes, NJ. The pond improvements are intended to alleviate adverse impacts caused by stormwater discharge from the I-287 drainage system. Reviewed and analyzed the existing sediment data and developed a conceptual design for dredging and dewatering, calculated sediment removal volumes, and evaluated cost effective dredged material management options. Prepared design documents, including construction level plans, specifications and a construction cost estimate, which are currently undergoing final client review

CT Department of Energy and Environmental Protection: Restoration of Holly Pond, Darien, CT. Deputy Project Manager for the feasibility study for the restoration of Holly Pond. Study includes full dredging of shoal area, wetland planting options, and re-profiling and wetland habitat creation. Performing watershed analysis to determine drivers for excessive flows and identifying areas of erosion in Noroton River and its watershed.

U.S. Army Corps of Engineers, New York District: Final Dredge Pilot / Newark, NJ. Responsible for analysis of dredging production data in the Passaic River dredging pilot report. Tasks included analysis of cycle time and working time data, evaluation of dredging production by calculating effective and non-effective working times and operating production rates, and evaluation of residuals using Sediment Profile Imaging (SPI) photography.

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Winston and Strawn LLP: Environmental Consulting Services. Conducted document reviews and field investigations for a confidential project. Field activities were at an international field location and included soil, groundwater, and sediment sampling at over 10 sites. Responsible for set up of field facility, daily logistics, coordination with field subcontractors, and sample management and shipping for several rounds of sampling.

Atomic Energy of Canada: Ottawa Riverbed / Chalk River ON, Canada. Part of the Preliminary Feasibility Assessment (PFA) team for the Ottawa riverbed sediment remediation program. The project involved development and screening of alternatives for remediation of deep sediments contaminated with radioactive materials and heavy metals. Worked on the evaluation of sediment remediation technologies (i.e. hydraulic and mechanical dredging or capping), the evaluation of implementation logistics associated with remedial work in water depth of approximately 100 feet, and the evaluation of passive dewatering using geotextile containers. Developed feasibility level cost estimates for the proposed alternatives and worked in the developed of the concept design (including dredged material processing) and the feasibility study report.

U.S. Army Corps of Engineers, Kansas City District: Hudson River PCBs Superfund Site Remedial Action Oversight/New York. Performed sediment residual analyses for the dredging in the upper Hudson River to give feedback for the Phase II dredging of the Hudson River. Worked in the evaluation of residuals and inventory capped or backfilled using confirmatory sampling data provided by General Electric.

New York City Department of Design and Construction: Gowanus Canal and Newtown Creek Superfund Site, Brooklyn, NY. Worked in the evaluation of alternatives and preparation of concept designs and cost estimates. Involved in wet-weather and dry-weather combined sewer overflow (CSO) sampling efforts, including mobilization, sample collection, and sample management. Worked on analysis of chemical data to evaluate effects of CSO on Gowanus Canal.

U.S. Army Corps of Engineers, Kansas City District: Berry's Creek Oversight / Bergen County, NJ. Providing oversight to the USEPA for the performance of the creek's remedial investigation and feasibility study. The site has among the highest levels of mercury in any freshwater ecosystem in the U.S. The Berry's Creek study area includes approximately 7 miles of natural stream, plus numerous marshes and tributaries, an engineered canal, and the surrounding 12-sq-mi watershed. Developed database with split samples from oversight activities in accordance with USEPA electronic

data deliverables. Reviewed work plans and findings report prepared by the Potentially Responsible Parties (PRP) group.

New York City DEP: NC-50 Sludge FM / New York, NY. Worked on the design of a maintenance dredging program for Newtown Creek and Whale Creek. This included the development of project depth requirements, volume estimates, and shoaling analysis.

U.S. Army Corps of Engineers, Baltimore District: Fort Drum, F D Full Scale Pilot / Fort Drum, NY. Worked on a program to establish a unique Phytoremediation plantation, using over 22,000 custom-engineered willow tree varieties to reduce impacts of contaminated groundwater seeps to a local creek.

U.S. Army Corps of Engineers, Baltimore District: Fort Drum, Area 1795 / Fort Drum, NY. Participated in the review of O&M progress reports to the client and provided quality control for a multiphase soil vapor extraction system and sanitary landfill cap improvements at the military installation.

U.S. Army Corps of Engineers, Baltimore District: Fort Drum, 1295 Chemox / Fort Drum, NY. Worked in developing the pilot study report and the analysis of the field sampling program data. The pilot study consisted in the injection of approximately 65,000 gallons of oxidant and catalysts into the subsurface over an area of approximately 6,700 square feet to reduce concentration of petroleum compounds in groundwater.

Jennifer Brunton, P.E., CFM

Ecosystem Restoration

Education

M.S. - Civil and Environmental Engineering,
University of California, Berkeley, 2002

B.S. - Public and Environmental Affairs, Minor
in Biology, Indiana University, 1998

Registration

Professional Engineer: Maryland, New
Hampshire

Certified Flood Plain Manager

Years of Experience

With Louis Berger: 11

Total Years: 17

Ms. Brunton is an environmental engineer with over 17 years of experience in environmental consulting, with an emphasis on ecosystem restoration, water resources engineering, and regulatory compliance. She has contributed to the restoration of nearly 1,000 acres of habitat restoration, over 500 acres of which is located within New Jersey. She excels at working with clients to articulate project goals, which she translates into her management of teams of 5 to 50 technical specialists that derive the required technical data and craft designs that meet project needs, align with client objectives, and meet project scope, budget and schedule commitments. Her expertise includes designing and overseeing the execution of technical studies, including natural resource studies and hydrologic, hydraulic and hydrodynamic modeling efforts; developing engineering plans, specifications, and cost estimates; providing construction supervision; conducting post-construction monitoring of restoration projects; and developing and implementing adaptive management actions. Ms. Brunton is also experienced in developing state and federal permits applicable to ecosystem and water resource

engineering projects and working with stakeholders during project development.

New Jersey Department of Environmental Protection (NJDEP), Higbee Beach Wetland Restoration Project, Cape May County, New Jersey. Project manager overseeing the engineering design of several hundred acres of tidal marsh restoration in Cape May County. Directed the execution of baseline studies to support the conceptual design development, including habitat evaluations, topographic and bathymetric surveys, and hydrologic, hydraulic, and hydrodynamic modeling. Through an iterative process of defining, modeling, and refining, developed the optimal restoration design. Developed the conceptual design of a ~7,000-foot tidal inundation control berm to manage flood risk to the upper watershed, protect the eastern portion of the marsh from tidal inundation, and allow habitat management of the northern marsh. Working with NJDEP to finalize the approach to permit application development and final design, which will include full design of the marsh restoration, berms, and associated water control structures; design of over 30 acres of maritime forest restoration, bridge design to provide access over the restored inlet channel, the design of nature trails, interpretive signage and other recreational features, and preliminary site design of a proposed educational/interpretive center within a former manufacturing plant onsite.

NJDEP, Mad Horse Creek Wetlands Restoration Project, Salem County, New Jersey. Project manager overseeing the engineering design of over 230 acres of tidal marsh, forest, grassland, emergent freshwater marsh in Salem County, NJ. The site is being restored as partial compensation for the 250,000 gallon oil spill caused by the grounding of the merchant marine oil tanker Presidente Rivera in the Delaware River in 1989. Impacts caused by the spill included park and fishery closures, and oil deposits along the coastal wetlands and shoreline impacts through 30 miles of river. On-going project tasks include performing an intensive cultural resource survey of the project site. Subsequent project tasks include overseeing the development of engineering plans, specifications, and an engineer's cost estimate.

Lincoln Park Wetland Restoration, Hudson County, New Jersey (NJDEP). Supported the engineering tasks associated with the redevelopment of a landfill for tidal marsh restoration. As part of this \$7 million project, responsibilities included development of contract documents that describe the excavation of landfill debris from within the historical wetland area to re-establish tidal channels and salt marsh. Project components included draft and final design plans and specifications, as well as cost estimates and quantities, and bid packages. The project restored 42 acres of wetlands, streams, salt marsh habitat, and added additional anadromous fish spawning habitat to the Hackensack River. Project required dredging ~245,000 cy of material, including 2-feet of over-excavation followed by the import and placement of processed dredged material to achieve final proposed grades.

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Rahway River Restoration Project, NJDEP, Union County, New Jersey. Project Manager. Evaluated the feasibility of restoring marsh habitat at this disturbed site located within a highly urban area and adjacent to a brownfield site. Directed the sediment characterization task, which was performed to determine if hazardous waste was present and if restoration of marsh habitat would generate an attractive nuisance for wildlife. Installed, monitored and analyzed tide gauge data to determine what elevation would support marsh habitat. Surveyed the site to estimate amount of cut required to achieve marsh habitat.

NJDEP, Headgates Fish Passage Feasibility Study, Somerset County, NJ. Project manager responsible for implementing the Headgates Fish Passage Feasibility Study (FS). Technical studies included a structural evaluation of the dam, characterization of the sediments accumulated behind the dam, topographic and bathymetric surveys, and a cultural resource evaluation. Coordinated with the broad range of stakeholders associated with the dam. Assimilated information into FS that evaluated five fish passage alternatives including dam removal or constructing a bypass channel, rock ramp, or fish ladder.

New Jersey Turnpike Authority (NJTA), Interchange 6 to 9 Widening Program, New Jersey. Responsible for the engineering effort associated with developing mitigation to satisfy permit requirements associated with the Interchange 6 to 9 Widening Program. The Widening Program impacted over 120 acres of wetlands; the largest amount of mitigation generated from one project or program to be processed through the NJDEP Mitigation Unit. Ms. Brunton acted as a liaison during the complex process of formulating a Mitigation Plan to satisfied permit requirements. She oversaw the engineering tasks associated with developing the wetland, riparian, and vernal pool mitigation and reforestation at four sites, including screening of potential mitigation sites, geotechnical and hazardous waste investigations, and topographic and boundary surveys. Designed wetlands, including site layout, grading, and outlets. Developed engineering plans, specifications, engineering cost estimates, construction schedules, and liquidated damages estimates. Performed post-construction monitoring.

Community Reconstruction Zone Plans, New York Rising Community Reconstruction Program, State of New York. New York Rising Community Reconstruction Program was developed to assist communities heavily impacted by Superstorm Sandy to redevelop stormwater management systems and community designs to prepare for large storm events like Sandy, and everyday flooding issues. Responsibilities included characterizing community

issues associated with tidal and fluvial flooding. Served as representative engineer at community committee and public meetings i.

Rebuild by Design - Living with the Bay: A Comprehensive Regional Resiliency Plan for Nassau County's South Shore.

Phase 1 – Mill River. The Louis Berger Team is providing environmental review services for the duration of the public scoping process for Phase I of the Living with the Bay project, developed through Rebuild By Design. The first phase of this project, known as "Slow Streams" proposes to reduce tidal flooding and manage stormwater in the Mill River watershed through the installation of a sluice gate, development of floodplain storage areas and construction of bioswales within the watershed. Project elements include developing a technical approach to conducting the environmental review for the project, conducting an existing information review, characterize environmental constraints, and intense coordination with the design team, interested parties, and involved agencies. Currently working to translate the vision of the Rebuild by Design proposal to the reality of regional conditions to develop a project that will progress through the environmental review process and fit within HUD funding.

Williams/Marsh Resources, Inc. Berm Design and Construction, Moonachie, NJ. Oversaw the design of a tidal exclusion berm, which included a detailed hydrologic and hydraulic analysis of site conditions to determine the most efficient outlet structure/tide gate design for the project. Performed an alternatives analysis of two tidal exclusion berms and recommended the most cost effective approach. Oversaw the preparation of engineering plans and specifications and coordinated with a contractor to expedite the design and installation of this emergency measure.

Connecticut Fund for the Environment (in partnership with the New York State Office of Parks, Recreation & Historic Preservation, the National Oceanic and Atmospheric Administration and others). Sunken Meadow Creek Tidal Estuary and Salt Marsh Restoration, Long Island, NY. Supported engineering tasks associated with designing natural tidal flow to approximately 120 acres of former tidal creek and salt marsh habitats in Sunken Meadow State Park on Long Island Sound. Currently overseeing the transformation of a 12-acre impervious asphalt parking lot to a multipurpose recreation area that utilizes Low Impact Design (LID) strategies to incorporate parking, picnicking, and nature trails that meet functional goals of the area while reducing stormwater discharge quantity and improve stormwater and groundwater discharge quality to Sunken Meadow Creek and Long Island Sound.

Bethany Bearmore, P.E.

Ecosystem Restoration

Education

M.E. - Ocean Engineering
B.S. - Bioresource Engineering
B.S. - Environmental Science

Registration

Professional Engineer: New Jersey (Pending),
New York

Years of Experience

With Louis Berger: 2+
Total Years: 18

Ms. Bearmore is registered professional engineer focusing on coastal resiliency and restoration with more than 18 years of experience in environmental consulting and government work. Her expertise includes coastal resiliency planning; managing, developing, and implementing feasibility studies for tidal and non-tidal wetland restoration projects; beneficial use of dredged material; living shoreline design; submerged aquatic vegetation projects; shellfish re-establishment and dam removal projects; Damage Assessment and Restoration Planning lead Trustee representative with NOAA for NRDA cases; leading field crews during intensive field efforts to support technical studies; managing and performing technical analyses to support ecological restoration, developing engineering plans and cost estimates; writing specifications; field surveying, providing construction supervision; conducting post-construction monitoring for restoration projects; and developing and implementing adaptive management actions.

HUD Community Reconstruction Zone Plans, 5 Towns, South Valley Stream, East Rockaway, Bay Park and Staten Island, New York. Ms. Bearmore is the lead coastal environmental engineer that was a part of a team that developed projects that will increase community resilience, and are supported and endorsed by the community members and their representatives. She was responsible for providing cost estimates for storm water management, and resiliency planning to the community. Ms. Bearmore also participated in managing a community-based, comprehensive planning process that included community visioning, asset and risk assessment, a needs and opportunities analysis, strategies for long-term resiliency, and the development and refinement of capital projects for potential funding. Ms. Bearmore provided recommendations in the areas of infrastructure, natural and cultural resources, and community planning and capacity building.

Living with the Bay, Phase 1 – Mill River Nassau County, New York The Louis Berger Team is providing environmental review services for the duration of the public scoping process for Phase I of the Living with the Bay project, developed through Rebuild By Design. The first phase of this project, known as “Slow Streams” runs along Mill River, proposes to reduce tidal flooding and manage stormwater in the Mill River watershed through the installation of a sluice gate, developing of floodplain storage areas and construction of bioswales within the watershed. Ms. Bearmore is the lead engineer in developing the project elements that include developing standalone flood mitigation projects, a technical approach to conducting the environmental review for the project, conducting an existing information review, characterize environmental constraints, and intense coordination with the design team, interested parties, and involved agencies.

New York City Economic Development Corporation, Raising Shorelines Citywide Study New York, New York Project Engineer. Louis Berger is presently working with Moffat & Nichol on a waterfront site selection study to evaluate shorelines citywide that are at risk for the potential impacts of climate change. Ms. Bearmore is helping to develop and execute a robust, systematic approach to prioritize the shorelines at risk of increasing high tide inundation and erosion from sea level rise, using a well-defined methodology, extensive data collection and analysis, state-of-the-art tools, assessing environmental impacts, permitting requirements and comprehensive ranking criteria. This includes accounting for risk reduction projects proposed by other agencies, and developing discrete projects with cost estimates to improve the resilience of at-risk shorelines. The result will be the conceptual design and prioritization of distinct shoreline protection projects for which NYCEDC has allocated \$100 million in implementation funding.

National Park Service, Fort Tilden, New York. Ms. Bearmore is the coastal engineer helping develop four feasible alternatives for the management of the Atlantic coastal area of Fort Tilden, conducting a value analysis with draft and final reports, preparing a draft Environmental Assessment (EA) for three NPS reviews, participation in public meetings, making appropriate revisions to the EA in response

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to NPS review comments, preparing a revised EA for public review, and preparing the appropriate decision document (i.e., either a Finding of No Significant Impact or Notice of Intent). Specific duties included reviewing and commenting the coastal management area alternatives, development of conceptual plans and costs, and NEPA analysis. Professional Services: Ongoing; Construction: N/A; Cost: \$144,853; Size: 1.5 miles of coastline

New York City Department of Environmental Protection (NYCDEP), Dutch Kills Wetland Demonstration Project, Queens, NY. Ms. Bearmore acting as the Project Manager and lead restoration engineering designer for the demonstration project that includes restoration of a salt marsh within the Dutch Kills, a tributary of Newtown Creek. The project encompassed placing fill and restoring a 500 square foot area back into a tidal salt marsh. The demonstration project is the initial effort within the Newtown Creek system to restore what was once a tidal marsh and improve the water quality within the system. Ms. Bearmore was able to work with a team of engineers, biologists, state, local and other Government officials and construction crews to design and implement this project.

New York City Economic Development Corporation, Mitigation and Restoration Strategies for Habitat and Ecological Sustainability (MARSHEs), Staten Island, New York. Technical Design Review Engineer, Agency Coordinator. Ms. Bearmore provided technical review of the design of a multi-million dollar restoration effort of tidal marsh and forested uplands along Saw Mill Creek in Staten Island, NY. Responsibilities have included reviewing the tidal water analysis for marsh design; reviewing the conceptual phase 1 project areas, cost estimates and specifications; and the review of multiple site drawings for various regulated permit submissions. Tasks also include review of the tidal marsh and size of channels in efforts to remove phragmite area on site and increase tidal flow waters into the site. Also, has acted as a design representative for Louis Berger at regulatory consultation meetings with client and representatives.

New York State Department of Environmental Conservation (NYSDEC) and NPS, Jamaica Bay Marsh Islands, Jamaica Bay, New York. Lead engineer. As the lead restoration engineering designer for the islands of Elders East and West in Jamaica Bay Ms. Bearmore was responsible for bringing together state, local and federal officials to develop a design to restore the islands back into a functioning tidal marsh. The project encompassed placing dredged sand into a footprint pre-determined by the NPS to create a functioning salt marsh. The restoration included designing a 56 acre

and 30 acre marsh using dredged material from the Arthur Kill. Project details included tidal analysis, topographic and bathymetric surveys, and bio-benchmarks for plant survival, development of 100% plans and specifications and the overall logistics of moving and pumping dredged material to the project location. Ms. Bearmore was able to work with a team of engineers, biologists, GIS experts, state, local and other Government officials and construction crews to design and implement these projects.

Teresa Doss, PWS

Ecosystem Restoration

Education

Coursework towards PhD, Earth & Environmental Sciences, Lehigh University, 2003-2004

M.M.P. - Master of Marine Policy, University of Delaware, 1989

B.S. - Agricultural Sciences/Natural Resource Economics, University of Delaware, 1984

Years of Experience

With BioHabitats: 7

Total Years: 28

Ms. Doss is an ecologist with over thirty years experience in many aspects of ecological analysis and environmental science, with extensive experience in the field of wetland sciences and ecological restoration. Ms Doss' experience includes developing ecological habitat restoration designs, as well as assessing and evaluating plant and wildlife habitats and determining ecological functions and values. Ms. Doss is also experienced in bringing this information to the public through her writing and public speaking skills. Ms. Doss has successfully managed restoration projects from the beginning stages of planning and permit application, to the oversight of construction and planting, through to the development and oversight of monitoring and maintenance plans. Ms. Doss also has extensive experience in assessing urban habitats and performing baseline ecological evaluations in areas with potential contamination issues. Ms. Doss has also been responsible for preparing environmental assessments and impact statements and

obtaining permits for projects in accordance with NEPA.

Design-Build Services for the Marsh Resources Meadowlands Mitigation Bank, Carlstadt, New Jersey. Ms. Doss was the project manager for the construction and landscaping of a 206-acre wetland mitigation bank which included wetland and stream restoration. She was responsible for project administration, regulatory oversight and compliance, preparation of construction, stream restoration and planting plans and development of scientific studies. She prepared and successfully obtained NJDEP and federal permits, and HMDC and the Meadowlands Interagency Mitigation Advisory Committee approval. Ms. Doss prepared the first Banking Instrument for NY metropolitan area. Other responsibilities included assessing on-site wetland resources, conducting bio-benchmark and soil sampling studies, developing the functional value assessment, planting test plots of Spartina seed and woody plants, developing the herbivory control program, developing strategies to manage Phragmites australis on-site, determining the placement of secondary channels, and surveying site characteristics. Ms. Doss also conducted site tours and public education seminars on restoration and management of the tidal wetland.

Berrys Creek Study Area - Evaluation of Marsh Production, Function and Values, Hackensack Meadowlands, New Jersey. Project Manager responsible for evaluating the effects of Contaminants of Potential Concern on the plant communities within the Berry's Creek Study Area. The three steps of the evaluation included Remote Sensing and GIS analysis, field measurements of biomass, and assessment of wetland functions and values using the Hydrogeomorphic Assessment Method. The results of the analysis were combined in a full report.

Nereid Boat Club, Rutherford, New Jersey. Project Manager responsible for developing design for and construction of living shoreline restoration along the Lower Passaic River site. Tasks include field reconnaissance, coordination with National Park Service and the Town of Rutherford, assistance with grant development, soil and sediment sampling, site design, permitting, plant selection and construction oversight.

Teaneck Creek Park Habitat Restoration, Teaneck, New Jersey. Project Manager responsible for restoring habitat and enhancing park for Bergen County. In partnership with the County, Rutgers University and Teaneck Creek Conservancy, conducted site assessments, developed hydrological and hydraulic modeling study, developed an invasive and adaptive management plan, developed and submitted all permit and NEPA documentation, and developed bid design and specs for the construction of the wetland and floodplain restoration. The restoration is part of an overall remediation plan for the previously contaminated site. The restoration will include the re-use of dredge material.

Kane Mitigation Bank Market Analysis, Carlstadt, New Jersey. Responsible for determining the potential market, demand for wetland credits, anticipated credit sales schedule and potential range

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of credit values for a potential wetland mitigation bank. Specific tasks included reviewing past reports, interviewing transportation agencies, interviewing representatives from the New Jersey Wetlands Mitigation Council, gathering other relevant information available from local sources including comparative credit sales in the Meadowlands; and prepare a short report of the research findings.

Russo Wetland Restoration Design, Moonachie, New Jersey. Ms. Doss was the project manager responsible for developing a wetland restoration and mitigation design for eight parcels located within the Hackensack Meadowlands. Tasks included conducting a Jurisdictional Determination wetland delineation and submitting the JD request to the Corps. Others tasks included taking soil borings to characterize soil conditions, installing groundwater wells to collect ground water level fluctuations, developing a water budget, and developing a draft design to meet both restoration and mitigation objectives.

Meadowlands Site Sampling, New Jersey. Ms. Doss was the task manager responsible for geotechnical soil sampling in the Meadowlands at potential and previously-restored brackish marsh restoration sites. The purpose of this work was to develop a baseline contaminant survey of selected sites. Site sampling included selecting soil boring locations, surveying the locations and analyzing the samples taken. Lab results of samples were analyzed and summarized in a technical memorandum developed by Ms. Doss.

Lower Passaic River Restoration Sampling and Reconnaissance Study, New Jersey. Ms. Doss was the task manager responsible for reconnaissance of tributaries of the Passaic River, including Second River, Third River and Saddle River. She investigated entire shoreline to identify potential restoration sites for future work. She also developed technical memo with investigation results, which included the identification of over twenty potential restoration sites that would include floodplain set asides, freshwater wetland restoration and best management practices in adjacent river areas, among other restoration techniques.

Beach Nourishment Monitoring, Various Beaches along the New Jersey Coast, New Jersey. Project manager, responsible for monitoring for the presence or absence of species of importance including piping plover (*Charadrius melodus*), least tern (*Sternula antillarum*), black skimmer (*Rynchops niger*), and seabeach amaranth (*Amaranthus pumilus*) on the beaches during nourishment activities along a series of beaches on the New Jersey coast. Also, coordinated between the dredging contractor, the regulatory agencies and the Conserve Wildlife Foundation.

Great Kills Harbor Evaluation of an Offshore Breakwater System, Staten Island, New York. As part of a team, Biohabitats is involved in a study of the potential use of offshore breakwaters in Great Kills Harbor to maximize storm protection and marine habitat value. Based on our knowledge of the coastal waters and adjacent lands and experience in working with various federal, New York State and City agencies, Biohabitats conducted a site investigation and habitat evaluation to document existing site attributes and the influences of nearshore waves on the ecosystems.

On-Call Support of Wetlands Enhancement Projects within the Meadowlands District, New Jersey. Ms. Doss was the project manager of an on-call assignment for the NJMC to assist their efforts in enhancing and restoring wetlands throughout the Meadowlands. Projects included: establishment of *Spartina alterniflora* at the Mill Creek; Design and repair of berm breaches and water control structures at Mill Creek; regulatory and ecological assessment of Harrier Meadows and Skeetkill; and baseline studies and preliminary restoration design for Oritani Marsh.

U.S. Army Corps of Engineers, New York District. Meadowlands Comprehensive Restoration Implementation Plan (MCRIP) Hackensack Meadowlands, New Jersey. Ms. Doss was the task manager for the formulation of the MCRIP which addresses the engineering, environmental, and economic feasibility of a comprehensive restoration plan for the Meadowlands. She also coauthored the MCRIP Report including development of site restoration measures for the overall Meadowlands as well as specific sites. Ms. Doss presented the MCRIP at the Stakeholder Workshop on behalf of the Corp, and conducted the baseline site characterization for the wetland functional assessment.

Meadowlands Programmatic Environmental Impact Statement (PEIS), Hackensack Meadowlands, New Jersey. Ms. Doss was the task manager for the formulation of the MCRIP's PEIS. She is the author of the PEIS, including Purpose and Need Statement; development of site restoration measures, on which site restoration designs will be based in future phases of the project; establishment of performance metrics for the overall HMD and specific sites, on which the success of past, present, and future restoration and enhancement sites will be measured; assessment of the effects of the implementation of the restoration measures on potential sites, as well as alternatives and impact analysis.

Christopher A. Streb, P.E., LEED AP Ecosystem Restoration

Education

M.S. - Biological Resources Engineering,
University of Maryland, 2001

B.S. - Civil Engineering, West Virginia University,
1994

Registration

Professional Engineer: Maryland
LEED Accredited Professional for New
Construction (USGBC), 2004

Years of Experience

With BioHabitats: 11
Total Years: 20

Mr. Streb is an ecological engineer with over 14 years of experience in regenerative design including ecological planning, green infrastructure design, stream restoration, wastewater treatment, and sustainable technologies. By applying engineering principals towards the understanding, modeling and design of ecological systems, Mr. Streb fills a unique niche in the industry of regenerative and sustainable design. Mr. Streb's projects have ranged from green infrastructure planning for New York City's Long Term Control Plan to designing patented floating wetland technology for Baltimore's Inner Harbor. Well versed in all aspects and scales of watershed restoration, his experience includes physical and biological assessments, hydrologic and hydraulic analyses, site evaluation and data synthesis, concept development, permitting, preparation of preliminary and final design and construction plans, cost estimating, construction procurement and monitoring. Mr. Streb has experience in the design of stormwater practices including bioretention gardens, organic sand filters, and cisterns. He has engineered facilities for wastewater treatment which have incorporated anaerobic

digesters, trickling filters and wetland cells for dairy parlor, household and houseboat waste. Mr. Streb has also been one of the creative leaders within Biohabitats, integrating sound engineering principles and a passion for design and the natural world to design ecological systems that clean air and water, provide habitat and increase biodiversity while adding beauty. His primary focus over the last two years has been restoring functional habitat along urban waterfronts.

Baltimore Harbor Action Plan, Baltimore, MD. As project manager for Biohabitats, Mr. Streb led the effort to develop a plan for improving water quality in the Baltimore Harbor to swimmable fishable standards. Mr. Streb led the team in developing eight innovative pilot projects both on the water and throughout the watershed aimed at cleaning water, improving habitats, catalyzing public awareness and encouraging civic participation. The pilot projects included a floating wetlands master plan, the conversion of an abandoned pier into ecologically engineered wetland and waterfall sculpture along the harbor promenade, and a biological trickling filter outfall intercept designed to treat and remove bacteria from the dry weather flows. Cost estimates, water quality performance and locations for potential replication of the technology were developed for each concept. The floating wetlands have moved from concept to implementation while the Chase Pier Wetland and Waterfalls project has entered into a feasibility analysis and schematic design.

Healthy Harbor Initiative, Baltimore, MD. As project manager, Mr. Streb led the effort to create a strategy for making the Inner Harbor a model for sustainable landscape practices. A central mission for this strategy is to educate the public and catalyze collective action toward creating a fishable and swimmable Inner Harbor. Mr. Streb led a series of visioning sessions, contributed to the production of the Healthy Harbor Initiatives document and presented the approach before numerous stakeholders for their comments and support. Mr. Streb led the Biohabitats team in the next phase of the project, implementing specific actions articulated in the Initiative. These actions included designing and building floating wetlands with students from Living Classrooms.

Chase Pier Feasibility and Schematic Design, Baltimore, MD. Mr. Streb developed the idea to convert an unused, dilapidated pier on the Baltimore Harbor into an ecological and sculptural public attraction that cleans polluted Harbor water and improves aquatic habitat. Mr. Streb presented renderings of the idea, prepared by Biohabitats landscape architects, to stakeholders in the private and public sector. The concept was further developed and submitted in the Baltimore Harbor Action Plan. Mr. Streb was the project manager for performing a feasibility analysis of the concept. A structural analysis was completed and determined that with repairs, the existing pier can adequately support the loads associated with the

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design. Schematic and design development plans have been prepared.

National Aquarium Blueprint Master Plan, Baltimore, MD. The National Aquarium in Baltimore is developing a comprehensive Master Plan for their campus. Between the two piers that house the Aquarium public facilities is a canal that is connected to Baltimore's Inner Harbor. Mr. Streb served as technical lead for developing a concept that will serve as both exhibit of Chesapeake Bay habitats while providing ecological functions once provided by the tidal salt marsh that surrounded the harbor edge. The proposed exhibits employ hybrid natural and mechanical systems with prototypes scheduled for development in 2015.

Cuyahoga River Green Bulkheads, Cleveland, OH. As the technical and design lead for Biohabitats, Mr. Streb was responsible for guiding the project team on creating larval fish habitat along 5.6 miles of steel sheet pile on the Cuyahoga River navigation channel. The project was organized using biomimicry thinking whereby the context of the system was defined and the desired functions of the bulkhead and river system identified. Biohabitats assembled a team of fish biologists, coastal engineers, structural engineers, fluvial geomorphologists and a master captain to understand the life cycle of the Lake Erie fish community, the forces associated with river, debris and ice flows, the pressures associated with industrial stockpiles and need to maintain bank stability, as well as the way the river is used for navigation associated with steel production. After leading multiple workshops and charrettes with local stakeholders, Biohabitats will soon be advancing designs, testing methodology and prototype development for creating adequate larval fish habitat within this ultra modified river system.

Allegheny Riverfront Green Boulevard Study, Pittsburgh, PA. Working as a subconsultant to Sasaki Associates, Biohabitats oversaw the ecological restoration, green infrastructure, and open space master planning component of the Allegheny River Green Boulevard Study for the Urban Redevelopment Authority of Pittsburgh. The Allegheny Riverfront Green Boulevard Study sought to transform the existing Allegheny Railroad right-of-way into a multi-modal green corridor which could potentially include a bicycle-pedestrian path, passenger rail service, and stormwater management technologies in the existing rail freight corridor. The study included a housing master plan for a key riverfront site between 43rd street and 48th street along the Allegheny Valley Railroad (AVR) right-of-way, as well as an open space plan to emphasize riverfront connections in the study area. Mr. Streb was the technical lead on river related items, such as

stabilizing failing bulkheads. Mr. Streb was also instrumental in providing a living infrastructure framework informing the open space master plan.

Jamaica Bay Watershed Protection Plan, New York City, NY. Mr. Streb provided technical support for the Jamaica Bay watershed protection plan, a major undertaking for the New York City Department of Environmental Protection (NYCDEP) and acknowledges the complex nature that physical, chemical, biological and cultural actions have had on this resource over the history of New York City. Biohabitats was one of a number of engineering and consulting firms working on this plan, but our responsibility was to assimilate the input from the other firms and prepare the watershed management plan to clearly identify the problems and their causes, identify the steps necessary to resolve these problems, and working closely with the NYCDEP prescribe specific, implementable actions to initiate the conservation, protection, and restoration of Jamaica Bay.

Redwood City Saltworks, Redwood City, CA. Redwood City Saltworks is a 1,400-acre property which was proposed as a mixed use development that also includes the restoration of salt marsh habitat. Not only was there a significant landscape restoration and conservation component, there was also a commitment to sustainable design throughout the development. Innovative and comprehensive stormwater management strategies were weaved throughout the development and water harvesting and reuse was a significant component of the program. Mr. Streb was the lead developer of the initial community sustainability program and worked with all members of the design team to create an integrated approach to meet the progressive goals and targets articulated in that program.

Downtown Columbia Warfield Neighborhood, Howard County, MD. Mr. Streb, as project team leader for the Downtown Columbia Warfield Neighborhood, was responsible for developing the stormwater green infrastructure design and specifications for this redevelopment effort. The concept plan developed consisted of environmental site design practices proposed to treat more than 50 percent of the existing impervious areas and 100 percent of any additional impervious areas. The concept plan included subsurface cisterns for rainwater harvesting, micro-bioretenion practices and rainwater planters along the street network. Mr. Streb was also responsible for integrating sustainability practices into the neighborhood design guidelines to achieve goals for reducing urban heat island, increasing native biodiversity and habitat and improving walkability and bikeability.

Edward Samanns PWS, CE

Natural Resources

Education

M.S. - Geography

B.S. - Biology

Registration

Professional Wetland Scientist (PWS)

Certified Ecologist (CE)

Years of Experience

With Louis Berger: 28

Total Years: 30

Mr. Samanns is the director of environmental sciences at Louis Berger with 30 years of experience managing environmental investigations for a variety of projects and clients. Mr. Samanns specializes in ecological restoration/mitigation and related topics including stream and wetland ecology, permitting, threatened and endangered species studies, invasive species management, and National Environmental Policy Act (NEPA) compliance. Mr. Samanns serves as the project manager/director for several environmental and restoration contracts for public sector clients and was responsible for preparing data collection and analysis protocols, developing and implementing vegetative and hydrology monitoring methodologies, and developing habitat restoration designs. Mr. Samanns is a key member of Louis Berger's Ecological Restoration Unit, a unique assemblage of key scientists and engineers that have been combined to conduct restoration projects including wetland mitigation banks, endangered species habitat enhancement,

coral reef creation, and tidal marsh restoration. He was the principal investigator and author of the National Cooperative Highway Research Program (NCHRP) Synthesis 302 Mitigation of Ecological Impacts (2002), is currently conducting research for NCHRP on Habitat Fragmentation, and has published/presented several papers on wetland mitigation and wildlife crossings. Mr. Samanns is also a co-author of the U.S. Army Corps of Engineers (USACE), Waterways Experiment Station, Engineering Specification Guidelines for Wetland Plant Establishment and Subgrade Preparation (1998). Mr. Samanns also performs QA reviews of technical reports and restoration designs and provides independent research on environmental topics for clients.

EarthMark Mitigation Services, LLC, Richard P. Kane Natural Area, Wetland Mitigation Bank, Rutherford, New Jersey.

Project director. Responsible for the overall management of the planning, design and construction of a 230-acre tidal wetland mitigation bank and a 17-acre non-tidal forested wetland restoration project within the New Jersey Meadowlands District. Duties include coordination with regulatory agencies (IRT), technical review of baseline data collection for hazardous waste, plant communities, hydrology, and soil samples; development of tidal marsh and freshwater forest design plans; and technical review of the Banking Instrument and long term monitoring and maintenance plan. Role includes providing analysis of baseline data, review of functional assessment methodology, and development of design plans for freshwater forested wetland component of project. Project completed construction in 2011 and planting will be completed in 2011. 2009 – 2011.

New Jersey Turnpike Authority, Interchange 6 to 9 Widening Program, Wetland Mitigation Site Selection and Design Program. Project task manager.

Responsible for overseeing the identification of suitable wetland mitigation sites for a 36-mile roadway expansion project and coordinating agency review and approval of mitigation designs. Responsible for developing site designs, preparing landscape plans and construction specifications, vernal pool design, and coordinating construction support. A total of four sites have been designed and constructed, and a fifth site is under design. Also represented Authority before the Wetlands Council to obtain approval for the preservation of over 600-acres of wetlands and critical habitats as part of the wetland mitigation program. 2007 – 2014.

Port Authority of New York and New Jersey, Environmental Assessment, Newark Airport, Newark and Elizabeth, New Jersey. Environmental scientist.

Responsible for overseeing the preparation of natural resource sections of an FAA Environmental Assessment (EA) for the expansion and modernization of Terminal A at Newark Liberty International Airport. Provided oversight of field investigations and baseline conditions analysis. In addition, provided technical input on options to minimize and mitigation wetland and open water impacts on-site through the use of innovative design options. 2009.

New Jersey Turnpike Authority, Garden State Parkway Interchange 10 Improvements Feasibility Assessment and Preliminary Design/Environmental Assessment, Atlantic County,

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New Jersey. Task supervisor. Responsible for overseeing the collection of baseline data and the analysis of impacts to natural resources associated with the preparation of a Feasibility Assessment Report and a NEPA Environmental Assessment for proposed intersection and lane improvements. Also providing oversight of CAFRA/Waterfront Development and USACE Individual permit preparation and freshwater and tidal wetland mitigation site selection and design for the project. 2008 – 2012.

Molly Ann Brook Watershed Management Plan, Passaic County, New Jersey. Project director. Responsible for the coordination and completion of all field studies, meetings, workshops, report preparation, staffing, schedule and budget for this project. The project involves development of a Geodatabase as part of a watershed characterization effort that includes Rosgen stream reach classification, USGS Visual Assessments, and point source locations. Baseline analysis also included collection of hydrologic data and development of stream rating curves, incorporation of fecal coliform and other water quality data, benthic macroinvertebrate data, and assessments of potential nonpoint pollution sources within watershed. Prepared and conducted two public workshops to educate and gather information from interested citizens and public officials. Developed a prioritized list of effective BMP's and prepared a concept design and constructability assessment of the six best candidates for installation. 2008.

PSE&G Susquehanna to Roseland Transmission Line Project, New Jersey. Task manager. Manager for Permitting, responsible for managing the preparation of state and federal permit applications and agency coordination on a 40-mile long transmission line upgrade. Prepared application for a Highlands Applicability Determination and a Freshwater Wetland Individual Permit application. Attended monthly meetings with NJDEP to coordinate permit issues. Other issues include parkland diversions, T&E species, extensive wetlands, and coordination with the National Park Service. 2008 -2009.

Marsh Resources, Meadowlands Mitigation Bank Phase 3, Carlstadt, New Jersey. Project director. Project director of the permitting, design and upcoming construction of a 60-acre tidal and freshwater wetland mitigation bank in the Hackensack Meadowlands. Responsibilities include federal and state permit application preparation and acquisition, banking instrument preparation, negotiation and approval by the interagency MIMAC, and site concept designs. Analysis has included assessment of on-site resources, functional value assessment, credit determination, innovative designs to minimize wetland fill and control invasive species, tidal data analysis and tide gate assessment. Planting plan also

addressed potential treatments for acid soil conditions.

Responsible for developing construction and planting plans as a design/build project employing marsh excavation and dredge methods to create enhanced tidal habitat of mud flat and low and high marsh interspersed by tidal channels and upland islands and freshwater forested wetlands. 2003 – 2009.

New Jersey DOT, Route 206 and Route 15 -Ross's Corner Intersection Improvements Permitting, Sussex County, New Jersey. Task manager. Responsible for the preparation and acquisition of a NJDEP Freshwater Wetlands Statewide General Permit Nos. 10 and 11 and supporting the preparation of a Stream Encroachment permit and Water Quality Certification. Conducted wetland delineation for the project and conducted wetland impact assessment as part of the permit preparation. Due to the presence of the Federally endangered dwarf wedge mussel and bog turtle, conducted consultations with USFWS and NJDEP Fish and Game, and provided analysis and design of specialized water quality treatment system to avoid and mitigate potential impacts. Approach avoided need for lengthy consultation process and studies. Water quality analysis utilized the FHWA water quality model. 1999-2001.

New York State DOT, Region 6, Route 15 Wetland and Stream Mitigation Design, Landscaping Design, Stormwater Design and Permitting, Endangered Species Survey, and Invasive Species Management Plan, Steuben County, New York. Project manager. Responsible for field investigations and preparation of full design contract documents for 12.5 acres of wetland mitigation at two sites and ancillary studies. As part of mitigation efforts, developed design concept for approx. 1,000 ln. ft. of stream restoration. Also provided Indiana bat survey along six mile project corridor. Performed invasive species survey and developed Invasive Species Management Plan for DOT implementation during and after construction to control invasive plants. Managed the development of stormwater and landscape design plans, specifications and stormwater permitting for the first mile of roadway. 2004 -2008.

Fameeda Ali, CHMM, ENV SP

Site Investigation

Education

M.S. - Environmental Engineering, New Jersey Institute of Technology, 1996

B.A. - Physics, Rutgers University, 1993

Registration

Certified Hazardous Materials Manager

Envision™ Sustainability Professional

Years of Experience

With Louis Berger: 16

Total Years: 17

Ms. Ali has over 17 years of experience conducting NJDEP Preliminary Site Assessments, ASTM-compliant Phase I Environmental Site Assessments and other environmental assessments. She has conducted hundreds of assessments for clients in the public sector, including federal, state and local government agencies, as well as private-sector clients such as developers, a financial institution, a professional athletic team, and non-profit organizations.

New Jersey Department of Environmental Protection, Tier 2 Site Specific Environmental Review, New Jersey RREM and Small Rental Properties Program and HMGP Elevation Program, Various Counties, New Jersey. Project Manager. Oversee the preparation of Environmental Review Records in accordance with HUD 24 CFR Part 58 and NEPA regulatory requirements. Ongoing.

New Jersey Department of Environmental Protection, Multiple Locations, NJ. Project Manager. Responsible for investigative activities, including Preliminary

Assessments, Site Investigations and Remedial Investigations at multiple sites throughout New Jersey. 2010-2015

New Jersey Department of Treasury, Division of Property Management and Construction, Parsippany, NJ. Project Manager responsible for Preliminary Assessment (PA) and Site Investigation (SI) of 150-acre portion of the Greystone Park Psychiatric Hospital. Led project team for site inspection, historical site research, interviews and report preparation associated with PA. Managed field activities and report preparation for SI.

New Jersey School Development Authority (former School Construction Corporation), Multiple Site Locations. Project Manager. Responsible for various activities, including remedial investigations, preparation of remedial investigation/action workplans and reports; preparation of schedules and budgets; coordination of construction oversight. Senior Engineer involved in Preliminary Assessment (PA) at multiple locations. Responsibilities included historical site research, interviews and report preparation. Responsible for utility analysis and report preparation at one location.

Passaic County, Woodland Park. Project Manager. Responsible for Preliminary Assessment and geophysical survey of tract proposed for land exchange program.

Ocean County, Multiple Locations. Project Manager. Responsible for Phase I Environmental Site Assessments of tracts proposed for open space acquisition.

Earthmark NJ Kane Mitigation LLC, Bergen County, NJ. Task Manager. On behalf of Earthmark and the Meadowlands Conservation Trust, Louis Berger established the Richard P. Kane Wetland Mitigation Bank (Kane Bank) in the NJ Meadowlands. As part of that effort, a Preliminary Assessment was conducted.

New Brunswick Development Corporation (DEVCO), Multiple Site Locations, New Brunswick. Project Manager/Task Manager. Responsible for conducting Phase I ESAs and Preliminary Assessments at multiple properties in conjunction with DEVCO's Transit Village, Wellness Plaza and Rutgers University College Avenue Campus redevelopment projects, among others. Responsibilities included site inspection, historical land usage research and report preparation.

New Jersey Turnpike Authority, Interchange 6 to 9 Widening Project, Multiple Site Locations. Task Manager. Responsible for conducting Phase I ESAs and Preliminary Assessments at multiple properties in conjunction with the Widening Project. Responsibilities included site inspection, historical land usage research and report preparation, as well as technical review of reports prepared by a subcontractor. 2008-2009

New Jersey Turnpike Authority, Garden State Parkway Interchanges 9, 10 and 11, Cape May County, NJ. Senior Engineer. Involved in hazardous waste screening study of properties located proximal to the proposed improvements at Interchanges 9, 10 and 11. Principal Engineer.

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Responsible for Preliminary Assessments at two proposed wetland mitigation sites in conjunction with the proposed improvements project.

NJDOT/PANYNJ/FHWA/City of Elizabeth/Linden, New Jersey. Principal Engineer. Responsible for hazardous waste technical study (HWTs) in association with the proposed advancement of the U.S. Route 1 & 9/I-278 Interchange Ramps Studies in order to construct the missing ramp links at the existing partial interchange of I-278 and U.S. Route 1 & 9 (Route 1 & 9), located near the border of the cities of Elizabeth and Linden, NJ.

Under Contract with Government Services IPT for US Department of Defense, US Navy Annex/Federal Office Building 2 (FOB2), Arlington, Virginia. Environmental Engineer. Performed Environmental Baseline Survey in order to facilitate the transfer of land from the Secretary of Defense to the Secretary of the Army for the expansion of Arlington National Cemetery. 2011

Clean Line Energy Partners, Inc., Proposed Converter Station Sites, Illinois. Task Manager. Environmental screening assessment in association with siting of three proposed converter stations. 2012-2013



Thomas Shinskey Natural Resources

Education

M.S. - Biology, University of Massachusetts,
1994

B.A. - Natural Science, St. Anselm College, 1991

Years of Experience

With Louis Berger: 13

Total Years: 15

Mr. Shinskey is a principal environmental scientist at LBG with more than 15 years of work experience in coastal environments. He has technical expertise in the following areas: estuarine ecology, fish and invertebrate identification and sampling, wetlands delineation, wetlands restoration, and monitoring of tidal wetland restoration sites. His experience includes environmental impact assessment in coastal habitats, Essential Fish Habitat assessment, ecological risk assessment, water/sediment quality evaluations, and NEPA documentation/compliance. Representative experience includes the following:

Essential Fish Habitat Assessment, Richard P. Kane Wetland Mitigation Bank, Carlstadt, New Jersey.

Assessed impacts to essential fish habitat from wetland restoration activities proposed at the Richard P. Kane Tract, located within the Hackensack Meadowlands District. Proposed restoration activities to improve wetland function and wildlife habitat at this site include removal of berms to restore tidal hydrology, creation of a network of tidal creeks, and re-establishment of native salt marsh plant communities. Adverse effects to essential fish habitat will be minimized by performing excavation and grading activities in a non-tidal regime. Client: EarthMark NJ Kane Mitigation, LLC

Marsh Resources, Inc. Meadowlands Mitigation Bank, Carlstadt, New Jersey. Environmental Scientist. Conducted annual monitoring of a 206-acre salt marsh wetland mitigation bank in the Hackensack Meadowlands District. Responsibilities include evaluation of percent plant cover by species, data analysis, invasive species control, and preparation of monitoring reports for submittal to the required agencies. The monitoring program documents the success of plant establishment within the Bank to maintain compliance with regulatory agency permits and approvals. Performed wetland delineation according to the three parameter approach method of the US Army Corps of Engineers 1987 Manual. 2004-2015. Client: Marsh Resources, Inc.

Meadowlands Comprehensive Restoration and Implementation Plan (MCRIP)—Programmatic Environmental Impact Statement (PEIS). Assessed impacts to essential fish habitat from wetland restoration activities proposed under the MCRIP for the PEIS. The MCRIP identifies a number of habitat restoration sites and restoration activities to improve wetland function and wildlife habitat in the Hackensack Meadowlands District, including the removal of tidal restrictions, restoration of wetland hydrology, and re-establishment of native plant communities. Mitigation measures to avoid and minimize adverse impacts to essential fish habitat and prey species from the construction of restoration projects were identified. Client: USACE New York District

Baseline Ecological Risk Assessment, Richard P. Kane Wetland Mitigation Bank, Carlstadt, New Jersey. Conducted a Baseline Ecological Risk Assessment for wetland restoration activities proposed at the Richard P. Kane Tract, located within the Hackensack Meadowlands District. Fish tissue (mummichog) and sediments were collected from the proposed restoration site and the adjacent Hackensack River to calculate existing risks and potential future risks to terrestrial and aquatic wildlife from mercury in site sediments. Client: EarthMark NJ Kane Mitigation, LLC

Lincoln Park Wetland Restoration, Quantitative Monitoring, Jersey City, New Jersey. Environmental scientist responsible for quantitative monitoring of the NOAA-awarded \$10.6 million American Recovery and Reinvestment Act wetland restoration along the Hackensack River. To determine whether restoration goals are being met, resources monitored include nekton, macroinvertebrates, avian use, hydrology and vegetative cover. Nekton utilization is sampled through throw-trapping and fyke nets to determine if target species, including anadromous species, are present. Client: New Jersey Department of Environmental Protection

Essential Fish Habitat Assessment, New Jersey Transit Trans-Hudson Express Tunnels, Hudson River, New Jersey and New York. Prepared an Essential Fish Habitat assessment for two proposed railroad tunnels to be bored beneath the Hudson River between Weehawken, NJ and Manhattan.

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Eighteen federally managed fish species have the potential to occur within this study area, and the Lower Hudson River has been recognized as a significant overwintering habitat for juveniles of several commercially and recreationally important fish species. Potential impacts to EFH including sediment liquefaction, noise, and vibration impacts were assessed.

Client: New Jersey Transit.

Higbee Beach Wildlife Management Area Restoration Project Baseline Studies, Cape May County, New Jersey.

Performed a variety of baseline studies to support the development of a concept plan for the restoration of tidally restricted and *Phragmites australis*-dominated portions of Higbee Beach Wildlife Management Area. Studies included wetland delineation, hydrological monitoring, salinity monitoring, and establishment of biobenchmarks at Higbee Beach and a reference marsh.

Essential Fish Habitat (EFH) Assessment, Goethals Bridge Replacement Project. Responsible for assessing the impacts to 16 federally managed fish species from the replacement of the 80-year old Goethals Bridge, spanning the Arthur Kill between Elizabeth, NJ and Staten Island, NY. Prepared the Water Resources and Biotic Communities sections of the environmental impact statement addressing the four proposed bridge alignment alternatives. Client: Port Authority of New York/New Jersey

Dana M. Boyadjian, P.E., LSRP

Environmental Engineering

Education

M.S. – Sanitary Engineering, Virginia Polytechnic Institute and State University, 1977

B.S. – Civil Engineering, Northeastern University, Boston, Massachusetts, 1975

Registration

Professional Engineer: New Jersey, Pennsylvania

Licensed Site Remediation Professional, New Jersey

Years of Experience

With CDM Smith: 1+

Total Years: 39

Mr. Boyadjian has over 30 years of hands-on environmental engineering/remediation project management and field experience and is a Licensed Site Remediation Professional (LSRP). His experience includes a variety of soil and groundwater remediation projects, extent of contamination studies/remedial alternative evaluations, risk assessments and leaking underground storage tank (UST) investigations. Many of these projects involved extensive report writing and regulatory interaction under the New Jersey Department of Environmental Protection (NJDEP) Technical Requirements for Site Remediation (Tech Regs) and recent LSRP program. His experience also includes State of New York DEC superfund projects, NYC remedial projects and NY USEPA and DOE superfund projects. In addition, he has been involved with demolition planning/construction oversight, federal and state permit applications, New Jersey Industrial Property (ISRA/ECRA) submissions and NEPA environmental assessment.

Project Manager, Residential Home Demolition for NJDEP Blue Acres

Program. Under a task order design contract through NJ Department of Treasury, Division of Property Management & Construction (DPMC), and their client NJDEP,

Mr. Boyadjian is managing multiple assignments, which are reimbursed by the Federal Emergency Management Agency (FEMA) and/or U.S. Department of Housing and Urban Development (HUD), and performed on a fast track basis. Project tasks include site inspections, assessment/sample collection for possible asbestos containing material, preparation of design plans and specifications, demolition cost estimating and construction administration.

Senior Environmental Engineer, Superstorm Sandy Environmental Review Support Contract, New Jersey. Mr. Boyadjian is performing property inspections under the Superstorm Sandy Environmental Review Support contract. His responsibilities include the evaluation of general property conditions, possible environmental conditions on-site or within the surrounding area and providing documentation of same.

Project Manager/LSRP, Former Plating Facility, NJDEP Remedial Design Contract. Working with NJDEP, Mr. Boyadjian is managing the preliminary design investigation for a closed plating facility. Contaminants of concern include both metals and chlorinated solvents. Following the review and evaluation of various past site investigations, an investigation work plan was developed to fill in data gaps and allow for preparation of a remedial design. Since impacts are identified both on-site and at off-site residential properties, two separate investigations will be completed and remedial options developed. Once the remedial design is implemented for the off-site properties, LSRP tasks will include final report preparation along with submittal of the Response Action Outcome. In addition a deed notice will be established for the on-site property since capping and source removal are anticipated remedial options.

Project Manager/Beach Restoration, NJDEP Remedial Design Contract. Working with Blue Acres, Land Use and Site Remediation divisions of NJDEP, Mr. Boyadjian is project manager for a beach restoration project in Lawrence Township, Cumberland County. Following demolition of summer and permanent residences damaged by Superstorm Sandy and located along the banks of the Delaware River, CDM Smith will design beach stabilization and restoration plans. The work will include required permitting such that the site will be habitable for horseshoe crabs and red knot bird migration.

LSRP/Project Engineer, Former NJ Industrial Research Facility. Acted as LSRP of record for site where solvent impacted groundwater has migrated off-site. Evaluated existing investigation data, identified need and type of further groundwater delineation required and assisted in development of work plan to complete delineation. Prepared LSRP documents to obtain 2 year extension for RI report, change to annual remedial fee, estimate costs to completion and oversight of multiple

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rounds of groundwater sampling and review of associated reports. Ultimate remedial goal is natural attenuation with groundwater monitoring.

LSRP, NJ Radio Tower Site. As LSRP Mr. Boyadjian is evaluating the finding of unknown source gasoline and solvent impacts to site groundwater. Duties have involved oversight of preliminary site assessment and receptor evaluation including ecological assessment. Developed site investigation plan that should be implemented in near future.

PRIOR TO CDM SMITH

Project Manager/LSRP, Various Environmental Insurance Projects, New Jersey. Mr. Boyadjian served as senior project manager for major insurance companies related to their New Jersey residential or commercial policy holder properties contaminated with fuel oil or gasoline. Work activities included close client interaction along with management of site soil and ground water investigations, remedial investigation reporting/work plan preparation, contractor bid evaluations/selection, self-perform or oversight of site remediation and remedial action report preparation or review for quality assurance. Several of these projects were performed under the NJDEP LSRP program. Mr. Boyadjian's duties also included supervising, training and mentoring engineering staff in the evaluation and design of remedial plans/systems and their field implementation. This work also included evaluation/quality assurance of the project specific RI or RA report and remedial work plan to ensure compliance with the Technical Requirements for Site Remediation and the New Jersey soil remediation and groundwater quality standards. Evaluation/design of in-situ remediation as an alternative to excavation and "pump and treat" has been a significant focus of the work effort.

Project Manager, Various Brownfield Sites, New Jersey. Mr. Boyadjian's duties included project manager for a brownfield site in Hoboken, New Jersey. Issues involved significant chlorinated solvent contamination in soil and groundwater. The scope of work included preparation of the RI report and conceptual remedial plan including negotiations with NJDEP to approve a partial excavation/groundwater capture plan along with site capping. Additional brownfield site closure and reuse plans were prepared for a closed landfill to condominium conversion project in Elizabeth, New Jersey and closed landfill to warehouse project in Jersey City, New Jersey.

Project Manager, Interim Storage Site (WISS) FUSRAP, Wayne, New Jersey. Mr. Boyadjian's role on this radiologically-contaminated site was to manage the design, purchase and construction assistance of a surface and groundwater treatment system on an emergency response basis. Additional

work duties included performing building asbestos and lead analyses and removal plan preparation and assisting in the exterior building demolition planning and preparation and implementation of extensive hydrogeological investigations/evaluations including pump tests and modeling to evaluate soil excavation limits under artesian aquifer conditions. The project was conducted for US Army Corps of Engineers.

Project Manager, New Jersey Brownfield to Residential Site Remediation. Mr. Boyadjian's project manager duties included NJDEP regulatory submittals, resource management, billing and schedule preparation and local and state agency interaction. This site, once the home of a vending machine manufacturer, is now partially occupied by new residential homes. The site is contaminated with chlorinated solvent materials in both soil and groundwater. The project involved three distinct tasks (two lump sum/unit price and one T&M): excavation of approximately 3000 cubic yards of soil (max depth 14 feet), which was stockpiled and disposed either off-site or reused on-site; construction and O&M of a soil vapor extraction (SVE) and 70 gpm groundwater recovery system and treatment plant to handle both contaminated waste streams; and quarterly groundwater sampling of approximately 25 wells and preparation/submittal of groundwater reports to NJDEP. A biennial CEA certification was also prepared under an expedited schedule to meet a regulatory deadline. The fixed price construction phase of the project was completed summer 2007 under budget and with a 75 percent increase to as bid margin.

Project Manager, Remedial Construction Services at the New York City Transit Coney Island Maintenance Yard, New York. Mr. Boyadjian managed lump sum and unit price scope of work including work plan preparation, underground tank removal, installation of a jet grout barrier wall, well abandonment and installation, biosolve injection and groundwater recovery. Additional tasks completed were temporary water line relocation, railroad track removal and replacement, soil excavation and transport/off-site disposal, backfill and compaction, asphalt paving and concrete ramp demolition and rebuild. PM responsibilities included site activities, client and union relations, budget management and invoicing and project schedule.

Christopher Corliss, P.E.

Environmental Engineering

Education

MBA - Finance Concentration / Management
Emphasis

B.S. - Bio-Resource / Bio-Environmental
Engineering

Registration

Professional Engineer: New Jersey, Florida

Years of Experience

With Louis Berger: 9

Total Years: 18

Mr. Corliss is a Director at Louis Berger with approximately 18 years of professional experience in design packages, environmental planning, general civil engineering and post construction award services. With a thorough working knowledge of various industries, regulations, and operations, Mr. Corliss' specific work includes projects/tasks involving investigation, design, landfills, remedial investigation, remedial design, feasibility study and cost estimates, renewable energy, wastewater treatment facilities, underground storage tank (UST) installation, replacement and remediation, environmental assessments (EAs), environmental impact statement (EISs), permitting, spill and response plans and designs, and field activities in hazardous materials (including PCBs) settings.

New Jersey Department of Environmental Protection (NJDEP), MSLA 1-D Landfill Closure Project. Kearny, NJ. Project Manager. Project Manager for landfill closure site design of the MSLA-1D Landfill. The MSLA-1D Landfill is a 90+

Acre landfill located in the New Jersey Meadowlands Region. The landfill closure includes design of a cutoff wall, leachate collection system, landfill cover system, grading plan, storm water collection system and gas venting system. Mr. Corliss was responsible for design of the landfill cover system, slurry wall used to surround leachate mound, leachate collection system, construction platform, site grading and stormwater management. The leachate mound in the landfill was modeled using Modflow with GMS (Groundwater Modeling System) software user interface. Modeling included rainfall, runoff and precipitation calculation using the HELP model and the leachate collection system. Permitting for project included Stream Encroachment, Waterfront Development, Wetlands, Landfill Disruption, USACE-New York District wetlands coordination/permitting, and Soil Erosion and Sediment Control. 2005-Present

New Jersey Department of Environmental Protection (NJDEP), Fenimore Landfill – Partial Landfill Closure Project. Roxbury, NJ. Project Manager. Since its reopening in 2011, the Fenimore Landfill has experienced elevated hydrogen sulfide emissions that pose a potential environmental hazard to the surrounding community. Berger is responsible for assisting in the emergency actions taken by NJDEP and preparing the partial landfill closure design. Responsibilities include developing design plans for the partial closure design, permitting, and providing technical support for interim emergency actions measures taken. Berger had a very aggressive schedule, and was able to keep meeting the many deadlines while facing differing stakeholder conflicting objectives. 2013 – Present.

New Jersey Department of Environmental Protection (NJDEP), Kingsland Redevelopment Area Project Quality Assurance Engineering Services. Bergen County, NJ. Project Manager. Project Manager for quality assurance engineering services during closure of 6 landfills associated with the Meadowlands Landfill Closure Project. Project includes review and reporting on construction documents and project reports, review and reporting on Construction Quality Control / Construction Quality Assurance Plan compliance; and overall project schedule and funding evaluation; project management and coordination; technical engineering support; and field inspection. Other project responsibilities include monitoring and estimating project expenses including project schedule and money available/remaining in the settlement budget. 2009-Present

Hudson County Board of Chosen Freeholders, Lincoln Park Landfill Closure and Redevelopment. Jersey City, NJ. Project Manager. Wrote, designed and prepared the Landfill Disruption and Landfill Closure Plans for incorporation of the Lincoln Park landfill into the adjacent Lincoln Park. This project was in conjunction with the adjacent wetlands restoration project on the same property. Mr. Corliss developed site plans, details and permit applications for approval of a Soil Erosion and Sediment Control Permit, landfill closure permit and for the preparation of construction bid documents.

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Other responsibilities included designing the stormwater management system which included storm sewers, catch basins, riprap and grass swales, containment berms and outlet structures, calculating the optimal cut and fill volumes necessary for the project, designing the final grading and final landfill cap for the site and developing profiles and cross sections for sections of the landfill to be capped. 2003-2005

Archdiocese of Newark, PJP Landfill Closure. Jersey City, NJ. Project Engineer. Wrote, designed and prepared the Landfill Disruption and Landfill Closure Plans for the potential beneficial reuse of the PJP landfill. This project consisted of developing site plans, details and permit applications for approval of a Soil Erosion and Sediment Control Permit, and landfill closure permit. Other responsibilities included designing the stormwater management system which included storm sewers, catch basins, riprap and grass swales, containment berms and outlet structures, calculating the optimal cut and fill volumes necessary for the project, designing the final grading and final landfill cap for the site and developing profiles and cross sections for sections of the landfill to be capped. 2003-2005

City of Perth Amboy, Landfill Bypass Roadway/Closure Project. Perth Amboy, NJ. Project Engineer. Designed a roadway alignment over a closed landfill to allow trucks to bypass residential areas and designed the final capping and grading for the entire landfill. The project also included a lighted pedestrian/bicycle path along the waterfront. The path alignment followed the former rail line along the waterfront. Services included developing site plans, details and permit applications for approval of a Waterfront Development Permit and Soil Erosion and Sediment Control Permit and the preparation of construction bid documents. Other responsibilities included designing the stormwater management system which included storm sewers, catch basins, riprap and grass swales, containment berms and outlet structures, calculating the optimal cut and fill volumes necessary for the project, designing the final grading and final landfill cap for the site and developing profiles and cross sections for sections of the landfill to be capped. 2000

Allegheny Highlands Trail Sand Patch Rails to Trails Project, Somerset County, Larimer and Greenville Townships, PA. Project Manager. This project consists of the renovation/conversion of an approximately 5.6 mile section of existing railroad bed to a pedestrian/bicycle trail. The project consists of the design of an arch culvert under an existing State Route, bridge renovations and trail enhancements. Duties included performing quantity calculations of all materials to determine the amounts for the Contractors to bid necessary for the

project, cost estimating, designing the final grading for the trail and roadway, developing profiles and cross sections for the roadway to be realigned, developing the Special Provisions for the construction of this project, developing the final plans and details for this project and inspecting the site to determine locations of fencing, barriers, gates and stormwater control devices. 2001-2005

Baseball Complex at Prince Rodgers Park. Bridgewater Township, NJ. Project Engineer. This project consisted of the design of four little league fields, one large baseball field, a pedestrian bridge and pathway, parking lots and a concession stand. Developed site plans, details and permit applications for approval of a Stream Encroachment Permit, Soil Erosion and Sediment Control Permit and for the preparation of construction bid documents. Duties also included performing volume calculations to determine the amount of cut and fill necessary to construct the project and designing of the field layout and final grading for the site. 1999

Youth Sports Complex. City of New Brunswick, Middlesex County, NJ. Project Engineer. Design of three little league baseball fields, a pedestrian bridge and pathway, parking lots, two soccer fields and a concession stand. This project consisted of developing site plans, details and permit applications for approval of a Stream Encroachment Permit, Soil Erosion and Sediment Control Permit and for the preparation of construction bid documents. Duties also included performing volume calculations to determine the amount of cut and fill necessary to construct the project and designing the field layout and final grading for the site. 1999

Spring Run Stormwater System Project. Bridgewater Township, Bridgewater, NJ. Project Engineer. Project consisted of diverting stormwater flow away from a stream in the back of residential properties. Developed alternatives to solve the problem and designed a storm sewer system to relieve the problem as well as prepare applicable state permits and construction documents. Duties included the following: performed feasibility study for each alternate which included a cost estimate analysis, permit feasibility study and construction impact study, performed calculations to determine existing conditions including time of concentration and peak flow analysis, designed a reinforced concrete pipe run to divert the stormwater with design including sizing storm sewer pipe, catch basins and manholes and determined inverts and slopes to meet state requirements to not increase peak flow to discharge points. 2002

Dan Martin, P.E.

Environmental Engineering

Education

B.S. - Civil and Environmental Engineering,
University of Massachusetts, Amherst, January
2001

Registration

Professional Engineer: New Jersey

Years of Experience

With Louis Berger: 14
Total Years: 14

Mr. Martin is a Principal Engineer in Berger's Civil and Environmental Engineering division with over twelve years of experience responsible for leading engineering teams on remediation and redevelopment projects. Project tasks include preparing construction design documents (including plans and specifications), construction cost estimates, and permit applications. Additionally, Mr. Martin is responsible for managing client expectations to ensure that their requirements and the scope of work are met. His expertise spans civil site, geotechnical, landfill, and remediation engineering investigation, design, permitting, and construction oversight. Typical projects include site (and brownfield) development, stormwater management systems, roadways, utilities, landfills, parks and wetlands along with preparation of regulatory permits.

Project Manager, Former North Sussex Street Landfill Redevelopment,

Multiple Private Developers, Town of Dover, NJ. For continued environmental services associated with the re-development of former town municipal landfill. Berger works jointly with the town and private developers to close the landfill and redevelop the site for commercial use. Design and planning responsibilities include preparation of landfill major disruption and closure permit, specifications, active gas collection system design, geotechnical analysis, and design for construction of buildings over the former landfill. Construction responsibilities include reviewing and preparing punch lists for contractor work on the landfill closure and gas venting system.

Project Engineer, Kingsland Redevelopment Area Project Quality Assurance Engineering Services, New Jersey

Department of Environmental Protection, (NJDEP), Bergen County, NJ. For quality assurance engineering services during closure of 6 landfills associated with the Meadowlands Landfill Closure Project. Project includes review and reporting on construction documents and project reports, review and reporting on Construction Quality Control / Construction Quality Assurance Plan compliance; and overall project schedule and funding evaluation; project management and coordination; technical engineering support; and field inspection. Other project responsibilities include monitoring and estimating project expenses including project schedule and money available/remaining in the settlement budget.

Environmental Engineer, Improvements to I-195, Superstructure Replacement of Bridges 471 & 472, Full Replacement of Bridge 465, East Providence, RI.

For soil contamination at the Bridge 465 replacement. Louis Berger is designing the full replacement of Bridge 465 (WB On-Ramp over Warren Avenue). Environmental sampling, conducted in the area of cut/fill for the proposed bridge replacement, indicated a limited amount of soil contamination. To address the contamination Mr. Martin contacted RIDEM to determine requirements for construction. Working with RIDEM, it was decided that the best approach for addressing the contaminated soils would include preparation of a soil management plan that detailed handling, disposal and engineering controls (i.e. a soil cap) to be implemented during bridge replacement.

Project Engineer, Liberty State Park Site 15 Remediation, New Jersey Department of Environmental Protection (NJDEP),

Jersey City, NJ. On remediation of site with chromium contamination. Site contained historical fill contaminated with hexavalent chromium. Responsible for oversight of remedial progress and remedial action reporting associated with site activities.

Project Manager, Arthur Gundacker Site Remediation, NJDEP, Monroe Township, NJ.

For soil contamination remediation project. Residential property adjacent to a quarry had on-site soils contaminated by volatile organic compounds, and scrap debris (including drums) spread across the site. The remedial action selected was excavation and disposal. Responsibilities include preparation of design documents (including plans and specifications), Soil Erosion and Sediment Control (SESC) Plans, oversight of construction for compliance with the remedial plan, and preparation of the Remedial Action Report.

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Nicholas Trucking Site Remediation, New Jersey

Department of Environmental Protection (NJDEP), Jersey

City, NJ. Project Engineer for soil remediation project. Site is located on the shore of the Hackensack River, and on-site soils along the shoreline are contaminated with Hexvalent Chromium. The remedial solution selected for the site is excavation and disposal. Responsibilities include preparation of design documents (including plans and specifications) and oversight of construction. Project also required preparation of Soil Erosion and Sediment Control, and Waterfront Development Permits.

Matteo Iron and Metal Site Remedial Alternatives Selection

Evaluation, New Jersey Department of Environmental

Protection (NJDEP), West Deptford, NJ. RASE author for an NJDEP Site Remediation-Division of Publicly Funded Sites project to remediate soil, groundwater, and sediment contamination of a property with illegal dumping. The property was contaminated with PCBs and metals, and processes considered included no action, capping, and excavation with various disposal alternatives. A RASE report was prepared that presented the conceptual approaches and cost estimates for each alternative, and a comparative analysis among the alternatives.



Eric C.Y. Fang, AIA, AICP, LEED® AP

Urban Planning and GIS/Visualization

Education

M.Arch. - Architecture, Harvard University,
Graduate School of Design, 1990

B.Arch. - Architecture, Columbia University,
1985

Registration

Registered Architect: New Jersey, New York,
California

LEED Accredited Professional

Years of Experience

With Perkins Eastman: 12

Total Years: 26

Mr. Fang has led large-scale urban design and redevelopments and university and campus planning projects nationally and internationally for public agencies, private developers and large institutions. A regular contributor to professional and academic journals he has written and lectured widely on designing for resilience. Mr. Fang brings over twenty-years of experience to the team as an architect and urban designer experience including Arverne-by-the-Sea, the largest waterfront urban renewal site in the United States, and widely cited as a model for resilient waterfront development, and Special Initiative for Rebuilding and Resiliency.

Hoboken Green Infrastructure Strategic Plan, Hoboken, New Jersey.

Strategic plan including an overall conceptual framework; district by district recommendations for cost effective implementation of green infrastructure best management practices; and city-wide implementation policies and actions.

Special Initiative for Rebuilding and Resiliency (SIRR), New York City, New York.

In the wake of the devastation caused by Superstorm Sandy, Mayor Michael Bloomberg launched the Special Initiative for Rebuilding and Resiliency (SIRR) in

January 2013. PE supported the SIRR initiative as lead planner for South Queens, an area that included the Rockaway Peninsula, Broad Channel and Howard Beach. PE's approach focused on mid- long term rebuilding strategies integrating economic development, coastal protection and hardening of local and regional infrastructure systems.

New York Rising Community Reconstruction Program New York State. Led a multidisciplinary team to develop plans for four community rebuilding zones (Staten Island East and South Shores; Gravesend & Bensonhurst; Springfield Gardens & Rosedale; Five Towns, South Valley Stream; East Rockaway & Bay Park), encompassing 13 communities

hit hardest by Hurricane Sandy in Staten Island and the south shore of Nassau County. The plans, included robust community engagement and rigorous risk assessment and cost-benefit analysis taking into account future sea level rise and the effects of climate change.

Together North Jersey, New Jersey. Program Manager for Local Demonstration Project Program, part of a HUD-funded Sustainable Communities Grant. Developed and managed program for 18 Local Demonstration Strategic Planning Projects involving three multidisciplinary project teams.

Perth Amboy Transit District Strategy, Perth Amboy, New Jersey. A strategic plan to create a vision for the downtown as a transit-oriented community including redevelopment of the train station area, rezoning downtown to better accommodate development, and capitalizing on the existing ethnic niche market.

PRIOR TO JOINING PERKINS EASTMAN

Arverne-by-the-Sea , Arverne, New York.

This award-winning design knits together the subway and the sea, creating a unique transit-based beachfront community. The radial plan orients each of the neighborhoods around the previously underutilized subway station. The new community's network of public spaces and amenities include a charter school and a neighborhood supermarket.

Inner M&E Strategic Corridor Planning, New Jersey. Multidisciplinary planning study for a three-mile corridor encompassing the East Orange, Brick Church, Orange and Highland Avenue Stations in Essex County.

NJ Transit, Transit Friendly Planning Program Management, New Jersey. Developed a comprehensive and proactive program to guide NJ Transit's Transit Friendly Planning Program into

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the future. This process included outreach to over 35 civic and real estate industry groups, advocacy organizations, academic institutions, State Agencies and allied NJ Transit units.

Passaic Eastside Redevelopment Area Transit-Oriented Development Strategy Passaic, New Jersey. A multi-faceted strategic Plan that envisions a more resilient and livable community, enlivened by a new riverfront trail along the Passaic River, a new urban-scale open space, and an evolving Mexico-based food distribution industry.

AWARDS

Hoboken Green Infrastructure Strategic Plan

American Planning Association, NJ Chapter, 2015
Outstanding Plan Award

NY Rising

Rising to the Top, Award for Green Infrastructure - South
Valley Stream Community Reconstruction Plan

Rising to the Top, Award for Economic Development -
Staten Island Community Reconstruction Plan

Rising to the Top, Award for Inclusion of Vulnerable
Populations - Gravesend- Bensonhurst Community
Reconstruction Plan

Arverne-by-the-Sea

Boston Society of Architects/AIA New York 2004 Housing
Design Awards Chamber of Commerce of the Borough
of Queens 2004 Excellence in Design Queens & Bronx
Building Association 2004 Building Award of Excellence

Oceanfront Asbury

New Jersey Future 2003 Smart Growth Award
The Waterfront Center, Excellence on the Waterfront, 2002
American Planning Association - NJ Chapter, Outstanding
Redevelopment Plan, 2002

Annisia Cialone, AICP LEED® AP

Urban Planning and GIS/Visualization

Education

M.A. - Architecture in Urban Design, Harvard University, 2003

B.A. - Architecture, The Cooper Union for the Advancement of Science & Art, 1998

Certifications

American Institute of Certified Planners
LEED® Accredited Professional

Years of Experience

With Perkins Eastman: 11

Total Years: 15

Ms. Cialone has expertise in the design and management of large-scale urban design and strategic master planning projects for both public and private clients. Her experience includes large-scale mixed use projects, transit oriented development, waterfront developments, higher education and cultural institutions. As program manager for Together North Jersey's Local Demonstration Project Program she oversaw and managed a program of 18 Strategic Planning Projects. Ms. Cialone's integrated outlook on the design process encompasses the relationship between the political, social, and financial processes that create the built environment. Rounding out her professional experience, she has taught both architectural and urban design for summer programs at Amherst and Harvard Universities, served as a design critic at many universities including Columbia, City College, NYIT, and Parsons, and led Urban Design Workshops in NYC and Jersey City Schools.

Hoboken Green Infrastructure Strategic Plan, Hoboken, New Jersey. Strategic plan including an overall conceptual framework; district by district recommendations for cost effective implementation of green infrastructure best management practices; and city-wide implementation policies and actions.

Together North Jersey, New Jersey. Program Manager for Local Demonstration Project Program, part of a HUD-funded Sustainable Communities Grant. Developed and managed program for 18 Local Demonstration Strategic Planning Projects involving three multidisciplinary project teams.

Arverne-by-the-Sea, Arverne, New York. This award-winning design knits together the subway and the sea, creating a unique transit-based beachfront community. The radial plan orients each of the neighborhoods around the previously underutilized subway station. The new community's network of public spaces and amenities include a charter school and a neighborhood supermarket and a mixed-use main street.

The Peninsula at Bayonne Harbor, Bayonne, New Jersey. The design of this peninsula maximized the development of several hundred acres of valuable waterfront land while preserving the usage of one of New York Harbor's most valuable deepwater ports. The plan knits together a series of mixed-use neighborhoods, a major cruise ship terminal and the active commercial port with a series of open spaces in order to capture the view, offer a variety of experiences and link to the Hudson River Walkway and other modes of transit.

Passaic Eastside Redevelopment Area Transit-Oriented Development Strategy Passaic, New Jersey. A multi-faceted strategic Plan that envisions a more resilient and livable community, enlivened by a new riverfront trail along the Passaic River, a new urban-scale open space, and an evolving Mexico-based food distribution industry.

Perth Amboy Transit District Strategy, Perth Amboy, New Jersey. A strategic plan to create a vision for the downtown as a transit-oriented community including redevelopment of the train station area, rezoning downtown to better accommodate development, and capitalizing on the existing ethnic niche market.

San Pedro Waterfront Master Plan Development, San Pedro, California. The San Pedro Waterfront and Promenade Master Development Plan is set to transform the waterfront of the City of Los Angeles into the magnificent "Gateway to the Pacific." In the Plan, the working Port of Los Angeles, one of the busiest and largest ports in the world, will be integrated with thriving recreational and cultural attractions.

Northern Intermodal Transit Center, Houston, Texas. Design of a new \$300 million intermodal transit center, to be located north of the University of Houston-Downtown and Interstate 10. The center is destined to become the main hub for many of the services offered by Houston's Metro, serving as the starting and ending point for bus routes, rail lines, bus rapid-transit lines and commuter rail.

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Newark Downtown Redevelopment, Newark, New

Jersey. This plan seeks to enhance the city's existing resources by building on Downtown's unique characteristics and coordinating ongoing initiatives, such as the Passaic Riverfront redevelopment, the McCarter Highway, the Arena, James Street Commons, and the University Science Park. The Plan proposes an expanded vision of Downtown Newark, addressing housing, schools, and retail and entertainment development.

CityCenter Las Vegas, Las Vegas, Nevada. The 66-acre site, designated as CityCenter, was developed into a master-planned urban complex defined by a variety of avenues, places and experiences. As envisioned, CityCenter represents the most significant privately funded project in the United States at this time.

Harper College Master Plan, Palatine, Illinois. We developed concepts to realize Harper's vision as a leading 21st-century Community College, recognizing the needs of an increasingly diverse student body for campus places that enhance the college experience.

SUNY Downstate Master Plan, Brooklyn, New York. The Facilities Master Plan project is part of a systemwide effort being led by the State University Construction Fund (SUCF) to develop Master Plans for 32 SUNY campuses. The Facilities Master Plan for the campus documents current building conditions, establishes program needs for facilities to support the College's mission and goals, and advances new building and open space design concepts for the future of the campus.

Albert Einstein College of Medicine, Bronx, New York. The Master Plan provides a highly flexible, cost-effective and sustainable roadmap for campus expansion. The goal is to create a more coherent, convenient and pleasant campus experience, one that draws people onto campus and provides them with an inspiring setting for scientific education, collaboration and research.

David A. Spector, LEED® AP

Urban Planning and GIS/Visualization

Education

M.S. - Earth Sciences, Montana State University,
1999

B.S. - Geography, Louisiana State University,
1997

Registration

Leadership in Energy and Environmental Design
Accredited Professional (LEED AP), 2007

Years of Experience

With CDM Smith: 9

Total Years: 13

Through both education and experience, Mr. Spector has defined himself as a broad-based environmental scientist and planner. He is responsible for developing and managing projects that have spanned diverse community objectives and infrastructure services, including municipal sustainability planning, multi-modal transportation, renewable energy supply, energy demand management, water supply, wastewater provision, stormwater management, and conservation planning. He has worked throughout the United States, Asia and the Middle East, and has played leadership roles on award-winning planning projects.

Program Manager, HUD NEPA Compliance for New Jersey Sandy Recovery

Programs. CDM Smith is supporting the NJDEP in facilitating environmental review for recovery projects receiving HUD CDBG funding, ranging from condensed Tier 2 environmental documentation for individual home rehabilitation/elevation, potentially to EAs or EISs for larger-scale community and infrastructure revitalization projects. To date, CDM Smith has been tasked

with hundreds of fast-turnaround individual homeowner environmental reviews. To manage the manage the volume of sites, CDM Smith developed tools for data collection, document storage, and progress tracking/reporting that include the following: a customized iPad application for collecting field data on sites; workflow processes and protocols to streamline the review processes; a "cradle-to-grave" database that tracks status of individual properties from project assignment, through project milestones, to invoicing and accounts receivable; reporting functions that support efficient management and detailed client reporting; and a client-accessible document storage system.

Project Director, HUD NEPA compliance for MDEQ Water/Wastewater and HUD CDBG Infrastructure Katrina Recovery

Program. Responsible for overseeing logistics and schedule compliance for 10 separate NEPA processes in severely compressed time schedule to support over \$130M in HUD CDBG funds for water and wastewater treatment and conveyance improvements in Katrina-impacted communities. Managed team of over 20 NEPA specialists, initiated policies/procedures for expediting workflow, and developed tracking and reporting tools and protocols.

Deputy Program Manager, HUD NEPA oversight for Mississippi Development Authority CDBG Long-Term Workforce

Housing Program. Mr. Spector managed the program to oversee and expedite sub-recipient execution of NEPA review for 36 projects, representing approximately 4,900 housing units totaling \$350 million in HUD CDBG support for workforce housing post-Katrina. He was responsible for staffing and management support of over 15 NEPA specialists; supported development of policies and procedures for workflow organization among primary client, technical staff, and program sub-recipients; provided client interface during project execution.

Logistical Support, HUD NEPA compliance for Mississippi Development Authority CDBG Public Housing Program.

Mr. Spector supported the program to develop NEPA documentation for approximately 2,200 units totaling \$100 million in HUD CDBG support for public housing. He supported staffing and logistics for expedited execution post-Katrina.

Project Manager, Mississippi Department of Environmental Quality ID/IQ Contract for Water Quality Management

and Basin Planning Support. Task Orders managed include development of State monitoring program and regulatory framework for wastewater discharge to wetlands; nutrient and organic enrichment TMDLs for tributaries of the Bay of St. Louis; development of a capacity building strategy to empower local watershed groups in priority watersheds; and pathogen study to identify and develop solutions to reduce the sources and impacts of bacteria in the Turkey Creek watershed.

Environmental Task Leader, Jubail City Centre Development, Saudi Arabia. CDM Smith developed the Environmental Impact Assessment for to evaluate the impacts of developing Jubail

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City Centre on the coastline and water quality of Mardumah Bay and Al-Gurmah Island.

Environmental Task Leader, Abu Dhabi Western Region

(Al Gharbia) Surface Transportation Master Plan.

Mr. Spector's role is to provide environmental assessment and environmental performance improvement for the transportation system. Al Gharbia is the large desert region west of Abu Dhabi, known for environmental and Bedouin cultural heritage, as well as critical oil production for the Emirate's economy. The plan includes road, rail, bicycle, pedestrian, and ferry planning components. Estidama, Arabic for sustainability, is an important component of the plan, as represented by both Abu Dhabi Department of Transportation and extensive stakeholder interaction.

Environmental Task Leader, Kuwait National Rail Network.

Serving as Kuwait's agent in development of a public-private partnership, the firm is providing strategic guidance, analysis, reporting, procurement, and oversight to develop a national rail network. Mr. Spector's role was to develop a strategic environmental assessment for the project.

Project Manager, Buncombe County Greenways Economic Analysis, Buncombe County, North Carolina.

This project includes economic analysis/financial feasibility and projected economic impact of the expansion of Parks and Recreation facilities and infrastructure, build-out of the priorities identified in the recently adopted Greenway Master Plan, the potential development of an aquatic center facility, recreational amenities at Lake Julian, and the Buncombe County Sports Park. These analyses included literature review to characterize the potential outcomes and indirect economic benefits of greenway investments with regard to advancing the goals identified in the County's Sustainability Plan.

Officer-in-Charge, Regional Conservation Framework for

South Mississippi. The Land Trust for the Mississippi Coastal Plain identified the need for "smart conservation" to do more than respond to piecemeal conservation opportunities. CDM Smith is developing a six-county regional plan for developing networks of greenways and blueways. The project has three primary components, including: development of a Map of Potential Conservation Lands, identification of resources for implementing a conservation network, and establishment of Transfer of Development Rights (TDR) education and guidance initiatives for local and State officials

Project Manager, Pearl River County, Mississippi

Comprehensive Smart Growth Plan. Pearl River County, a rural South Mississippi community, experienced rapid growth in the last decade which has only been exacerbated by hurricane "refugees" from Louisiana and Coastal Mississippi

seeking to relocate to higher elevation. To help the County adapt to the current growth rates, the plan provided policy and planning guidance on the future physical development of the County, and addressed a wide range of issues including land use, transportation, housing, utilities, economic development, and capital improvements.

Project Manager, Comprehensive Planning, Hancock County, Mississippi.

Hurricane Katrina made landfall in Hancock County, Mississippi. There has been tremendous impact to the business community, housing stock, public facilities and infrastructure, and to the fabric of the community. CDM Smith is updating the County's comprehensive plan and land use ordinances, with particular focus on housing, economic development, and natural resource preservation strategies.

Project Planner, Urban Metabolism Model, New Orleans, Louisiana.

Worked in cooperation with MIT and New Ecology, Inc. to develop a systems modeling tool for comparing alternative rebuilding strategies and guidance to city planners for rebuilding New Orleans.

Project Manager, Buncombe County Land Use Plan Update, Buncombe, North Carolina.

Providing extension of staff to update the County's 2006 land use plan, which supported initial county zoning.

Senior Planner, Master Plan for Lake Charles, Louisiana.

Provided technical guidance and review for the City's land use master plan for post-Rita economic development.

Officer-in-Charge, Integrated System Modeling for

Sustainable Development. This project was funded by an internal CDM Smith Research and Development grant to provide a platform for performing dynamic and integrated simulations of the complex relationships in an urban space among energy consumption and generation, water consumption and supply, goods and people movement, and solid waste. The model provides the ability to explore land use scenarios, infrastructure solutions, building designs and technologies in an objective manner, and to understand the cost implications of design modifications and their ability to meet pre-determined sustainability objectives.

Carolyn Mitchell, RLA

Urban Planning

Education

MLA - Landscape Architecture

B.A. - Botany

Registration

Registered Landscape Architect: Maryland, Florida

Years of Experience

With Louis Berger: 3

Total Years: 21

Ms. Mitchell is a landscape architect and urban designer with exceptional technical expertise in landscape design for sustainability including the integration of green infrastructure into urban public space. Ms. Mitchell has received numerous awards for her planning and design projects including the 2011 APA Federal Planning Division Outstanding Sustainable Planning, Design or Development Initiative and AIA Miami's Landscape Architect of the Year and APA Florida Honor and Merit Awards for her public space master plans.

Virginia National Guard, Fort Pickett, Blacksburg. Green Infrastructure Plan. Lead landscape architect in the development of a green infrastructure plan and supporting installation specific design standards and a master plan of improvement strategies that integrate the updated Virginia BMP requirements and standards with the transportation network of installation. The design standards allow integration of standard BMPs into the historic landscape character of the

installation and respecting the operational requirements of an active training base. Professional Services: 2014; Construction: NA; Size: 9,600 acres. Cost: \$97,000.

Newtown Creek Living Shoreline Pilot Project. Newtown Creek is a Superfund site located in the industrialized district of Brooklyn, New York. Historically, there were approximately 1,200 acres of tidal wetlands along its bank. Today, there are zero, representing a 100% loss of habitat and function. To restore targeted ecosystem functions to Newtown Creek, NYC DEC is exploring the establishment of Living Shorelines. The dredging of the creek has established deep channels with active navigation, making the restoration of the shoreline to a shallow tidal water regimen challenging. Ms. Mitchell developed a conceptual approach to establishing upland plantings, high marsh and low marsh shelves and integrating recreation features into the pattern. Coastal engineering is developing the concept with NYC DEC to test the feasibility of the approach.

Naval Facilities Engineering Command (NAVFAC) Washington, Naval Support Activity (NSA) Patuxent River and NSF Dahlgren Transportation Improvement Plan and Design Standards for Complete Streets and Parking Facilities. Project manager responsible for leading a multidisciplinary team, providing green infrastructure design standards and improvement strategies for two Naval installations. Project received an "exceptional" client rating. Professional Services: 2012; Construction: NA; Size: 17,600 acres. Cost: \$854,000

Monroe County Justice Center, Sparta, Wisconsin. Principal Landscape Architect. The Monroe County Justice Center integrates a new courthouse, sheriff's office and jail into the historic downtown fabric of the county seat town of Sparta, Wisconsin. Provided complete landscape architectural services for a cost effective and aesthetically pleasing civic landscape with arrival forecourt, plaza and garden incorporating local materials and native plants in a bioretention feature that is the centerpiece of this new civic space.

Bharalu River Community Access Conceptual Design, Guwahati, India. Principal landscape architect for community access features intended to promote awareness of the benefits of stewardship of the watershed as part of a water quality improvement strategy for the watershed of the Bharalu River. Features include restoration of a traditional beel or stormwater wetland as a centerpiece of improved water treatment facilities, streamside paths intended to reveal the watercourse and allow community awareness and monitoring of its health, watershed markers at access points to reinforce the presence of this important water resource, and embankment plantings that serve as water quality filters and create pleasant microclimates for recreation

State of Alabama Natural Resource Damage Assessment Mitigation Project Conceptual Design, Gulf Shores, Alabama. Principal landscape architect for the Alabama Department of Conservation and Natural Resources providing Natural Resources Damage Assessment services. Design services

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included the schematic design of restoration projects related to tourism including a comprehensive improvement program for the 6,150 acre Gulf State Park and replacement of the 350-room Gulf State Lodge. Design focused on the visitor experience and opportunities to engrain environmental education into all facilities including a trails improvement program and enhancement of the dune habitat on the park's Gulf Shore, a lodge, an interpretive center, and a K-12 research and education center.

NAVFAC Washington, NSA Bethesda Wounded Warrior Family Park. Principal landscape architect/project manager responsible for site design, grading, drainage and planting specification for a 6-acre park at Walter Reed National Military Medical Center for recovering service members enjoyment during their treatment and rehabilitation. The key feature of the park is a carefully graded "terrain park" trail rehabilitation course integrated with the site's mature trees and topography and providing safer, more aesthetically pleasing stormwater features. Services included construction observation of the fast-tracked first phase of the project, a playground supported by donor funds. Professional Services: 2012; Construction: 2012 Size: 6 acres. Cost: \$39,792.

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Hollywood Beach Master Plan, Florida, Director of landscape architecture/landscape architect of record.

The result of numerous meetings held to receive input from community stakeholders, this Master Plan promotes the development of a pedestrian-oriented, mixed-use community organized around substantial recreational open space and a greatly enhanced standard for landscape design. The plan provides for the environmentally sensitive development of buildings and integrated landscapes and received an AIA Florida Award of Merit, citing its attention to sustainability and the public realm. Completed as Director of Landscape Architecture with Zyscovich, Inc. Professional Services: 2006; Cost: \$275,000.

Downtown Development Authority, Downtown Public Realm, Miami, Florida. Director of landscape architecture. This plan for Downtown Miami's key public spaces evaluated the potential for residual infrastructure rights-of-way to provide much needed park space and urban forest to better serve a growing residential population, enhance the City's environmental health, make evident the connection of the City to its resources and at the same time create a fun and sociable urban playground. The plan details a strategy to establish a sustainable urban forest and integrate innovative storm water management and was recognized by AIA Florida

with an Honor Award for its innovation in planning the public realm. Completed as director of landscape architecture with Zyscovich, Inc. Professional Services: 2006; Cost: \$500,000

Christopher Watt P.G., LSRP

Site Investigation

Education

B.A. - Environmental Science

Registration

Professional Geologist: Tennessee

Licensed Site Remediation Professional: New Jersey

Subsurface Evaluator: NJDEP

UST Closure: NJDEP

Years of Experience

With Louis Berger: 13

Total Years: 16

Mr. Watt has 16 years' experience in the fields of environmental geology, contaminant hydrogeology, and geotechnical investigations. His technical responsibilities have ranged from field geologist to project manager to program manager and include field coordination, field management and overall project management of subsurface investigations. As the program manager for the NJDEP Remedial Investigation Term Contract for the past two years, Mr. Watt has been responsible for all technical, financial and contractual aspects for over 40 active projects. In addition to serving as the contract program manager, Mr. Watt has been a project manager on approximately half of those active projects and successfully completed numerous Remedial Investigations across the State of New Jersey. In addition to his responsibilities with the NJDEP contract, he is also a New Jersey Licensed Site Remediation Professional (LSRP) responsible for various Sites across New Jersey, including such clients as the New Jersey Schools Development Authority (SDA), and the United States Postal Service (USPS). As the LSRP, Mr. Watt has the ultimate technical authority and ethical responsibility for

Site Investigations, Remedial Investigations, Remedial Actions and issuances of Remedial Action Outcomes (RAO) necessary to close contaminated site, especially for state and federal clients.

New Jersey Department of Environmental Protection (NJDEP) – Chemical Components Inc. (CCI) – East Hanover, NJ - Remedial Investigation. As the on-site manager and later as the project manager for the project, Mr. Watt has been responsible for creating and implementing the soil investigation workplan, bid solicitation, and site wide HASP creation and implementation for the project. The project consists of the soil and groundwater investigation of a former manufacturing Site within the East Hanover regional TCE groundwater contamination area. While groundwater was determined to be contaminated with TCE, only a small amount of soil and shallow groundwater contamination was attributable to the Site. However, upon findings of the soil sampling, an immediate environmental concern (IEC) was established for shallow PCB soil contamination at the Site. Field responsibilities include supervision of soil borings, installation of monitoring wells, including shallow overburden and bedrock depths, soil characterization and environmental soil and groundwater sampling. Additional field tasks included surface water and sediment sample collection for various analyses. Subsequent responsibilities also include data evaluation, reporting and overall project management and decision making.

New Jersey Schools Development Authority, Proposed Oliver Street Elementary School, Newark, NJ. Licensed Site Remediation Professional (LSRP) for site activities including site investigation, remedial investigation, and oversight for UST removal and remediation of associated impacted soil. The project included 70 areas of concern (including sixteen [16] USTs), addressed in a comprehensive Remedial Action Workplan. A majority of the RI and UST-related tasks were conducted concurrently with the ongoing site demolition activities, which required careful coordination between Berger, NJSDA, the on-site demolition contractor and the design-build contractor. Regular meetings are held to demonstrate that the ongoing remedial activities and construction are being conducted in accordance with the applicable regulations, including the NJDEP's Draft Presumptive Remedy Guidance. As the project moves forward, a Remedial Action Report will be prepared to document the proper closure of all areas of concern for issuance of a conditional Remedial Action Outcome (RAO) with deed restrictions and a establishment of a classification exemption area (CEA) for groundwater.

NJDEP, MSLA Landfill – Kearney, NJ. Remedial Investigation of PCB and Dioxin Contaminated Sediment. Mr. Watt's role as the project manager for the project task is comprised of the RI activities necessary to delineate PCB and Dioxin contained sediment and soils in ponds and drainage swales at a municipal landfill. RI activities include sediment sampling using vibratory drilling and sample

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collection in conjunction with traditional drilling techniques on and near the adjacent landfill which will also be used for geotechnical evaluations. This report was used in pending litigation and was used set a president for disposal of like-contaminated media from nearby sites along the Passaic River.

New Jersey Meadowlands Commission and New Jersey Sports and Exposition Authority – Environmental Investigations.

Mr. Watt role as the field geologist for this project included the creation and implementation of a workplan to investigate and delineate PCB contaminated sediments at various sites throughout the New Jersey Meadowlands. Responsibilities included the onsite supervision of drilling and vibracore contractors and general onsite management, and liaison to multiple state and private agencies.

NJDEP, Remedial Investigation, Upper Ringwood Mines Landfill Site, Ringwood, New Jersey. Project Manager.

Responsible for investigation of contaminated soils on residential properties in the upper Ringwood, New Jersey neighborhood. The site is part of a larger U.S. Environmental Protection Agency (EPA) Superfund site relating to the illegal disposal of contaminated paint sludge. Mr. Watt is responsible for contacting residents, scheduling property walks and surveys for incorporation into a property specific workplan for remedial investigation activities including soil borings and exploratory excavations. Mr. Watt also serves as the Louis Berger liaison for the resident's attorney, NJDEP, EPA, and Ford Motor Company.

New York City Mayor's Office of Environmental Remediation (OER)– Gowanus Canal Investigation – Brooklyn, NY – Environmental Investigations for NPL Listing.

As the Manager of Field Operations for this project, Mr. Watt was responsible for ensuring the adherence with State and Federal regulations and guidance of the workplans, field sampling plans, quality assurance project plans and health and safety plans, both in planning and implementation. The project consisted of the environmental investigations at three city owned properties listed as responsible parties by the USEPA for the Gowanus Superfund Site. Mr. Watt was responsible for the overall quality of all field investigation and conducted general oversight of the field activities and performed field audits. In addition, all Sitewide activities and logistical planning with client contacts, subcontractors and Berger personnel were handled by Mr. Watt, including subcontractor procurement. Years 2010-2011; \$500K

United States Postal Service (USPS), Remedial Investigations and LSRP Services, Multiple Sites in New Jersey. LSRP.

Mr. Watt is the LSRP for multiple USPS facilities

in the State of New Jersey. As the LSRP Mr. Watt is responsible for the design and implementation of remedial investigations through completion of the Remedial Investigation Reports. Mr. Watt assists and directly oversees the Remedial Actions prescribed in the Remedial Action Workplans and ultimately responsible for the Remedial Action Reports and issuances of Response Action Outcomes (RAO).

Thomas Waldron, P.G., LSRP

Site Investigation

Education

B.A. - Potsdam College, Geology

Registration

Professional Geologist, Commonwealth of Pennsylvania

Licensed Site Remediation Professional, New Jersey

Years of Experience

With Louis Berger: 8

Total Years: 25

Mr. Waldron has over 25 years of experience with the technical and regulatory aspects of subsurface investigations and remediation on private, public and transportation-sector projects. Mr. Waldron serves as Program Manager for Environmental and LSRP Services on NJDOT Maintenance Facility. He has successfully managed numerous soil and groundwater investigations to characterize and delineate soil and groundwater contamination, determine the hydraulic characteristics, assess potential contaminant migration rates and pathways, and evaluate remediation alternatives and technologies. Most of the projects Mr. Waldron has participated in have required an understanding of applicable soil and groundwater investigatory and remediation techniques and state and federal regulatory requirements. His assignments have included subsurface investigations and compliance activities for Comprehensive Environmental Response Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and Industrial Site Remediation Act (ISRA).

Mr. Waldron has demonstrated a working knowledge of NEPA, and state (NJTA, NJDOT, PENNDOT, and NYSDOT) procedures.

LCI Holdings, Inc., North Bergen Hudson County, New Jersey: Licensed Site Remediation Professional (LSRP) and project manager responsible for the investigation, remediation and site-wide Response Action Outcome (RAO) of an 8-acre commercial/office complex situated in the Hackensack Meadowlands. During the preconstruction phase he was responsible for due diligence assessments, subsurface soil and groundwater investigations, technical assistance for consultations with NJDEP negotiations, assisting with environmental permitting, preparation of environmental plans and specifications as part of the overall bid documents package and assisted the design team with engineering estimates. An Alternative Remediation Standard was acquired to address metals present in soils throughout the site. Responsible for inspections and compliance with plans and regulatory requirements during construction

Caven Point Marine Terminal, New Jersey, Jersey City, NJ - USACE: Licensed Site Remediation Professional (LSRP) of Record responsible for underground storage tank (UST) closure and investigation activities associated with soil, groundwater and vapor intrusion. Developed and initiated a compliance program to address regulatory and mandatory timeframes. Compliance activities include: public notification, receptor evaluation, subsurface geophysical survey, soil and groundwater investigations, ecological evaluation, vapor intrusion investigation (sub-slab and indoor air sampling), development of site-specific IGWSRS, and reporting. Currently assisting USACE with environmental compliance activities associated with the site's redevelopment strategies after Hurricane Sandy.

Passaic River Public Park, Boat Ramp and Dock Expansion Project for Nereid Boat Club, Rutherford New Jersey - The Louis Berger Group collaborated with the Nereid Boat Club and the Borough of Rutherford to restore the club's shoreline along the Passaic River in Rutherford, New Jersey using a sustainable and natural design. The shoreline restoration will be the first such restoration project along the lower Passaic River. Mr. Waldron was the LSRP that successfully lead the site investigations and remediation activities which lead to the issuance of a Response Action Outcome (RAO) for this project which was an integral part of the part of the Projects funding through Green Acres and other funding sources. Historic fill material and sediments were characterized through an environmental sampling program implemented by Berger to comply with the NJDEP Technical Requirements for Site Remediation. Engineering (capping) and Institutional (Deed Notice) Controls for the soil contamination were developed to be protective of human health and the environment as part of an approved Remedial Action Workplan. An Authorized Use Determination (AUD) was obtained from the NJDEP for the off-site beneficial reuse of contaminated sediments which will be dredged in order to enhance the existing boat ramp. Berger conducted a preliminary

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investigation and guided Nereid through the closures of three USTs. Berger provided Nereid successful environmental compliance through our overall understanding of the NJDEP's compliance processes and its interrelationship with the Project's funding, schedule and construction requirements.

Jet Aviation, Teterboro Airport, Moonachie, New Jersey.

Licensed Site Remediation Professional responsible for the design and impletation of a jet fuel release to a nearby drainage ditch. Lead the investigation to document that the cleanup successfully remediated the release thereby issuing a Response Action Outcome (RAO). On an expedited apron expansion program, Mr. Waldron designed and oversaw the environmental assessment, soil characterization & disposal of excess soils generated during consturction.

Interchange at U.S. Route 22 and Chimney Rock Road, Bridgewater Township, Somerset County, New Jersey

- Somerset County: Project Licensed Site Remediation Professional (LSRP). During the preconstruction phase he was responsible for due diligence assessments, subsurface soil and groundwater investigations, technical assistance for right of way negotiations, assisting with environmental permitting, preparation of environmental plans and specifications as part of the overall bid documents package and assisted the design team with engineering estimates. Coordinated Asbestos (ACM) and Lead-Based Paint (LBP) surveyor team conducting pre-demo building survey of ACM, LBP and universal wastes. Survey results were incorporated into project specs and plans. He led the Technical Consultation with the NJDEP to transition this project as the first highway project advanced under the New Jersey's Linear Construction Project program. An Alternative Remediation Standard was acquired to address vanadium present in soils throughout the project corridor. As part of the construction team, he is participates in construction team meetings, responsible for construction monitoring of hazardous waste, disposal and clean fill issues to ensure compliance with specifications and State regulations. Coordinated third party monitoring of ACM, LBP and universal waste pre-demo abatement. He is responsible preparation of reports to the NJDEP and NJDOT.

Woodbridge Delivery Pipeline, Middlesex County, New Jersey - Transcontinental Pipeline Company, LLC:

Hazardous waste lead and LSRP for Transco's 2.5-mile pipeline deliver lateral to a natural gas power plant under construction. He headed the corridor-wide hazardous waste screening studies for multiple alignment alternatives to identify potential contaminated sites and environmental concerns which could impact project design, construction, schedule or pose a fatal flaw. A subsurface sampling program was implemented

to assess potential soil and groundwater contamination within the alignment to support easement negotiations, bid documents, soils and dewatering effluent management and worker health & safety. The results the screening and subsurface investigations were incorporated into applicable FERC resource reports, NJDEP documents and Landfill disruption permits. As part of the construction team, he is participates in construction team meetings, address contractor RFI's, provides oversight of waste classification, offsite disposal and imported backfill issues. He is also responsible for construction monitoring associated with the management of the Project's contaminated materials and imported clean fill material to ensure compliance with specifications and NJDEP regulations and submittal of Final Linear Report.

Interchange 6 to 9 Widening Program, Burlington, Mercer, Middlesex Counties - NJ Turnpike Authority:

Task Manager responsible for the oversight and review of all Phase I Environmental Site Assessment (ESAs) and Asbestos (ACM) and Lead-Based Paint (LBP) Surveys to evaluate environmental concerns at ROW acquisition for a 23-mile Turnpike widening program. As part of the Turnpike's Environmental Coordinator Team, he is responsible for the preparation or review of all Phase I Environmental Site Assessments (ESA), Preliminary Assessments (PAs) and Site Investigations conducted in accordance with NJAC 7:26E-3-1 or ASTM. The PAs were required for No Further Action requests for Green Acres and wetlands mitigation sites. Soil and groundwater investigations were conducted in accordance with the NJDEP Technical Requirements (NJAC 7:26E), NJDEP's Field Sampling Procedures Manual the all applicable Federal and local requirements. Also responsible for the preparation of bid specifications, cleanup plan, construction monitoring of soil reuse/disposal, UST removals and preparation of Hazardous Materials documents.

Mike McWatters, P.E.

Environmental Engineering

Education

Bachelor of Chemical Engineering, Villanova University, 2002

Registration

Professional Engineer: New Jersey

Years of Experience

With Louis Berger: 9
Total Years: 12

Mr. McWatters began his professional career in 2003 as a Chemical Engineer / Project Manager for an in-situ chemical oxidation company specializing in the remediation of soil and groundwater contamination. His past experience includes preparing cost estimates and proposals, designing remedial treatment programs based on site-specific information (contaminant type, contaminant concentrations, site history, etc.), implementing and overseeing treatment programs, performing field investigations (air and groundwater monitoring, operation of specialized equipment), and evaluating the effectiveness of the treatment programs through data evaluation. Many of the treatment programs implemented during his tenure were completed successfully (from design to field application to evaluation report to site closure). Mr. McWatters joined the

Remedial Design group at The Louis Berger Group, Inc. in June 2006 as a Chemical Engineer. His time at Louis Berger has allowed him to grow professionally by gaining experience in several areas including remedial design, project management, field investigations, construction oversight, and reporting. Mr. McWatters has experience working in the following services: Brownfields Remediation and Redevelopment, Groundwater Treatment Services, Industrial Hygiene Services, Vapor Intrusion, General Environmental Services, and in-situ chemical oxidation.

Project Manager, New Jersey Sports and Exposition Authority, PCB Transformer Removal Project, East Rutherford, New Jersey. For activities related to the removal of 17 PCB transformers located in the vicinity of the Meadowlands Racetrack. Prior to transformer removal, a remedial investigation was conducted and included sampling the transformer fluid, transformer pads, and surface soils in the vicinity of the transformers. A Notification for Self-Implementing Cleanup was also submitted to and approved by USEPA prior to commencing removal activities. Remediation activities included draining and disposal of the transformer fluid, removal and disposal of the transformer equipment and electrical cabinets, excavation and disposal of TSCA regulated hazardous and non-hazardous concrete and soil, post-excavation soil sampling to satisfy both USEPA and NJDEP requirements, and site restoration activities.

Project Engineer and Field Oversight, New Jersey Sports and Exposition Authority, Meadowlands Xanadu Redevelopment Project, East Rutherford, New Jersey. For activities related to PCB contamination identified at Parking Lot 27 (former Parking Lot 21) of the IZOD Center (formerly Continental Airlines Arena). Site activities included excavation and disposal of TSCA regulated hazardous and non-hazardous soil, post-excavation soil sampling to satisfy both USEPA and NJDEP requirements, and site restoration activities (backfilling and paving). After the completion of site activities, a Remedial Action Report was completed and submitted to USEPA and NJDEP for review requesting a No Further Action for soils at this location.

Project Engineer and Field Oversight, New Jersey Sports and Exposition Authority, Meadowlands Railroad and Roadway Improvement Project, East Rutherford, New Jersey. For several aspects of the Interim Remedial Measure (IRM), which were required in order to construct the railroad. Assisted with several aspects of the project, including review of construction submittals, conducted oversight of the excavation and removal of over 9,000 cubic yards of soil, including both non-hazardous and hazardous PCB-impacted soils located within the railroad alignment, and preparation of a final Remedial Action Report and Deed Restriction documents. Additional activities included perimeter air monitoring during Level B work associated with the replacement of a 60-inch storm sewer to ensure that contamination did not reach off-site receptors. Groundwater encountered during this work was temporarily stored, sampled, treated using a mobile treatment unit and discharged in accordance with a NJPDES Permit-by-Rule.

Project Manager, Woodmont Properties, Former Colloid Chemical Site, Hanover, New Jersey. For this 14.9-acre site that was redeveloped into a residential apartment complex, which opened in 2014. Historical manufacturing activities at the site ranged from small volume paint, varnish,

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and specialty chemical production to larger operations for production of liquid resins. The principal environmental issue affecting site development was the presence of PCBs in shallow soil. Louis Berger provided LSRP and field oversight services during the remediation activities to ensure that all activities were conducted in accordance with the USEPA and NJDEP approved work plans. Responsibilities included project management, oversight of excavation activities, collection of post-excavation soil samples, and oversight of disposal, reuse and capping activities. PCB-impacted soils were addressed through off-site disposal or through capping on-site.

Project Engineer, Red Bull New York, Red Bull Arena, Harrison, New Jersey. For this 12-acre redevelopment project that turned previous contaminated industrial properties into a state-of-the-art soccer-specific stadium for the Red Bull New York Major League Soccer team. Responsibilities included evaluation of site remediation data and reporting in support of the Remedial Action Workplan, Soil Re-use Proposal, Health and Safety Plan, Air Monitoring Plan, and Vapor Intrusion Mitigation Design for the project. During construction, site activities included air monitoring for volatile organic compounds and particulates (dust) during intrusive activities (utility installations, pile cap installations, etc.), oversight of excavation and off-site disposal of contaminated soil during pile-cap construction and site grading activities, groundwater treatment and discharge through a NJPDES Permit-by-Rule, and the design and installation of a passive sub-slab vapor mitigation system under the enclosed areas of the stadium. Louis Berger also installed eleven (11) shallow and nine (9) deep monitoring wells at the site and sampled them over a 2 year period to investigate and document groundwater conditions at the site.

Technical Consultant to Special Master, Technical Consultant to Special Master, U.S. District Court-Ordered Remediation, Honeywell Study Areas 6N, 6S, and 7, Jersey City, New Jersey. Technical consultant to Special Master Senator Robert G. Torricelli, appointed by the federal judiciary to oversee all aspects of Honeywell's compliance with a Court Order to manage hazardous (hexavalent chromium) wastes from historic deposition of Chromium Ore Processing Residue (COPR) into former tidal flats of the Hackensack River. Project activities include the oversight of all technical environmental and engineering components of the project. On behalf of the Special Master, Louis Berger is responsible for identifying and quickly addressing critical shortcomings and providing technical guidance and recommendations on the proposed remedial design for the three Study Areas.

Deluxe Corporation, Multiple Site Locations. Responsible for two (2) sites in PA and CT. Activities include quarterly groundwater sampling programs for more than 30 wells, remedial investigations of soil and groundwater, and preparation of monthly and quarterly forms, annual and semi-annual monitoring reports, remedial investigation reports, and discharge permit applications for state DEP officials. Responsibilities also include preparing proposals, budgets and schedules, and managing budgets. Oversee operations and maintenance of pump and treat (P&T) remediation system at site in PA.

Project Engineer and Field Oversight, Long Island Rail Road, Various Locations, South Shore, Long Island, New York. For site activities conducted to investigate and characterize soil and groundwater at twenty LIRR substations that may have been contaminated by the past use of chlordane. Investigation activities included the collection of soil and groundwater from multiple locations at each substation and to determine potential upgradient contributing sources (due to historic residential applications) and potential downgradient receptors.

Project Engineer, U.S. Army Corps of Engineers, Mobile District, HTRW Remedial Investigation/Feasibility Study, Clean-up of the Former Brookley Air Force Base, Mobile, Alabama. Supporting the supplemental RI work, FS preparation, and remedial pilot studies to address chlorinated solvents and petroleum hydrocarbons in groundwater at two areas of concern (AOCs) at the former Brookley Air Force Base. Current on-going work includes horizontal and vertical delineation of residual source areas of chlorinated VOCs at one of the AOCs.

Project Engineer, New Jersey Department of Environmental Protection, Feasibility Study and Proposed Plan, Ellis Property Superfund Site, Evesham, New Jersey. Supporting the preparation of a feasibility study and revised proposed plan based on an evaluation of alternative remedial technologies for addressing residual source areas of chlorinated VOCs in groundwater at the site, currently not being adequately addressed by the on-going pump and treat remedy at the site.



Susan Lindstrom Natural Resources

Education

M.S. - Soil and Water Science

B.S. - Environmental Sciences, minors in
Chemistry and Biology

Years of Experience

With Louis Berger: 11

Total Years: 12

Ms. Lindstrom is an environmental scientist with Louis Berger with twelve years of experience in wetland and soil science. Her experience includes wetland delineations, permitting, wetland mitigation studies, wetland mitigation site monitoring, vegetation monitoring, wetland research, water quality evaluation, and ecological risk evaluation. She has been involved in the design and implementation of wetland restoration and mitigation sites, and in planting oversight at several large-scale wetland restoration construction projects in the NJ Meadowlands. Her experience also includes the preparation of federal and state permit applications and National Environmental Policy Act (NEPA) compliance documentation. She has research experience in the fields of constructed wetlands

and nutrient biogeochemistry in wetlands and aquatic systems, and is skilled in the use of GPS technology and water quality monitoring instruments.

USACE Baltimore District, Chesapeake Bay Shoreline Erosion Manual. Environmental scientist. Assisted with the preparation of an updated version of the USACE technical guide titled Low cost Shore Protection...A Guide for Engineers and Contractors. The updated document focuses on appropriate measures for protecting the shorelines of the Chesapeake Bay, promoting best management practices and the latest engineering technologies. Responsible for researching and writing the Living Shorelines sections of the manual, which provides information about state of the art technologies that not only provide stability but also improve coastal habitat.

New Jersey Department of Environmental Protection, Construction Oversight, Wetland Restoration, Lincoln Park, Jersey City, New Jersey. Environmental scientist. Responsible for oversight of planting on a 35-acre wetland restoration site in the Hackensack River ecosystem. Responsible for ensuring that the planting crews follow construction specifications for fertilizing, seeding, and planting. Attended weekly construction meetings to report on planting progress to NJDEP. Additional tasks performed for this project include field work and analyses of the various monitoring parameters which include: Monitoring of wetland and upland vegetation, wetland hydrology monitoring, macroinvertebrate monitoring, nekton monitoring, soil sampling, and qualitative monitoring, as well as preparation of monitoring reports.

New Jersey Meadowlands Commission, Construction Oversight, Secaucus High School Wetland Restoration, Secaucus, New Jersey. Environmental scientist. Responsible for the oversight of planting on a 36-acre salt marsh mitigation site in the New Jersey Meadowlands. The project enhanced a degraded tidal marsh located adjacent to the Secaucus High School on the Hackensack River. The enhancement improves tidal flow and re-establishes a diversity of high and low marsh wetland plants to provide habitat for a variety of wildlife. Responsible for ensuring that the planting crews followed construction specifications for fertilizing, seeding, and planting. Attended weekly construction meetings to report on planting progress.

USACE New York District, Initial and Final phase of the Meadowlands Comprehensive Restoration Implementation Plan (MCRIP), Hackensack Meadowlands, New Jersey. Environmental scientist. The MCRIP is a report addressing the engineering, environmental, and economic feasibility of restoration in the Meadowlands. The report delineates degradation problems and restoration needs, as well as analyzes programmatic Meadowlands-wide and site-specific ecosystem restoration opportunities. Responsible for searching the available literature and abstracting information from various scientific journals and reports for inclusion as supporting information in the plan, as well as writing sections of report, management and updating of the various files used in the report.

USACE New York District, Programmatic Environmental Impact Statement (PEIS) for Meadowlands Restoration. Environmental scientist. The PEIS analyzed the environmental impacts associated with the implementation of the Meadowlands Comprehensive Restoration Implementation Plan (MCRIP). It provides an evaluation of environmental, social and economic issues

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and alternatives to achieve project goals and objectives, while avoiding/minimizing adverse impacts, providing the USACE with the necessary NEPA compliance documentation for MCRIP implementation. Responsible for managing and updating the files used in preparing the PEIS, as well as contributing to affected environment chapters of the PEIS.

Kinder Morgan Liquids Terminals, LLC, Wetland Delineation and New Jersey Department of Environmental Protection (NJDEP) Permit Application, Perth Amboy, New Jersey. Environmental scientist.

Responsible for wetland delineation and environmental permitting at an industrial facility for liquid chemical storage. Kinder Morgan needed to repair damage to containment area dike walls from Hurricane Sandy. Wetland and aquatic resources were present in the vicinity of the dike walls. Tasks included wetland delineation using USACE's three parameter (soils, vegetation, hydrology) approach and preparation of an Upland Waterfront Development Permit and Freshwater Wetlands Transition Area Waiver for submittal to NJDEP. Also prepared documentation for emergency authorization from NJDEP to begin the repairs in advance of the permits.

Earthmark Mitigation Services, Construction Oversight, Wetland Restoration, Richard P. Kane Wetland Mitigation Bank, Carlstadt, New Jersey. Environmental scientist.

Responsible for oversight of planting of a 240 acre wetland restoration site which includes a forested freshwater mitigation site and a tidal marsh site in the New Jersey Meadowlands. Responsible for ensuring that the planting crews follow construction specifications for fertilizing, seeding, and planting. Provided post construction inspections and monitoring of this restored wetland which created critical habitats for fish and wildlife and provides mitigation for necessary transportation projects in the region.

Marsh Resources, Inc., Wetland Mitigation Monitoring, Meadowlands Mitigation Bank Phases 1 and 2, Carlstadt, New Jersey. Environmental analyst. Conducted annual monitoring of a 206-acre salt marsh wetland mitigation bank in the Hackensack Meadowlands District. Identified vegetative species and percent cover, as well as preparation of the data for annual monitoring report for submittal. The monitoring program documents the success of plant establishment within the Bank to maintain compliance with regulatory agency permits and approvals. Additionally, responsible for preparing a market analysis report for the third phase of the mitigation bank. Researched available literature including reports and publications from state agencies and local governments, and wrote analysis used in the wetland mitigation bank feasibility studies.

Tara Stewart

Natural Resources

Education

B.S. - Marine Biology, 1998

Years of Experience

With Louis Berger: 14

Total Years: 16

Ms. Stewart is a senior environmental scientist with more than 16 years of experience working in estuarine, marine, and freshwater environments with an emphasis on species inventory, habitat assessment, aquatic resource impact assessment, ecological risk assessment, ecological restoration, and evaluation of habitat restoration. Ms. Stewart working extensively in the Hackensack Meadowlands District over the past 15 years. Ms. Stewart has extensive experience with wetland mitigation and restoration projects, including the oversight of construction and planting, subcontractors, and the planning and

implementation of wetland restoration monitoring. She is experienced in the identification of ichthyoplankton, benthic macroinvertebrate, and fish species.

U.S. Army Corps of Engineers, Hudson-Raritan Estuary (HRE) and Lower Passaic Ecosystem Restoration Feasibility Studies. Conducted wetland functional assessments at eleven potential restoration sites and two reference sites within the Lower Passaic and Hackensack Rivers using the Evaluation for Planned Wetlands and NRCS Stream Visual Assessment Protocol methodologies. The assessments included desktop studies of potential uniqueness and heritage elements and field investigations to document community structure, bank stability, vegetative diversity, sediment types, wildlife species utilization, and other habitat characteristics. Calculated Functional Capacity Index and Functional Capacity Unit scores for each site. Prepared report documenting baseline condition functional scores that will be used as the basis for determining the appropriate restoration actions for each site.

Biologist, New Jersey Meadowlands Commission, Secaucus Wetland Enhancement, Secaucus, New Jersey. For project to develop a construction bid package and provide construction oversight for the approximately 30 acre Secaucus High School Wetland Enhancement Site. Responsibilities included the review and analysis of biobenchmark, tide gage, and topography data in order to verify site grading requirements and determine appropriate planting elevations for the restored tidal marsh. Conducted field studies to determine flow velocities within existing tidal channels. Assisted in the development of planting plan and construction specifications for fertilizing, seeding, and planting. Provided oversight for planting operations.

Biologist, EarthMark Mitigation Services, LLC., Richard P. Kane Natural Area, Freshwater Wetland Mitigation Site and Tidal Wetland Mitigation Bank, South Hackensack and Carlstadt, Bergen County, New Jersey. Assisting with the planning, design, and construction of a 230-acre tidal wetland mitigation bank and a 17-acre freshwater forested wetland restoration project within the NJ Meadowlands District. Responsibilities included collection and technical review of baseline data for plant communities, wetlands, and hydrology; conducting a Baseline Ecological Evaluation of the Bank site; performing and Indicator Value Analysis (IVA) of the mitigation area; development of tidal marsh and freshwater forest design plans; coordinating pre-construction invasive plant species control efforts; and preparation of the Mitigation Banking Instrument and long term monitoring and maintenance plan. Provided oversight of planting operations at the Bank as well as planning and coordination for post-construction invasive plant species management.

Biologist, Marsh Resources, Inc., Marsh Resources Meadowlands Mitigation Bank, Phases 1 and 2, Carlstadt, New Jersey. For various aspects of design/build services for the construction and planting of a 206-acre salt marsh mitigation bank in the Hackensack Meadowlands District. Responsibilities included supervising planting and seeding of marsh and upland areas, measuring seeding efficiency, and implementing herbivory controls. Project manager of program to monitor the success of plant establishment within the Bank and maintain compliance with regulatory agency permits and approvals. Tasks include botanical identification, evaluation of percent cover, data analysis, invasive species control, and preparation of monitoring reports for submittal to the required agencies.

Biologist, New Jersey Meadowlands Commission, Development of Hydrogeomorphic (HGM) Model and Guidebook for the Tidal Fringe Wetlands in the Hackensack Meadowlands.

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Contributed to the final development of a hydrogeomorphic (HGM) functional assessment model and guidebook for assessing the functions and values of tidal fringe wetlands in the Hackensack Meadowlands. Collected and evaluated field data from representative sites to test the HGM model for accuracy and sensitivity.

Biologist, USACE New York, Initial Phase of the Meadowlands Comprehensive Restoration

Implementation Plan (MCRIP). Biologist. Contributed to a report addressing the engineering, environmental, and economic feasibility of the Meadowlands Comprehensive Restoration Implementation Plan. The report delineates degradation problems and restoration needs, as well as analyzes programmatic Meadowlands-wide and site-specific ecosystem restoration opportunities. The MCRIP is used as an implementation plan for future restoration within the Meadowlands, including but not limited to analysis and recommendations concerning saltmarsh restoration, water management control structures, contaminated sediment impacts on biota, and benthic habitat restoration.

Project Manager, New Jersey Meadowlands Commission, Mill Creek Wetland Enhancement Site, Secaucus, New Jersey. Of seeding and planting programs at a 120 acre salt marsh in the Hackensack Meadowlands District implemented to ensure compliance with regulatory agency permit conditions and performance criteria. Responsibilities included determining seeding/planting locations, oversight of planting operations, conducting quantitative sampling procedures to measure seeding efficiency, surveying seeding/planting locations, and monitoring plant growth.

Biologist, New Jersey Meadowlands Commission, Harrier Meadows Tidal Assessment Study, Lyndhurst, New Jersey. Performed tidal assessment of salt marsh restoration site to determine the effects of flow constrictions across the site and reach a recommendation for restoring tidal influence to target area. Installed electronic tide gauges, documented and photographed tidal patterns, and assisted in interpretation of collected data.

Benthic Ecologist, New Jersey Meadowlands Commission, Oritani Marsh Baseline Studies, Lyndhurst, New Jersey.

Conducted laboratory species identification and statistical analysis of data for benthic macroinvertebrate survey for a potential tidal wetlands mitigation site on the Hackensack River. Responsibilities also included insurance of proper laboratory methodology and preparation of interpretive report to the client. The study was conducted to determine existing site conditions and potential contamination influences.

Melissa A. Harclerode, ENV SP

Site Investigation

Education

Ph.D. Candidate - Environmental Management,
Current

M.S. - Environmental Science, Rutgers
University/New Jersey Institute of Technology,
2010

B.S. - Environmental Science & Biology,
Muhlenberg College, 200

Registration

Institute for Sustainable Infrastructure, Envision
Sustainability Professional

Wetland Delineation Certified, Rutgers
Continuing Education Program

FEMA Incident Command System Training and
FEMA ICS for single Resources and Initial Action
Incidents

Years of Experience

With CDM Smith: 10

Total Years: 10

Ms. Harclerode is an environmental scientist with 10 years of experience in site investigations and environmental site assessments. As a Project and Task Manager, she is experienced in designing and managing a variety of projects with multi-disciplined teams. Managed projects include remedial investigations/feasibility studies, pre-design investigations, Phase I/II Brownfields environmental site assessments, and Tier II environmental assessments. Ms. Harclerode has provided technical support for numerous field investigations under the EPA (Region II), New York State Department of Environmental Conservation, New Jersey Department of Environmental Protection, New Jersey Department of Community Affairs, and numerous private clients. Ms. Harclerode is also well versed in sustainability assessments and evaluations, including environmental footprint analysis tools, life cycle assessments, social cost benefit analysis, and best management practice tracking.

Task Manager, Environmental Assessment Field Contractors for Environmental and Historic Preservation Reviews, New Jersey's CDBG-DR Grant Program. Ms. Harclerode conducted and managed field team performance of site inspections in support of Tier II environmental assessments. In addition, Ms. Harclerode was responsible for preparing Tier II environmental assessment reports, scheduling subcontractors, and coordinating information transfer using NJDEP's Environmental Review Management System (ERMS). In order to streamline data transfer from the field to the office, Ms. Harclerode assisted with preparing a field iPad application.

Project Manager, Site Investigation and Remediation at Petroleum Spill and Dielectric Spill Sites, Consolidated Edison Co., Manhattan, Brooklyn and Queens, New York. Ms. Harclerode is currently the Project Manager for Appendix B Spill Sites 28, 33, 68, and 76. Ms. Harclerode is responsible for developing the investigation program with the CDM Smith Program Manager and Con Edison Project Managers. Her responsibilities also include delegating and overseeing investigation activities and managing each site's budget, hours, staffing, and subcontractors.

Task Manager/Project Scientist, Site Investigation and Remediation at Petroleum Spill and Dielectric Spill Sites, Consolidated Edison Co., Manhattan, Brooklyn and Queens, New York. Ms. Harclerode was the field team manager, sample manager, technical support, and task manager on several ConEdison sites concerning various sampling activities and proposal budgets. Sampling activities involved post excavation sampling, soil sampling, groundwater sampling, monitoring well installation/development, and product recovery events. The majority of site activities were conducted in close proximity to dense subsurface utilities, structures and obstructions, as well as located within public roadways in New York City. Ms. Harclerode has experience with the New York City Department of Transportation and Amtrak permitting process/requirements, including traffic control, work area protection and maintenance and protection of traffic (MPT) plans.

Project Manager, Wantagh Cleaners, Hempstead, New York, New York State Department of Environmental Conservation. Ms. Harclerode is the Project Manager for the Wantagh Cleaners work assignment under the NYSDEC Contract. Her responsibilities include delegating and overseeing activities associated with a remedial investigation/feasibility study involving delineation of a chlorinated groundwater plume and vapor intrusion assessment. She is also responsible for keeping track of each site's budget and hours, as well as overseeing preparation of the remedial investigation/feasibility study report. Ms. Harclerode is responsible for the overall technical quality of this work assignment.

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Targeted Brownfields Assessment Leader, Targeted Brownfields Assessments, USEPA Region 2. Ms. Harclerode is the Lead Scientist for the Brownfields work assignment under the EPA Contract. Her responsibilities include delegating and overseeing activities associated with Phase I and II ESA field investigations and reporting. All activities were conducted in accordance with ASTM and USEPA All Appropriate Inquiry requirements. She is also responsible for keeping track of each site's budget and hours. She is also the liaison between CDM Smith and the representatives for the Targeted Brownfield Assessment funding recipient. Several Brownfields sites were evaluated under state regulatory protocol to achieve funding recipient cleanup goals. Due to limited funds available for Brownfields cleanup, Ms. Harclerode, along with the project team, has developed streamlined site investigation approaches to minimize site investigation efforts and costs. Ms. Harclerode also prepared the Generic QAPP and HASP for the Targeted Brownfields Sites.

Sustainability Technical Lead, CDM Smith. Ms. Harclerode provides technical and quality control support on sustainability assessments for a wide variety of projects:

- **Private Client, Review of 100% Sediment Remedial Design for Climate Change Vulnerabilities:** Ms. Harclerode identified design components that may be vulnerable to a changing climate. The United States Environmental Protection Agency's (USEPA) Climate Change Adaptation Plan and amended technical fact sheets were used as supporting material for this review.
- **USEPA, Green Remediation Implementation:** Ms. Harclerode provides contract wide support on incorporating and tracking of green and sustainable remediation best management practices throughout a projects life cycle (site assessment to design to construction). Ms. Harclerode also provides technical support on environmental footprint analysis of proposed remedial and site characterization alternatives.
- **Strategic Environmental Research and Development Program (SERDP), Life Cycle Assessment of Water Re-Use:** Ms. Harclerode conducted a technical and quality control review of a life cycle impact assessment conducted for water supply and re-use scenarios for a military base.
- **Dissertation Research, Montclair State University:** Specializes in the development and application of integrated assessment approaches to comprehensively define sustainability objectives and evaluate environmental, social, and economic impacts of project activities.

Specifically, she is experienced in life cycle assessment, environmental footprint analysis, cost benefit analysis (CBA), social CBA, and community surveys.

Field Manager, NJDEP, Harrison Landfill, Camden, New Jersey. Ms. Harclerode was the field team manager for the Harrison Landfill MIP investigation. Her responsibilities included making in-field decisions in order to implement the TRIAD approach on-site to streamline sampling and characterization efforts. Ms. Harclerode also assisted with writing, preparing tables, and evaluating data from the MIP, soil, and groundwater investigation for the pre-design report.

Environmental Scientist, NJDEP, Struthers Dunn, Mantua, New Jersey. Ms. Harclerode assisted in preparing the File Review and Recommendations Report which provided a detailed data gap analysis and scope of work for a pre-design investigation. Work included implementation of the MIP, direct push technology confirmatory sampling, and assessing containment distribution in the subsurface. Ms. Harclerode is the co-authoring the Interim Response Measure Report for this site.

Environmental Scientist, Horseshoe Road Site, Sayerville, New Jersey. Ms. Harclerode was responsible for all the activities associated with sample management for the soil sampling event. Her responsibilities included, but were not limited to, setting up the sampling schedule, shipping out samples, and assisting the field team leader.

Environmental Scientist, Old Roosevelt Field Contaminated Groundwater Area Site, Nassau County, New York. Ms. Harclerode collected approximately 200 soil gas samples, both on site and off site. The soil gas samples were collected into summa canisters at two intervals below ground surface via Geoprobe. Soil gas screening was also performed at 350 sample locations. She was also responsible for the sampling management and shipment of samples. During the spring, Ms. Harclerode assisted in the collection of groundwater samples via the West Bay System and the low flow procedure. The monitoring wells were located on site and off site. Following groundwater sampling, she assisted in an eco-assessment of the site, which involved identifying dominant vegetation, basin boundaries, and hydrology.

Environmental Scientist, Hopewell Precision Site, Hopewell Junction, New York. Ms. Harclerode was responsible for all the activities associated with sample management for the indoor air sampling. Her responsibilities included, but were not limited to, contacting local residents, setting up the sampling schedule, shipping out samples, and informing the RI task leader of daily activities.

Rafael Cañizares, Ph.D.

Coastal Modeling

Education

Ph.D. - Applied Mathematics and Hydraulics,
Delft University of Technology, Netherlands,
1999

M.S. - Hydraulic Engineering with Distinction,
International Institute for Infrastructural,
Hydraulic and Environmental Engineering,
Netherlands, 1995

M.E. - Civil Engineering, Polytechnical
University of Madrid, Spain, 1993

Years of Experience

With Moffatt & Nichol: 15

Total Years: 19

Dr. Cañizares joined Moffatt & Nichol in 2000, where he leads the development and application of 2-dimensional (2D) and 3D numerical models of estuarine and coastal environments. He possesses significant experience in the development and application of morphological models of coastal and estuarine areas, which includes the integration of hydrodynamic, wave, and sediment transport modeling. His experience in the field of storm surge modeling and forecasting includes development of regional coastal models and their integration with data assimilation techniques for the purpose of model correction, calibration, and initialization, which earned him a Ph.D. at the Technical University of Delft in the Netherlands. While a post-doctoral scientist at the Lamont Doherty Earth Observatory of Columbia University, he conducted research on a coupled ocean-atmosphere tropical pacific model for El Niño Southern Oscillation predictions. Dr. Cañizares has also been involved in the evaluation process of potential impacts associated with projects in coastal and estuarine environments using numerical models, including water quality models.

Louisiana Master Plan 2012 Revision Eco-Hydrology Module, Iberville, St. Martin, Assumption, and Terrebonne Parishes, Louisiana. Senior coastal engineer responsible for the water quality components of the hydrodynamic and water quality modeling update. Using the Berkley Madonna Box model, the hydrodynamic modeling results formed the foundation for all other subsequent tiers of modeling. The module was used to assess project performance and potential for hydro-modification of the system and the potential for the projects to impact water quality.

New York Comprehensive Citywide Ferry Study, New York, New York. Senior coastal engineer and modeler for a study to explore expansion of the east river ferry. Analyzed more than 50 ferry landing sites in the greater New York City Metro area for adaptability to ferry operations, use in an emergency, and Environmental concerns including vessel wakes. The work included the analysis of the existing traffic in New York Harbor to estimate the impact of vessel generated wakes in the ferry location to be analyzed.

Woods Hole Ferry Terminal Reconstruction, Woods Hole, Massachusetts. Senior coastal engineer and modeler for the planning and design of the reconstruction of the existing Ferry terminal, administrative offices and vessel maintenance/tie-up Facility. The reconstructed ferry terminal facility will include reconfigured Vessel berths, vehicle staging areas for autos and trucks, a passenger Terminal and passenger boarding facilities, a bus terminal, parking lots, and buildings for passenger ticketing and waiting, along with Warehouse/maintenance activities. Specific tasks included the development of hydrodynamic numerical model reproducing the currents in the project area and approach channels and analyze the potential impact on the current pattern and ferry operation under future conditions with the reconstructed ferry terminal.

Canal del Dique, Bogotá, Colombia. Hydrodynamic and sediment modeling expert who reviewed, modeled, and validated the conceptual design of a series of three constriction structures intended to improve environmental and navigational conditions in Canal del Dique. Analyzed several variations of the this alternative with the goal of reducing sedimentation in the canal, counteracting the reduction in water level, and stopping disruptions to the cargo transit and the local ecosystem.

Lower Passaic River and Newark Bay Restoration Estuarine and Contaminated Sediment Model, Newark, New Jersey.

Project manager and hydrodynamic principal investigator of the Lower Passaic River and Newark Bay Remedial Investigation/Feasibility Study Modeling Program, which includes a remediation initiative that involves modeling of estuarine hydrodynamics, sediment transport, and contaminant fate and transport at this Superfund site. Led the development of conceptual models of hydrodynamic, sediment transport, and fate of contaminants in the study area.

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Matagorda Ship Channel Improvement, Port Lavaca/Point Comfort, Texas. Coastal engineer and modeler who led the development of a 3D hydrodynamic and salinity model of the Matagorda Bay system to assess the impacts to bay salinity caused by the proposed channel improvement scenarios, including channel modifications, in-bay placement areas, and proposed modifications to the Jetty Channel.

Whiskey Island West Flank Restoration, Terrebonne Parish, Louisiana. Hydrodynamic and sediment modeling expert responsible for all engineering analyses and design work for this coastal protection and ecosystem restoration project to restore more than 400 acres of Whiskey Island using sand from Ship Shoal, a large offshore sand shoal approximately 8 miles from the island created by a former deltaic lobe. Applied Delft3D to examine hydrodynamics, waves, sediment transport, and morphological changes under existing conditions and for various restoration alternatives.

Coney Island-Sea Gate T-Groin Design & Construction Document Preparation. Coastal engineer and modeler who assisted in developing a Delft3D numerical model used to develop beach fill and groin field alternatives. Reviewed and optimized the preferred alternative.

Ocean View Beach 800 Block Beach Restoration, Norfolk, Virginia. Senior coastal engineer and modeler who assisted with the development of a suite of models and a simulation approach used to examine hydrodynamics, waves, sediment transport, and morphological changes under existing and with-project conditions for the City of Norfolk. Developed Delft3D models to assess and compare the relative performance of preferred alternatives under representative wave and hydrodynamic conditions roughly equivalent to a 5-year period.

Crown Landing LNG Marine Terminal, Camden, New Jersey. Coastal engineer and modeler who led the development of a large-scale 3D model of the Delaware River in order to simulate hydrodynamics, salinity, and constituent transport in the area of interest. Used the model to examine the fate and transport of ichthyoplankton within the river system, and the possible impact on the fish population associated to a development in this area. 5015

Additional Storm Surge Modeling for the Fire Island to Montauk Point Reformulation Study, New York, New York. Assistant project manager and numerical modeler for additional Delft3D production runs that examined storm surge and barrier island morphological response under different topographic conditions, including future with-project, future without-project, and breach open conditions. Results were used in economic feasibility analysis.

Johnny D. Martin, PE

Coastal Modeling

Education

M.S. - Civil Engineering (Water Resources),
North Carolina State University, 1997

B.S. - Civil Engineering, North Carolina State
University, 1992

Registration

Professional Engineer: Virginia, North Carolina,
Georgia

Years of Experience

With Moffatt & Nichol: 21

Total Years: 21

Mr. Martin provides water resources and hydraulic engineering for projects ranging from stormwater management through flood mitigation to large watershed studies. He specializes in hydraulic engineering and numerical modeling of the hydrodynamics of flow in hydraulic systems using models such as the MIKE series, RMA-2 and RMA-4, and the current set of Hydrologic Engineering Center models. He also brings experience in North Carolina Division of Coastal Management Coastal Area Management Act (CAMA) and North Carolina Division of Water Quality permitting requirements for stormwater projects within the coastal plain of North Carolina.

Inland Greens Park and Stormwater Design, Wilmington, North Carolina.

Assistant project manager and senior hydraulic engineer for this project to convert the front nine of the Inland Greens Golf Course into a city park and provide stormwater retrofits within the existing Inland Greens subdivision so that the drainage system meets current stormwater quality regulations to the maximum

extent practicable while also providing additional flood relief to the subdivision and adjacent properties. The existing ponds on the golf course, which show localized bank failure, will be treated with stream bank stabilization techniques. The pipes connecting the ponds will also be modified and replaced with larger pipes and control structures to meet the water quality and flood relief objectives.

Reservoir Creation Master Plan, Louisiana. Assistant project manager and senior hydraulic engineer for a statewide study to assist the Louisiana Department of Transportation and Development (LADOTD) in developing a technical approach to prioritize funding to create reservoirs in areas of the state where groundwater usage has exceeded sustainable levels. The reservoirs would then provide an alternative water source to groundwater. Individual tasks included watershed basin characterizations (including both surface water and groundwater availability/usage), needs assessments, development of reservoir funding application forms, and prioritization criteria. The main focus of the master plan was to develop a fair and equitable process to assess the needs and benefits of potential reservoirs in order to better assign funding to encourage their construction. Provided technical oversight/guidance of the study and QA/QC review of the day-to-day work and study's products.

Clear Run and New McCumbers Preliminary Watershed Study, Wilmington, North Carolina. Assistant project manager and senior hydraulic engineer for detailed drainage studies and analysis of alternatives for improving the Clear Run and New McCumbers watersheds for the City of Wilmington. Conducted preliminary assessments of these two problem watersheds and developed the hydrology and hydraulics modeling framework necessary to identify solutions to the drainage problems within them. SWMM models were developed and used to identify and evaluate feasible alternatives. A feasibility report was prepared for each watershed that identified the preferred alternative, opinion of probable cost, and opportunities to improve water quality with stormwater BMP retrofits, where appropriate.

Cavalier Drive Drainage Improvements, Wilmington, North Carolina. Project manager and lead hydraulic engineer for a study to alleviate flooding in the Cavalier Drive Subdivision caused by an upstream increase in stormwater flow associated with increased development. Existing drainage system was under sized to handle increased flow. Developed a hydrologic and hydraulic model of the 350 acre watershed to study its drainage and develop/model preliminary alternatives to relieve flooding. Conducted a public meeting to present preliminary results and obtain land owner input. Based on this information, he further refined two preferred alternatives for additional numerical analysis. Both alternatives involved installing a parallel drainage system to provide flood relief, as well as disconnecting drainage feeding the system from upstream drainage basins. Study has been expanded by the Client to include an adjacent neighborhood and additional analysis is underway.

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Lake Okeechobee Interim Water Storage Assessment, Lake Okeechobee, Florida. Coastal engineer who provided QA/QC of comparative analysis of 18 potential interim water storage sites and alternative strategies/preliminary design for seven selected sites. Focused on stormwater retention volume and treatment areas to reduce phosphorous loading. Also provided QA/QC of final report.

Whalehead Subdivision Stormwater Management System Design and Implementation, Currituck County, North Carolina. Project manager for preliminary/final design, design report, and construction documents for Phase 1 construction of the recommended/selected alternative involving two pump stations. Alternative was a groundwater lowering system utilizing a typically-dry basin collection system for infiltration with a lift station and force mains to convey groundwater and infiltrated stormwater to one of two existing soundside ponds with eventual sheet flow to Currituck Sound. Total system utilized five such basins with capability for two additional basins. Designed infiltration basin and infiltration trench (utilizing HDPE pipe) beneath the basin accompanying lift stations. Basins were planted with indigenous plantings. Prepared permit applications for stormwater and ground disturbance. Assistant project manager for second phase of construction involving three pump stations.

Whalehead Subdivision Stormwater Management Master Plan, Currituck County, North Carolina. Project manager for development of stormwater management alternatives to alleviate flooding as part of master plan. Led the planning study that developed and evaluated three alternatives: ocean outfall carrying stormwater offshore, pumping stormwater into the dune backside, and pumping stormwater to soundside ponds. Included development of a MIKESHE model of surface water/groundwater calibrated with storm data to study the three alternatives and estimate the resulting surface flooding volumes under 'design' storm events. Recommended alternative involved creating bio-retention areas together with pumping of groundwater to areas more conducive to stormwater infiltration. Hosted public meetings to discuss the study and findings and produced a Feasibility Report presenting study results and recommendations.

Pivers Island Stormwater Master Plan, Beaufort, North Carolina. Project manager and lead hydraulic engineer for development of stormwater master plan involving schematic designs of multiple BMP alternatives for use to manage island stormwater runoff. Recommended BMP alternatives varied by island location and ranged from cisterns to stormwater treatment wetlands to proprietary systems.

Pipemaker's Canal Drainage Improvements, Bridge Removal, and Sheet Pile Wall Modifications, Garden City, Georgia. Senior hydraulic engineer for study, design, and construction document preparation for improvements to Pipemaker's Canal at its confluence with the Savannah River. Improvements included a new bridge, new tide gate, and channel upgrade. Directed hydraulic modeling and analysis that determined that the Canal needed to be widened in order to convey flows associated with a new tide gate and determined how much of the existing structure should be demolished. Facility geometry dictated the need to only improve the canal's north bank. Subsequently, led the development of widening alternatives and recommendation of a cantilevered combination king pile/sheet pile toe wall to stabilize the bank, rip rap embankment protection, and hardening of the channel bottom to prevent scour associated with increased water velocities. Provided guidance and QA/QC for hydraulic portion of the construction documents.

Dundee Canal Drainage Improvements and Tide Gate Upgrade, Garden City, Georgia. Senior Hydraulic Engineer for the design, upgrade and repair of the tide gate structure on Dundee Canal and associated drainage improvements (shore protection, etc.) along the canal. The work included a field investigation, a formal geotechnical engineering program, hydraulic analysis to ascertain the efficiency of the tide gate, surveying and environmental support services. The Design Phase included preparation of construction documents, preparation and submittal of an Individual Permit Application to the U.S. Army Corps of Engineers and the Georgia Department of Natural Resources regarding the impacts to tidal wetlands and the replacement of the steel miter gates. The hydraulic analysis evaluated whether the tide gate could convey enough water to avoid being a constriction in the overall drainage system for the canal.

Stormwater Pilot Study for State-Maintained Stormwater Ocean Outfalls, Coastal Counties, North Carolina. Project manager for a pilot project to improve effluent water quality from the state-maintained ocean outfalls. Study examined implementing innovative technologies and filtering mechanisms as a means of improving water quality. Provided a literature review of available BMPs and soils, topography, rainfall, and GIS data collection from state and municipal sources. Provided hydrologic analysis of stormwater flows to the outfalls and based on that data and available land, BMPs were selected for various groups of outfalls. Evaluated costs and maintenance requirements of installed BMPs to evaluate water quality improvements. The first pilot BMP was recently installed; it uses AbTECH Smart Sponge technology.

Brian A. Caufield, P.E., CFM

Coastal Modeling

Education

M.S.E. - Naval Architecture and Marine Engineering, The University of Michigan, 2003

M.S.C.E. - Civil Engineering, Purdue University, 1997

B.S.C.E. - Civil Engineering, Purdue University, 1995

Registration

Professional Engineer: Massachusetts

Certified Floodplain Manager, Association of State Floodplain Managers

FEMA Public Assistance Operation I

Years of Experience

With CDM Smith: 6

Total Years: 15

Mr. Caufield is a coastal engineer with more than seven years of experience specializing in the areas of hydrodynamic modeling, flushing studies, wave transformation, coastal structure design and sediment transport. He has professional and academic experience with the analysis of nearshore wave conditions and impacts of waves on coastal erosion and in applying finite difference and finite element hydrodynamic models to predict tidal flushing of harbors and lake circulation modeling. Extensive experience developing and employing numerical models for sediment transport, nearshore spectral wave transformation, bathymetric evolution and 2- and 3-dimensional hydrodynamic processes. Extensive experience in utilization of UNIX- and PC-based software packages and programming languages to present, analyze, and solve engineering and scientific problems.

Coastal Engineer, USCG National Multiple Award Construction Contract, Waterfront Reconstruction Base Bid – Seamanship, Cape May, New Jersey. As part of the bidding process for a design-build (D-B) project for the reconstruction efforts at USCG Training Center Cape May, Mr. Caufield reviewed the revetment design and confirmed the design and stone size for use in estimating construction quantities and costs. Within the D-B process, he led the design team for the

revetment design, including developing and approving of the design guidance.

Coastal Engineer, Climate Change Vulnerability Assessment, Salem, Massachusetts. As a coastal, historic city, Salem recognized the potential implications that climate change could have on the future of the city. CDM Smith partnered with Salem in 2013 for a CDM Smith-sponsored Research and Development (R&D) project to conduct a Climate Change Vulnerability Assessment. As part of the R&D project, Mr. Caufield utilized standard U.S. Army Corps of Engineers methodology to establish future sea level scenarios. He developed Sea Level Change curves that were then used to identify to determine the sensitivity of the City to current and future climate conditions.

Project Manager/Coastal Engineer, Analysis of 2nd Culvert, Town Creek Marsh, Salisbury, Massachusetts. The Town Creek Marsh system is restricted due to an existing culvert and tide gate at an abandoned railroad embankment. The embankment has washed out twice and is expected to undergo a full repair. In order to address flooding and habitat restoration objectives, MA Wetlands Restoration Program requested an evaluation of additional culvert and tide gate. He performed analytical analysis of tidal flows to determine the optimal additional culvert and tide gate. Mr. Caufield used analytical model to develop Operation and Maintenance Plan for permitting.

Coastal Engineer, St. Johns River Water Management District, Hydrology, Hydraulics, Hydrodynamics, and Groundwater Quantity and Water Quality Modeling Continuing Services Contracts. Mr. Caufield contributed to the Conceptual Siting Analysis of Phase I for the Indian River Lagoon. Data (i.e., simulated water level and 50% renewal time) identified in the Literature Review were used to score the 39 potential projects to improve water quality in the Indian River Lagoon and Banana River Lagoon. The resultant scoring is being used to scope Phase II of the project, which will include hydrodynamic modeling of the conceptual options developed in Phase I.

Coastal Engineer/Project Manager, Risk MAP Contract, FEMA Region 5. Mr. Caufield is working with staff from the U.S. Army Corps of Engineers (USACE) Engineering Research and Development Center and the USACE Detroit District to identify coastal flood hazards in the Great Lakes for FEMA Region V. He is overseeing the development and implementation of a coastal storm surge model, ADCIRC, and a wave generation model, WAM, for modeling coastal flood hazards on Lake Superior.

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He also participates in Technology Transfer groups in order to maintain consistent implementation of approaches across all of the Great Lake basins.

Water Resources Engineer, Dilution and Dispersion Studies, Various Locations. Mr. Caufield reviewed CORMIX dilution model into tidal waters of Maryland to ensure that mixing zones met client's expectations. He reviewed EFDC dilution model into tidal waters of Massachusetts to determine applicability of results to a new project.

Coastal Engineer/Project Manager, USACE, New England District. Mr. Caufield is assisting the New England District in a Regional Sediment Management study for the Town of Chatham. He is overseeing efforts to determine the available dredge spoil from the Stage Harbor Federal Navigation Channel and the appropriate placement along the Town of Chatham's Nantucket Sound beaches. The goal of the project is to identify appropriate placement for direct and indirect habitat and storm damage reduction benefits.

Coastal Engineer/Project Manager, Risk MAP Contract, FEMA Region 5. Mr. Caufield is working with staff from the USACE Engineering Research and Development Center and the USACE Detroit District to identify coastal flood hazards in the Great Lakes for FEMA Region V. He is overseeing the development and implementation of a coastal storm surge model, ADCIRC, and a wave generation model, WAM, for modeling coastal flood hazards on Lake Superior. He also participates in Technology Transfer groups in order to maintain consistent implementation of approaches across all of the Great Lake basins.

Region I Coastal Process Lead, Risk MAP Contract, FEMA Region 1. Mr. Caufield is managing the technical approach for modeling starting water surface elevations and waves for coastal flood hazard studies in four counties in Maine. Additional duties include ensuring that all JV partners working on coastal flood hazard activities are utilizing the same technical approach. The modeling approach consists of a 2-dimensional hydrodynamic model to route the storm surges, RMA2; and a 2-dimensional steady-state wave model to transform waves from deepwater to nearshore conditions, STWAVE.

Project Manager, Risk MAP Contract, FEMA Region 1. Mr. Caufield is managing the coastal flood hazard analysis for 12 counties in Region 1. He is responsible for organizing field reconnaissance and survey efforts, coastal flood hazard analysis, and quality management of the coastal engineering analysis. He conducts outreach and coordination with stakeholders including local, state and Federal officials.

Coastal Engineer, FEMA Risk MAP Core Contract. Mr. Caufield is a representative for the STARR JV on FEMA's IPT Coastal Workgroup. The STARR JV is responsible for coastal flood hazard mapping in FEMA Region I (New England), Region V (Great Lakes), and Region X (Pacific Northwest and Alaska). He takes part in monthly calls to discuss the coastal engineering aspect of FEMA's flood mapping programs. He is also involved in subgroups focusing on establishing new guidelines for applying wave runup methodologies to coastal flood hazard studies and establishing coastal specific Mapping Activity Statements.

Project Manager, Map Modernization Contract, FEMA Region 1. Mr. Caufield has been managing FEMA's map modernization efforts since January 2009 under various task orders as part of CDM Smith's IDIQ Contract with FEMA Region I (New England). He led coastal efforts for mapping updates from Scoping Phase to Preliminary Maps. He conducted outreach and coordination with stakeholders including local, state and Federal officials.

Coastal Engineer, Map Modernization Contract, FEMA Region 6. Mr. Caufield performed quality control reviews for coastal flood hazard mapping on DFIRMs for Assumption Parish in Louisiana. He evaluated mapped flood hazards based on updated coastal storm surge analyses (ADCIRC), wave runup (RUNUP 2.0), levee overtopping, coastal erosion, and overland wave propagation (WHAFFIS 4.0).

Coastal Engineer/Numerical Modeler, Numerical Modeling of Nearshore Waves, Sediment Transport and Alternative Analysis at Hammonasset Beach, Connecticut. In order to support a comprehensive coastal processes study conducted to address ongoing coastal erosion at Hammonasset Beach, wave and sediment transport models were developed to simulate existing conditions and conduct an extensive alternative analysis. To quantify the wave impact along the shoreline, site-specific wave conditions were determined using wave data collected during a field program and the STWAVE numerical wave transformation model. A state-of-the-art sediment transport model was then used to simulate transport processes along the beach and to evaluate the performance of potential beach nourishment alternatives. The performance and lifetime of the nourishment alternatives are being utilized to develop a long-term beach management plan and engineering design.



Michael Giovannozzi, P.E.

Coastal Modeling

Education

M.S. – Civil Engineering, University of Delaware, 2001

B.S. – Civil Engineering, University of Delaware, 1999

Registration

Professional Engineer: Florida, Alabama, Connecticut, Georgia, South Carolina, Texas, Washington

Years of Experience

With CDM Smith: 2

Total Years: 15

Mr. Giovannozzi is a coastal engineer with over 15 years of experience in engineering and project management. His wide-ranging expertise includes dredging and navigation studies, wave and hydrodynamic studies, beach nourishments, physical and numerical modeling, feasibility studies, design of traditional and innovative shore protection structures, and coastal flood plain mapping. He has considerable experience in the planning and design of coastal and marine structures, ports and harbors, marinas, and waterfront developments; and he has managed multi-discipline teams in the planning and design of high-profile international waterfront development projects. He is highly capable in an array of numerical modeling techniques. Mr. Giovannozzi is well-versed in the latest coastal design manuals, such as CEM and SPM. His field experience includes data collection, coastal damage assessments, and construction inspections/oversight.

Hydrologic and Hydraulic (H&H) Engineer, U.S. Army Corps of Engineers (USACE) Baltimore District/North Atlantic Division (via USACE Jacksonville

District Water Resources Engineering IDC) North Atlantic Coast Comprehensive Study (NACCS). Mr Giovannozzi provided hydraulic engineering evaluation for the development of 6 focus area reports (reconnaissance level analyses) for coastal areas in NY, NJ, DE, MD and DC, utilizing the USACE plan formulation process. The focus area reports identified problems, needs, and opportunities and, with stakeholder input, recommended projects. Mr. Giovannozzi focused on the assessment of existing and potential flood hazards including the effects of long-term erosion, accelerated sea level rise and developmental constraints and provided an evaluation of storm risk management measures including structural, non-structural, and natural/nature based.

H&H Engineer, FEMA Coastal V Zone Study. Mr. Giovannozzi provided coastal engineering support for a FEMA study that assess the feasibility of waiver authority for floodplain management requirements within coastal high hazard area V Zones. The study considers technical feasibility and the potential impacts of the construction of structures and the placement of structural fill within the V Zone.

H&H Engineer, USACE Mobile District/South Atlantic Division Bayou Caddy Ecosystem Restoration Project. Mr.

Giovannozzi performed an Independent Technical Review (ITR) of the analysis and conceptual design of a breakwater for the Bayou Caddy restoration site. The breakwater is intended to protect a wetlands habitat that was created through the beneficial placement of dredge material from a nearby navigation project. The ITR focused on the coastal engineering analysis and design, specifically on the historical shoreline change analysis, geotechnical data collection, dredging history, wave modeling, breakwater performance, and breakwater structural stability.

Coastal Engineer, St. Johns River Water Management District, Hydrology, Hydraulics, Hydrodynamics, and

Groundwater Quantity and Water Quality Modeling Continuing Services Contracts. Mr. Giovannozzi worked on the Conceptual Siting Analysis of Phase I for the Indian River Lagoon. Data (i.e., simulated water level and 50% renewal time) identified in the Literature Review were used to score the 39 potential projects to improve water quality in the Indian River Lagoon and Banana River Lagoon. The resultant scoring is being used to scope Phase II of the project, which will include hydrodynamic modeling of the conceptual options developed in Phase I.

Project Engineer, Hurricane Barrier Access Improvements, New Bedford, Massachusetts. CDM

Smith was retained by the City of New Bedford to design an emergency access walkway along the top of the USACE hurricane surge barrier. To support the design, Mr Giovannozzi performed a coastal engineering study consisting of wave force calculations and stability analysis for sliding and overturning of a concrete walkway. Provided minimum requirements for stable walkway slabs; suggested specifications for marine grade concrete.

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H&H Engineer, FEMA Flood Hazard Analysis and Mapping Region V. Mr. Giovannozzi performed large-scale (regional) wave model of Lake Superior to support the FEMA Risk Map program for Region V. He also provided technical review and oversight for the coastal flood hazard analysis and mapping for several Region V counties including the assessment of shoreline type, erosion analysis, and wave and storm surge calculations.

Senior Project Engineer, Cruise Terminal H Dredging Design and Post Design Services, PortMiami, Miami-Dade County, Florida. CDM Smith was retained by PortMiami to provide design services for a maintenance dredging program as required accommodate the berthing of the Bimini Superfast vessel along Cruise Terminal H. Mr. Giovannozzi was the senior project engineer in charge of the activities related to this project. His duties included the overall execution of the project that included the following activities among others: marine resources and seagrass survey, bathymetric survey, preparation of permit sketches suitable for submittal to the regulatory agencies to initiate the environmental permit application process by Port Miami, and preparation of opinion of probable construction cost and assistance during the environmental permit phase. He also was responsible for leading the effort during the preparation of contract documents (plans and technical specifications) defining dredging limits.

PRIOR TO CDM SMITH

Project Engineer, G&G Shipping Terminal, Dania Beach, Florida, 2012-2013. Mr. Giovannozzi served as project engineer and performed dredge design, vessel navigation and berthing analysis, and permitting support for a berth deepening project adjacent to the Dania Cut-Off canal deepening project in Broward County, Florida.

Project Engineer, Rybovich Marina Dredge Study, Riviera Beach, Florida, 2013. Mr. Giovannozzi performed dredge and navigation study in support of dredge permit application for a marina repair facility approached channel and berth deepening project.

Project Manager, Ibis Isle, Palm Beach, Florida, 2009. Mr. Giovannozzi served as a coastal engineer and project manager for the dredging/environmental restoration of an island community located on the Intracoastal Waterway in Palm Beach County, Florida.

Project Engineer, Flamingo Park Marina, Monroe County, Florida, 2006. Mr. Giovannozzi was a project engineer for this small boat marina dredging project. In this role, he performed hydrographic survey, prepared a dredging cost estimate, prepared tender documents, and provided construction

oversight over dredging works.

Project Engineer, C-4 Canal, Miami, Florida, 2005-2006. Mr. Giovannozzi served as a hydraulic engineer for dredging feasibility analysis for the C-4 Canal. He performed hydrographic survey, geotechnical investigation, hydraulic analysis, and slope stability assessment for canal dredge deepening project for a navigable waterway.

Project Engineer, North Lake, Hollywood Beach, Florida, 2006. Mr. Giovannozzi was a project engineer for a dredging feasibility analysis of a navigable waterway off of the Intracoastal Waterway in Broward County, Florida. Tasks under this project included coordination/oversight of hydrographic survey, review of geotechnical investigation, and assistance with feasibility report.

Project Manager, Grays Harbor Outer Reach, Grays Harbor, Washington, 2010-2011. Mr. Giovannozzi managed the maintenance dredging contract for Grays Harbor Outer Reach. This contract utilized the Government Hopper Dredges Yaquina and Essayons to dredge the entrance channel and outer reach of Grays Harbor. Approximately 800,000 cy were dredged during a 28-day period.

Project Engineer, Seahurst Park – Shoreline and Eco-system Restoration, Burien, Washington, 2010. Mr. Giovannozzi evaluated the construction cost estimate and provided value engineering services to reduce project costs for a shoreline protection and eco-system restoration on Puget Sound. This was completed by optimizing cut/fills and suggesting alternative construction materials to reduce capital expenditures and ongoing maintenance costs.

Lead Engineer, Port of Neah Bay Entrance Channel Reconnaissance Study, Neah Bay, Washington, 2011. Mr. Giovannozzi served as lead engineer and performed dredging analysis, navigation study, economic analysis for various vessel types and classes, and consideration of waterside and upland facility requirements in support of an entrance and turning basin dredging reconnaissance study.

Project Engineer, Shoalwater Flood Damage Reduction Project, Tokeland, Washington, 2010-2011. This project consisted of the construction of a beach nourishment and sand dune placement for the protection of a sensitive marine habitat and flood damage reduction to upland infrastructure. Mr. Giovannozzi designed the construction sequencing and temporary berm design for dewatering of hydraulically dredged sand material for the construction of a beach fill and dune creation.

Santiago R. Alfageme, P.E.

Coastal Engineering

Education

M.E. - Coastal and Oceanographic Engineering,
University of Florida, 1995

Civil and Port Engineering Degree (ME
equivalent), University of Cantabria, Spain,
1993

Registration

Professional Engineer: Florida

Years of Experience

With Moffatt & Nichol: 17

Total Years: 20

Mr. Alfageme leads the forefront of the M&N's specialized engineering and planning services for shoreline protection, storm damage reduction, dredging and navigation projects in the open ocean, harbors, coastal wetlands, inlets and inland waterways. Over his 19 year career, he has worked on a wide range of marine and coastal projects including urban islands, large revetment and seawall structures, marina and port facilities, navigation, dredged material management, dredged material disposal, land reclamation work, beach nourishment, and ecosystem restoration.

Mr. Alfageme has served as Project Engineer, Project Manager and Project Principal for important national and international coastal/marine projects such as the NY/NJ Harbor Dredge Material Management Plan, NY/NJ Harbor Deepening Study, Poplar Island Restoration Project, the Whiskey Island Restoration Project, and the Panama Canal Offshore Islands Project. He has over 14 years of experience in the evaluation of coastal environmental conditions (winds, waves, currents,

and water levels) in the NY Harbor area, including the development and application of state-of-the-art numerical modeling tools. Mr. Alfageme has also contributed as an author or co-author in over forty peer-reviewed publications and conference presentations relating to coastal engineering, dredging and navigation.

In addition, Mr. Alfageme has extensive experience in coastal and estuarine numerical modeling, including ocean and estuarine hydrodynamics involving storm surge, salinity, temperature, and cohesive and non-cohesive sediment transport. His modeling experience includes simulation of waves and surf zone hydrodynamics as well as littoral sediment transport and shoreline evolution. Mr. Alfageme has performed numerous modeling studies to evaluate potential project impacts using variety of hydraulic, coastal, and estuarine numerical models.

North Atlantic Coast Comprehensive Study, North Atlantic Division (NAD), USACE. Project manager and senior coastal engineer for Indefinite Delivery Contract with USACE's National Planning Center of Expertise for Coastal Storm Damage Reduction Services (PCX-CSDR). Working under this contract, M&N, as part of a Joint Venture with the URS Group, is currently providing support to the PCX-CSDR on the \$20 million North Atlantic Coast Comprehensive Study (NACCS). This study was authorized and funded as part of the Disaster Relief Appropriations Act of 2013, Public Law (PL) 113-2, to assist in the recovery in the aftermath of Hurricane Sandy. The Act directed the Secretary of the Army to "...conduct a comprehensive study to address the flood risks of vulnerable coastal populations in areas that were affected by Hurricane Sandy..." Specific assignments that Mr. Alfageme is currently leading include:

- Preliminary engineering and design for risk reduction Measures
- Develop parametric costs for regional risk reduction Measures
- Compile engineering supporting Documentation
- Overall NACCS report preparation
- Development of wind fields for historical storms as input to storm surge modeling effort.

Raise Shorelines Citywide Study, NYC Economic Development Corporation (NYCEDC). Principal for an ongoing feasibility study that will identify New York City (NYC) shorelines that at-risk to damage caused by rising sea levels and/or erosion and will develop and prioritize potential standalone protection projects based on the available funding. Overall, the prioritization framework includes three phases of increasingly detailed analysis that will eventually identify potential projects that

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are cost effective in terms of preventing 2050 high tide flooding (and wave overtopping) reaching populated areas, infrastructure, and/or critical facilities as well as preventing erosion at vulnerable areas on the south shore of Staten Island. The development and refinement of project screening criteria and use of data sets is being closely coordinated with NYCEDC, the Mayor's Office of Recovery and Resilience (ORR) and other stakeholders to ensure that the criteria are neither too restrictive nor unproductively broad, are scalable, are replicable, and are grounded in regulatory viability.

Rockaway Beach Coastal Storm Damage Reduction Feasibility Study, New York, NY. Project manager and senior coastal engineer responsible for completing final feasibility level study for the US Army Corps of Engineers (USACE), New York District, to evaluate a coastal storm damage reduction plan, including flood mitigation, for East Rockaway to Rockaway Inlet and Jamaica Bay. The study area is primarily low lying, and is subject to the effects of tidal surge flooding from East Rockaway and Rockaway inlets, from back bay flooding, and from barrier island overwash. As part of this project Mr. Alfageme is responsible for completing the feasibility level design analyses, layout and cost estimates for all storm damage reduction and flood mitigation features. Mr. Alfageme is also responsible for developing a complete Engineering and Design Appendix and Cost Engineering Appendix. Work includes additional engineering and plan formulation as part of the reevaluation of the existing Tentatively Selected Plan (TSP) by applying updated flooding risk information based on the latest FEMA stage frequency curves and post Hurricane Sandy LiDAR data in accordance with P.L. 113-2.

South Shore of Staten Island, New York, Hurricane and Storm Damage Reduction Project. Project manager and senior coastal engineer for an ongoing Federal (USACE) hurricane and storm damage reduction project covering 13 miles of coastline on Staten Island, from Fort Wadsworth to Tottenville, extending along lower New York Bay and Raritan Bay. The area has a long history of storm damages and has experienced major storm damages from various recent storm events, including the Northeaster of December 1992, the March 1993 storm, and hurricane Sandy in October 2012. These storms caused flood damages, loss of structures, large scale evacuations and several deaths within several communities. Mr. Alfageme is responsible for developing and evaluating potential flood protection measures including seawalls and shoreline stone revetments.

Coney Island Shore Protection Project, Coney Island, NY. Project manager and senior coastal engineer for the

final design of a beach fill and a series of T-groin rip-rap and concrete structures protecting approximately one mile of shoreline at the western end of Coney Island, NY. Responsibilities included: review and analysis of field data, development of coastal design conditions, optimization of the preferred design using morphological modeling tools (Deft3D), physical modeling to confirm estimated performance of the selected plan and the structural performance of the proposed solution, and development of plans & specifications, and costs estimates. Structural design elements included the repair and extension of an existing large groin, the heads of the T-groins (which were designed both with rock and concrete units), and the stems of the T-groins (to be constructed using prefabricated and reinforced concrete panels).

Paulus Hook Pier and Ferry Terminal, NJ. Senior port, coastal and navigation engineer for a new ferry terminal in upper New York Harbor. Performed a detailed analysis of design winds, water levels and wave conditions at the site. Developed hydrodynamic and wave loads on proposed fixed and floating mooring structures. Assessed ferry navigation needs including approach route and required water depths.

North Cove Marina, New York, NY. North Cove Marina is a private marina located in downtown Manhattan, adjacent to the Winter Garden, used by yachts and mega yachts for mooring on a short term basis. Many of the vessel owners use their vessels as residences during their stay in New York City. An adjacent ferry terminal is creating a wave environment within the marina basin that is unacceptable to the marina operator. Mr. Alfageme served as senior coastal and port engineer for a study investigating the feasibility of solutions to suppress the wave action within the basin.

30th Street Pier Municipal Recycling Facility, Brooklyn, New York. Principal-in-charge responsible for design, permitting, and construction support services for the civil and port infrastructure components of a new metal and glass recycling facility in South Brooklyn, New York. Moffatt & Nichol developed plans, specifications and construction cost estimates for the pile-supported relieving platform, king pile bulkhead, mooring pier, enclosed barge unloading facility finger pier, fender system and dredging.



Frances A. Bui, P.E. Coastal Engineering

Education

M.S. – Civil Engineering, Drexel University, 2007

B.S. – Civil Engineering, Drexel University, 2007

Registration

Professional Engineer: Massachusetts

Years of Experience

With CDM Smith: 8

Total Years: 8

Ms. Bui is a coastal/water resources engineer with eight years of technical experience in execution of coastal flood hazard studies, hazard mitigation planning and practices, and water resources planning efforts that consist of flood mitigation, climate change vulnerability assessments, collection systems modeling, stormwater quality and quantity analysis, and groundwater modeling projects. She has experience in using software such as MATLAB, STWAVE, RMA2, CSHORE, CHAMP, ACES, SMS, SWMM, MOUSE, InfoWorks CS, DYNSSYSTEM, MODFLOW, ArcGIS, and MathCAD.

Coastal Engineer, U.S. Army Corps of Engineers (USACE) North Atlantic Division, North Atlantic Coast Comprehensive Study (NACCS) Focus Area Analyses and Visioning Sessions. Ms. Bui is supporting the USACE NACCS efforts. She performed reconnaissance level analysis to identify existing flood risk management projects/studies and potential solutions for six of the nine

designated focus areas within the North Atlantic Division. Information gathered from the reconnaissance level studies will inform appropriate recommendations for future phases of study and potential project implementation. She also provided additional technical assistance during the review of the main body of the NACCS report.

In addition to the focus area analysis, she coordinated directly with USACE district staff to organize and facilitate in-person visioning meetings with Federal, state, regional, and local stakeholders. The purpose of the visioning meeting was to continue dialogue with stakeholders, build upon previous discussion regarding flood risk management, and to compile additional information to inform the NACCS. In a small group setting, she facilitated discussion on identifying area-specific vulnerabilities, potential flood risk management strategies, and institutional challenges and/or barriers. She analyzed stakeholder responses, comments, and additional data to provide observations regarding common themes in addition to unique regional features for all visioning sessions.

Coastal Engineer, USACE Institute for Water Resources (IWR), Various Task Orders. Ms. Bui is currently supporting two separate IWR task orders by providing technical support and expertise. As part of the Regional Assessments of Climate Change task, the team of interdisciplinary staff is compiling relevant climate change information for all major, 2-digit hydrologic unit code (HUC) basins that cover the United States to further understand the impacts on USACE projects and business lines. The assessment synthesizes regional climate information with the potential vulnerabilities associated with the USACE Civil Works Business Lines specific to the HUC basin. As part of the Enhancement of Technical Assistance to Coastal Communities task, she is supporting the Federal Interagency Floodplain Management Task Force (FIFM-TF). She is inventorying informational resources of existing, publicly-available data, tools, training, technical assistance programs, best practices documentation, and planning guides related to decision-making, stakeholder engagement, green infrastructure implementation, and coastal flood risk management. She provides analytical support to enable coastal communities nationwide to have access to best practices to improve their floodplain management efforts.

Coastal Engineer, Sediment Budget Analysis, USACE, Stage Harbor, Chatham, Massachusetts. Ms. Bui assisted in the evaluation of longshore sediment transport and dredging impacts within Stage Harbor located in Chatham, Massachusetts. A preliminary sediment budget and comparison was performed in SMS 11.0 using available bathymetry data from nearshore surveys in 2007 and 2010. Findings from this analysis were used to identify locations for endangered bird habitat restoration.

406 Mitigation and Beach Task Force Specialist, FEMA Region II Public Assistance Technical Assistance Contract for DR-4086, New Jersey. During the Post-Tropical Cyclone Sandy disaster recovery efforts, Ms. Bui was deployed to New Jersey and supported the FEMA Public Assistance,

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Hazards Performance and Analysis, 406 Mitigation Task Force and Beach Task Force. She performed a frequency analysis of surface water elevations experienced during Sandy and developed disaster-specific guidance for FEMA's benefit-cost analysis software to support the Public Assistance program. She provided coastal flood hazard guidance and information to FEMA staff, project specialists, and others at the NJ Joint Field Office, participated in a specialty policy group commissioned with providing guidance on advisory base flood elevations, and coordinated with the FEMA Region II engineers, USGS NJ and NY Water Science Centers, and 406 Mitigation counterparts in NY. In addition, she prepared hazard mitigation proposals for a variety of facilities and projects in NJ and actively collaborated with Beach Task Force project specialists for coastal projects across the state of NJ. After deployment, she provided technical assistance and quality review to a similar joint FEMA-USGS document developed for New York City.

Mitigation Specialist, Mitigation Planning & Disaster Operations Integration Guide, FEMA Region I Hazard Mitigation Branch and Regional Service Center, Northeastern U.S. Ms. Bui is assisting with the development of an integrated guide to help facilitate the incorporation of post-disaster information into a community's overall mitigation strategy and planning process for FEMA. Her experience in post-disaster recovery efforts provides critical insight into the data gathering, project implementation, and federal funding process. Ms. Bui also provided technical assessment and review of Hazard Mitigation Plans (HMPs) for local communities in New Hampshire complying with the Stafford Act and FEMA's Hazard Mitigation Grant Program (HMGP) requirements.

Task Manager and Coastal Engineer, Coastal Flood Hazard Analysis, FEMA Region V Risk MAP Core Contract, Great Lakes Region, U.S. Ms. Bui is a task manager and project engineer for the coastal flood hazard analysis tasks for several counties in FEMA Region V. She is responsible for managing production staff for coastal flood hazard analysis, quality management, and project schedule and staffing. In addition, Ms. Bui performed field reconnaissance and shoreline characterization to support the Risk MAP program for Lakes Superior and Huron. She led and facilitated coastal scoping meetings with state and local stakeholders. As part of the coastal flood hazard analysis, she developed tools to perform optimized statistical analysis of total water level responses to coastal flood hazards. Ms. Bui reviewed computational tools using MATLAB and USACE CSHORE software and coordinated with USACE ERDC staff as a part of these efforts.

Coastal Engineer, Coastal Flood Hazard Analysis, FEMA Region X Risk MAP Core Contract, Northwestern U.S.

Ms. Bui performed field reconnaissance and shoreline characterization in FEMA Region X to support the Risk MAP program in Clatsop County, OR and Thurston County, WA. She interacted with local and regional officials to identify areas protected by coastal levees. She has experience with the joint probability method and extremal analysis for coastal flood hazard analysis. She developed several tools for calculating coastal parameters such as wave setup, wave runup, and overtopping. Analysis for this region utilized output from several two-dimensional models to determine the response-based coastal flood hazard analysis.

Coastal Engineer, Coastal Flood Hazard Analysis, FEMA Region I Risk MAP Core Contract, Northeastern U.S.

Ms. Bui performed field reconnaissance and coastal flood hazard engineering analysis for multiple counties to support FEMA Region I Flood Insurance Studies. She has experience executing detailed transect analysis and coastal parameter calculations, such as deepwater significant wave height and wave period, wave setup, and wave runup. In addition, she has experience in using CHAMP, WHAFIS, RUNUP2.0, and ACES for overland wave propagation, mild-slope wave runup analysis, nearshore wave transformation, and coastal erosion analysis, which translates into regulatory mapping products. She developed multiple engineering templates and tools that performed peaks-over-threshold extremal analysis, calculated wave runup using the Shore Protection Manual method of steeply sloping structures, and identified features of primary frontal dune for delineation extents based on guidelines developed by MA Coastal Zone Management.

Coastal Engineer, Wave and Storm Surge Routing Models, FEMA Region I Risk MAP Core Contract, Northeastern U.S.

Ms. Bui developed a two-dimensional STWAVE wave transformation model encompassing Boston Harbor and Greater Massachusetts Bay in Norfolk and Suffolk Counties, Massachusetts. The model simulated wave propagation from deepwater to nearshore conditions in sheltered areas with complex bathymetry. For other wave transformation models developed for FEMA Region I, she provided technical QA/QC and performed the discrete selection of appropriate wave parameters. In addition, Ms. Bui developed a two-dimensional RMA2 storm-surge routing model for coastal reaches in Maine. Due to the numerous islands, inlets, estuaries, and embayments, a transient hydrodynamic model simulated the storm-surge elevation fluctuations for the complex shoreline. Input conditions for coastal flood hazard analysis were results from both the wave and storm surge models.

Lauren S. Klonsky, P.E. Coastal Engineering

Education

M.S. – Civil / Environmental Engineering, Tufts University, 2008

B.S. – Civil Engineering, University of Vermont, 2006

Registration

Professional Engineer:
Massachusetts

Years of Experience

With CDM Smith: 6
Total Years: 6

Ms. Klonsky is an environmental engineer with six years of experience in water resources field, including coastal processes and engineering, coastal risk management analysis, research, and planning, as well as groundwater, surface water, and collection systems modeling, and climate change analysis. Projects have included coastal engineering for floodplain mapping, collection system model development and calibration, groundwater model development, and rainfall inflow and infiltration studies, as well as water quality field sampling. She has experience using software such as CSHORE, MATLAB, MathCAD, STWAVE, SWAN, RMA2, ACES, CHAMP, SMS, EPA SWMM, PC SWMM, DYNASTY, ArcGIS, Microsoft Excel VBA, WHAFIS, SBEACH, EPA SSOAP, and EPA SHAPE.

Coastal Engineer, North Atlantic Coast Comprehensive Study, USACE, North Atlantic Division / Baltimore District. In response to Hurricane Sandy, Ms. Klonsky helped develop focus area reports for six identified study areas within the USACE North Atlantic Division in an effort to develop strategies that will

improve coastal storm risk management, flood risk management, and community resiliency for areas impacted by the storm. Activities for this study included organizing and holding several client and stakeholder meetings, and research and reviews of existing projects, studies, and reports for information related to coastal resiliency relevant to the six study areas. Focus area reports were developed, documenting study area problems and conditions, potential future coastal storm risk management or other watershed actions, identification of broad-based and area specific potential solutions, and potential follow-on feasibility studies with identification of key non-Federal sponsors.

In addition to the focus area analysis, she organized and facilitated in-person visioning meetings with Federal, state, regional, and local stakeholders. The purpose of the visioning meetings was to continue dialogue with stakeholders, build upon previous discussions regarding flood risk management, and to compile additional information to inform the North Atlantic Coast Comprehensive Study. In a small group setting, she facilitated discussion on identifying area-specific vulnerabilities, potential flood risk management strategies, and institutional challenges and / or barriers.

Coastal Engineer, USCG National Multiple Award Construction Contract, Waterfront Reconstruction Base Bid, Seamanship, Cape May, New Jersey. As part of the design / build project for the reconstruction efforts at USCG Training Center in Cape May, Ms. Klonsky assisted in the development of design wave conditions.

Coastal Engineer and Task Manager, Coastal Damages Prevented Study, USACE IWR. Ms. Klonsky developed a methodology to describe the economic value of the USACE coastal projects with respect to reduction of storm damage. She managed and executed several tasks, working closely with IWR and USACE district level staff throughout the process. As part of this project, Ms. Klonsky developed novel methods of how to compute coastal storm damages prevented from wave, erosion, and inundation damages. She performed an engineering analysis case study which evaluated cross-shore short-term event based profile change using SBEACH software. Ms. Klonsky has served as support staff to others in testing the methodology. She is currently working with USACE staff at applying the methodology to an area impacted by Hurricane Sandy in coastal New Jersey.

Project Manager and Coastal Engineer, Risk MAP Contract, FEMA Region X, Northwestern U.S. Ms. Klonsky is project manager and project engineer for the coastal flood hazard analysis tasks for Clatsop and Thurston County in Region X. She is responsible for managing scope, schedule, and budget as well as executing the work for coastal wave generation modeling using SWAN, coastal flood hazard analysis, and ensuring quality throughout the project execution.

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Task Manager and Project Engineer, Risk MAP Contract, FEMA Region V, Great Lakes Region U.S. Ms. Klonsky is assistant manager and project engineer for the coastal flood hazard analysis tasks for several counties in FEMA Region V. She is responsible for managing production staff for coastal flood hazard analysis, quality management, and project schedule and staffing. She is also participating in the execution of the coastal flood hazard analysis. Ms. Klonsky has exercised technical capabilities in advancing and reviewing computational tools using MATLAB and USACE CSHORE software. She has coordinated with USACE ERDC staff as a part of these efforts.

Coastal Engineer, Sediment Budget Analysis, Stage Harbor USACE. Ms. Klonsky evaluated the impacts of longshore sediment transport and dredging within Stage Harbor located in Chatham, Massachusetts. A preliminary sediment budget was performed using SMS software and bathymetry data of the area from 2007 and 2010. Findings from this analysis were used to propose habitat restoration for endangered birds in the area.

Coastal Engineer, Risk MAP Contract, FEMA Region I, Northeastern U.S. Ms. Klonsky is working on developing a water surface elevation model using RMA2 modeling software, and a wave transformation model using STWAVE modeling software for coastal communities in Maine. This information will be used to inform the flood hazard analysis for these communities.

Task Manager, Risk MAP Contract, FEMA Region I, Northeastern U.S. Ms. Klonsky is managing the coastal flood hazard analysis for Nantucket County in Region I. She is responsible for managing production staff for coastal flood hazard analysis, quality management, and project schedule and staffing.

Task Manager, Risk MAP Contract, FEMA Region I, Northeastern U.S. Ms. Klonsky is managing the coastal flood hazard analysis for New Haven County in Region I. She is responsible for managing coastal flood hazard analysis, quality management, and project schedule and staffing.

Coastal Engineer, FEMA Risk MAP Core Contract, Northeastern U.S. Ms. Klonsky is responsible for coastal flood hazard analysis for several counties within Region I. She has developed several tools for calculating coastal parameters, such as deep water significant wave height and wave period, wave setup, and wave run-up using MathCAD, and has performed similar analysis, when appropriate, using the CHAMP and ACES software packages. For sheltered harbor areas, Ms. Klonsky is developing 2-dimensional wave transformation models using STWAVE. She also developed a

template for analyzing primary frontal dunes after attending a training session on primary frontal dunes run by the Massachusetts' Coastal Zone Management, and has developed several guidance documents on how to perform the coastal flood hazard analysis. Ms. Klonsky has assisted with flood plain mapping review to develop final FIRM products for Region I.

Water Resources Engineer, Regional Assessments of Climate Change, USACE, IWR. Ms. Klonsky is currently supporting a national effort of evaluating the climate change trends and impacts to USACE business lines. She is working with an interdisciplinary team compiling relevant climate change information for all major, 2-digit hydraulic unit code (HUC) basins, evaluating historic and future climate trends and the impacts to each basin individually. The assessment synthesizes regional climate information with the potential vulnerabilities associated with the USACE Civil Works Business Lines specific to the HUC basin.

Water Resources Engineer, FEMA. Ms. Klonsky assisted in the preparation of an exploratory report to inform future FEMA guidance and funding decisions on mitigation planning and implementation of climate resilient infrastructure under the Hazard Mitigation Assistance (HMA) grant programs. The report considered technical, economic, social, environmental, financial, and implementation considerations.

Water Resources Engineer, Utility Climate Resiliency Study, Metro North Georgia Utility District. Ms. Klonsky worked with an integrated team to the potential impacts of climate variability on water resources and infrastructure planning in North Georgia. Ms. Klonsky used information from the various climate scenarios to perform a vulnerability analysis on critical water infrastructure. Based on the vulnerability assessment, Ms. Klonsky developed adaptation strategies for the utility district.

Water Resources Engineer, Risk MAP Contract, FEMA Region I, Hazard Mitigation Plan Review. Ms. Klonsky assists in the review of hazard mitigation plans within FEMA Region I. She provides thorough comments, opportunities for improvement, and identifies plan strengths for various communities.

Coastal Engineer, Boston Living with Water, Morrissey Boulevard, the Boston Harbor Association. Ms. Klonsky participated in a design competition organized by the Boston Harbor Association to develop adaptation strategies for projected climate change and rising sea levels considering infrastructure at Morrissey Boulevard in South Boston, Massachusetts.



Jeff Tabar, P.E., D.CE

Coastal Engineering

Education

M.S. - Coastal Engineering

B.S. - Civil Engineering

Registration

Professional Engineer (NCEES Certified,
Model Law Engineer): New Jersey, Delaware,
Massachusetts, Florida, Louisiana

Diplomat in Coastal Engineering (D.CE)

Years of Experience

With Louis Berger: <1

Total Years: 23

Mr. Tabar is a coastal engineer with 23 years of experience in climate change, sea level rise, flood control, erosion prevention, hydrodynamics, sediment transport, nearshore coastal processes, and dredging with an emphasis in coastal engineering. Mr. Tabar holds a professional certificate as a Diplomat in Coastal Engineering (D.CE) from The Academy of Coastal, Ocean, Port & Navigation Engineers (ACOPNE). This certificate provides Mr. Tabar with international recognition of specialized knowledge and skills in the field of coastal engineering.

Mr. Tabar has worked with public and private clients including the U.S. Army Corps of Engineers (USACE), the United States Coast Guard (USCG), Federal Emergency Management Agency (FEMA), the National Resources Conservation Service (NRCS), United State Fish and Wildlife Service (USFWS) and local and state agencies across the United States and international projects (Caribbean, Saudi Arabia, Djibouti, etc.).

Mr. Tabar's experience has included providing complete, turnkey engineering services (including civil, water resource and coastal), conducting public meetings, assisting government agencies with restoration planning, design and construction administrative services. Mr. Tabar has a long history of providing technical assistance for climate change, erosion control and coastal zone management projects for public clients. This includes climate change planning, marsh restoration, wetland preservation, sediment transport analysis, erosion studies, dredging and disposal, storm surge analysis, wave studies, flood control structural design, scour analysis, and quality assurance reviews. Mr. Tabar has a solid background in working closely with local, state and federal agencies to make sure that work performed is completed accurately and meeting the proper guidelines and policies.

Much of the project experience has consisted of completing successful projects. His background includes supervising project personnel and preparing construction plans and specifications, designing projects, numerical modeling of flood control planning, site assessment and inspection, bathymetry data collection and analysis, preparation of funding programs/cost estimates and benefit analysis, environmental permitting, monitoring and mitigation plans, site investigations, and environmental resource mapping.

Post Hurricane Sandy Storm Damage Assessment and Breach Fill Design, Project Manager. Prime Hook National Wildlife Refuge and its adjacent water bodies are important natural features along western Delaware Bay and throughout the region and provide critical stopover sites for migratory birds and habitat for many species of fish and wildlife. The Refuge wetlands have experienced major changes over the past decade in terms of habitat, sedimentation, and water circulation. Over the past several years, portions of these impoundments have reverted to saline conditions, largely due to recent severe storm events that caused flooding, erosion, and several overwashes/breaches along the barrier island fronting the Refuge. Because of these breaches, portions of the Refuge have been inundated with saltwater, resulting in the loss of substrate and freshwater vegetation. Multiple conceptual design alternatives were developed during the coastal engineering analysis to evaluate a range of potential breach fill and resilient marsh alternatives. A total of seven different alternatives with an optional "Feeder Beach Alternative" were developed. Conceptual Design Drawings and Three-Dimensional Renderings of each of the alternative. Although the focus of this project was to determine the volume of sand needed to replenish the nearshore barrier beach and dune system, the replenishment (or breach fill) was coupled with marsh restoration, as back-barrier marshes provide the platform on which beaches/dunes inevitably migrate. In the absence of marshes, the platform is eroded and the beach/dune migration is accelerated. Fundamental to the success of any replenishment project is the restoration of the marsh. Restoring the marsh will help to restore the barrier system processes that control the landward beach/dune migration and restore valuable fish and wildlife habitat.

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Prime Hook National Wildlife Refuge Marsh Restoration

Plan. Mr. Tabar was hired by the USFWS in 2012 to conduct a numerical modeling and erosion control study of the Prime Hook National Wildlife Refuge Estuarine System. The work assignment includes numerical modeling of the physical processes of the system including hydrodynamic circulation, and erosion processes. In addition, water quality modeling of the distribution/diffusion of salinity was conducted. The circulation/erosion/salinity model provided insight into how the system behaves with respect to both freshwater inflows and saltwater intrusion due to several breaches (resulting from damage caused by Hurricane Sandy) and how potential variations in the estuarine system will effect these conditions. The modeling results were used to develop a Marsh Restoration Plan to restore approximately 15,000 acres of refuge property by dredging 30 miles of conveyance canals and thin layering disposal of approximately 600,000 cubic yards of material.

Bird Colony Island Wave Attenuation System. Project manager. This project involved the construction of a 1,250-linear-foot breakwater and backfilling with dredged material to create an inland marsh. The focus was the enhancement and protection of a vital wading bird rookery in Roberts Bay. This area had experienced a considerable amount of erosion due to currents and waves from boat wakes. The project included the stabilization of the shorelines of three mangrove islands in Roberts Bay. The project team was tasked by Sarasota County to provide turnkey professional coastal engineering services, including bathymetric surveys, geotechnical investigations, feasibility study drawings, volume calculations; construction plans, bidding support, and construction oversight. The project team managed the survey and geotechnical consultants, using this data to complete the project. The project team ecologists supported the coastal engineering efforts by providing expert advice to establish marsh elevations for specific planting regimes. Dredge material was deposited to optimize planting success and further enhance erosion protection. Additional project elements included the siting and installing regulatory navigation signs and buoys. Seagrasses in the footprint of the breakwater were transplanted behind the islands prior to construction. Red mangroves and smooth cord grass plugs were planted on the created marsh areas. Birds were monitored during the entire process, and construction had no significant impact on bird nesting activity.

Alligator Bend Marsh Restoration and Shoreline Protection Projects for NRCS Louisiana Water Resources Program, Louisiana. Project Manager. The landfall of Hurricane

Katrina in southeast Louisiana damaged thousands of acres of marsh and other coastal habitats in the Pontchartrain basin. Along the shorelines of Lake Borgne, the storm created breaches between the lake and interior marshes and in some cases removed large expanses of wetlands. Loss of wetlands in the Alligator Bend area created more than 1,000 acres of open water in a complex that formerly supported relatively stable brackish marshes. Post-storm aerial photographs show the most significant losses occurred along the flanks of Bayou Platte leaving a large area of open water between eroding shorelines on Lake Borgne and the Gulf Intracoastal Waterway (GIWW). Continued shoreline erosion and future storms could create a direct path of open water connecting the GIWW and Lake Borgne and threaten the integrity of this important and bridge. Under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA), the project team provided engineering design services for a foreshore rock dike (rubble mound structure) and vegetative plantings along the shoreline of Lake Borgne. The project team's multidisciplinary capabilities enabled the firm to provide the full range of services required for this challenging project, offering NRCS a streamlined, one-stop approach to developing a sustainable solution. Among the issues faced were the area's poor soil conditions, which required elevated levels of testing and analysis to solve project design challenges.

New Orleans Levee Design for Lake Pontchartrain

Hurricane Protection. Managed and performed a design for the U.S. Army Corps of Engineers, New Orleans District (USACE-MVN) of overtopping calculations and levee crest elevations for the West Shore, Lake Pontchartrain Hurricane Protection Project for a variety of design scenarios. Design guidance, assumptions, recommendations and a discussion of uncertainty was provided.

Investigation of Shoreline Erosion for Block Island, Rhode Island, Relocation of Block Island Lighthouse, Engineer.

Served as coastal engineer to analyze coastal processes of the southeastern bluffs of Block Island to determine the cause(s) of erosion. The erosion threatened a historic lighthouse and relocation was presented as the most practical means to protect the structure. Data was collected under challenging winter conditions, and survey data, sediment samples and photography were analyzed. Historical shoreline data was evaluated to determine long-term trends. The lighthouse was successfully relocated. The project required careful public consideration combined with technical expertise.

Kapila S. Pathirage, Ph.D., P.E.

Geotechnical Engineering

Education

M.A.Sc. - Geotechnical Engineering, University of British Columbia, Canada, 2000

Ph.D. - Civil/ Hydraulic Structure (Dams) Engineering, Russian People's Friendship University, Moscow, 1992

M.Sc. - Civil/ Hydraulic Structure (Dams) Engineering, Russian People's Friendship University, Moscow, 1986

Registration

Professional Engineer: New Jersey, New York, Ohio, and British Columbia, Canada

Years of Experience

With CDM Smith: 8

Total Years: 23

Dr. Pathirage has 23 years of experience in geotechnical/tunnel, geo-environmental, and civil engineering projects for private, commercial, and government clients. He has experience in performing geotechnical investigations for tunnels, microtunneling, horizontal directional drilling (HDD), dams, slurry walls, pipe lines, solid waste landfills, water and waste water treatment plants, contaminant projects, subdivision developments, storm water ponds, and soil liners. Dr. Pathirage's engineering experience includes design and construction of tunnels, microtunneling, horizontal directional drilling, slurry walls, landfills, contaminant clean-ups, and site development projects. Dr. Pathirage also has engineering experience in design and construction of dams (i.e., rockfill/earth and concrete gravity dams). He has also managed operations and maintenance of dams that include rockfill/earth, concrete gravity and concrete arch dams. Dr. Pathirage has carried out formal/regular inspections and safety/performance evaluations; directed geotechnical (field/lab) investigations, and performed dam rehabilitation designs (earthen embankments, spillways, low-level outlets), remedial works and reviewed contracts. He has also been responsible for updating operation and maintenance manuals.

Senior Geotechnical Engineer, Horizontal Directional Drilling (HDD) Crossing of Raritan River, New Jersey. Dr. Pathirage served as the geotechnical engineer for the preliminary design a 24-inch water main that will be 5,400 lf in length. Marine borings were drilled in late winter of 2009 to develop the subsurface profile and used to set the vertical alignment of the water main in soil at the interface of with the rock.

Senior Geotechnical Engineer, Horizontal Directional Drilling (HDD) Crossing of Raritan River, New Jersey. Dr. Pathirage was the Geotechnical task leader for the design and installation of a 24-inch water main. The total length of the drill and pullback was ~5,400 LF. This is the longest fusible PVC (fPVC) pipe pullback for a diameter of 24-inch completed to date in the world.

Geotechnical Task Leader, Domestic Trade Terminal (DDT), Linden, New Jersey. This project included construction of a barrier wall approximately 650 feet long and 20 feet deep and collection trench. The Bio-Polymer slurry method was used to facilitate the trench excavation and the installation of the HDPE liner. Dr. Pathirage was responsible for coordinating with construction activities, planning and executing a geotechnical test pits excavation program followed by laboratory testing programs. He conducting revised trench design analyses and developed contract documents consisting of technical specifications and drawings, and reviewed submittals to provide construction recommendations.

Geotechnical Task Leader, Welsbach Superfund Site, Gloucester City, New Jersey. The Welsbach Superfund site is a radioactive soil contamination clean-up project located in Gloucester City and Camden, New Jersey. As part of the remediation, the existing contaminated soils are proposed to be removed by excavation and the excavation to be backfilled with clean soils (currently, the excavation is in progress). Dr. Pathirage was responsible for planning and executing a geotechnical investigation program followed by laboratory testing programs, designing a 780 ft long sheet piling wall with tiebacks (soil anchors) to support 14 ft excavations. He determined stable slopes to support excavations to 14 ft bgs and estimated dewatering quantities, developed contract documents consisting of technical specifications and drawings, and reviewed submittals to provide construction recommendations.

Geotechnical Task Leader, Welsbach Superfund Site (Swim Club), Gloucester City, New Jersey.

The Welsbach Superfund site was a radioactive soil contamination clean-up project located in Gloucester City and Camden, New Jersey. As part of the remediation, the existing contaminated soils

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were removed by excavation and the excavation backfilled with clean soils. Dr. Pathirage was responsible for reviewing existing subsurface soil boring information and results of laboratory testing programs and planning and executing supplemental geotechnical investigation programs followed by laboratory testing programs. He evaluated a cantilevered sheet piling wall (270 ft long) that was designed to support 18 ft deep excavations and determined stable slopes to support excavations to 18 ft bgs and estimated dewatering quantities. He reviewed submittals to provide construction recommendations.

Geotechnical Task Leader, Welsbach Superfund Site (Pop Corn Factory), Gloucester City, New Jersey. The Welsbach Superfund site was a radioactive soil contamination clean-up project located in Gloucester City and Camden, New Jersey. As part of the remediation, the existing contaminated soils were removed by excavation and the excavation backfilled with clean soils. Dr. Pathirage was responsible for reviewing existing subsurface soil boring information and results of laboratory testing programs, evaluating a sheet piling wall with tiebacks (420 ft long) designed to support 15 ft deep excavations, and reviewing submittals to provide construction recommendations.

Geotechnical Task Leader, Excavation Support System Design, Maywood Superfund Site, Maywood, New Jersey. The Formerly Used Site Remedial Action Program (FUSRAP) Maywood Superfund Site (FMSS) was contaminated with the radiological hazardous substance Thorium-232 (Th-232), Radium-226 (Ra-226) and Uranium-238 (U-238) and their radioactive decay series. The FMSS was located in a highly developed area of northeastern New Jersey in the Boroughs of Maywood and Lodi and the Township of Rochelle Park. As part of the remediation, the existing contaminated soils were removed by excavation and the excavation backfilled with clean soils. Dr. Pathirage reviewed existing subsurface soil boring information and results of laboratory testing programs. He designed a cantilevered sheet piling wall (approximately 70 ft long) to support 8 ft deep excavations adjacent to a busy roadway and designed a soldier pile wall and lagging (approximately 100 ft long) to support 8 ft deep excavations adjacent to a busy roadway. Dr. Pathirage determined stable slopes to support excavations to 8 ft bgs and estimated dewatering quantities, and reviewed submittals to provide construction recommendations.

Geotechnical Task Leader, Design of an Excavation Support System, Welsbach (Klemm/Highland), Gloucester City, New Jersey. For a 780 ft long sheet piling installation, Dr. Pathirage was responsible for reviewing technical submittals and

providing construction recommendations as needed.

Geotechnical Task Leader, Vineland Chemicals, Vineland, New Jersey. Dr. Pathirage was responsible for planning and conducting a vibration monitoring program. This program was developed to conduct vibration monitoring near adjacent structures during the installation of a sheet piling wall. In addition, he was responsible for performing calculations to predict the potential vibration levels during this sheet piling installation prior to start of the actual work. The vibration program utilized one portable seismograph (VMS 2000) and one stationary seismograph (VibraTech) to record vibrations induced by the work and USBM criteria were used for the baseline for monitoring work.

Lead Geotechnical Engineer, NYCDEP Office of Green Infrastructure (OGI): Design Services Contract Area 3, New York. Dr. Pathirage is currently serving as the lead geotechnical engineer for the green infrastructure (GI) project with the NYCDEP's OGI across a 1,200-acre area of Queens, New York. Dr. Pathirage is responsible for planning and executing subsurface investigation programs and preparing geotechnical reports and assisting with developing contract documents.

Lead Geotechnical Engineer, NYCDEP Edenwald Houses Green Infrastructure Planning and Design, New York. Dr. Pathirage served as the lead geotechnical engineer for the GI development at Edenwald Houses, the largest New York City Housing Authority development in the Bronx with 41 buildings on nearly 53 acres. Dr. Pathirage was responsible for planning and executing subsurface investigation programs and preparing geotechnical reports.

Lead Geotechnical Engineer, Green Infrastructure Design Services Contract Area 1, NYCDEP, Brooklyn, New York. Dr. Pathirage served as the lead geotechnical engineer on the project team as a subconsultant for the right-of-way bioswale project. The current phase of the project consists of performing test borings and in-situ permeability tests at proposed bioswale locations to evaluate the suitability of the proposed locations for the bioswales. Dr. Pathirage is responsible for planning and executing subsurface investigation programs and preparing geotechnical reports.



Robert Bunting, P.E. Geotechnical Engineering

Education

M.S., Geotechnical Engineering, Clarkson University, 1991

B.S., Civil Engineering, Clarkson University, 1988

Registration

Professional Engineer: New Jersey, New York, Pennsylvania, Virginia, Maryland, Delaware, South Carolina

Years of Experience

With CDM Smith: 1+

Total Years: 24

Mr. Bunting is a senior geotechnical engineer with 24 years of experience in a broad range of civil engineering, including projects related to highways, mass transit, facilities, marine, environmental, dams and water resources. He has been responsible for subsurface investigations; laboratory testing, assigning, and interpreting; foundation analysis and design; report and specification preparation; and construction monitoring. Mr. Bunting has extensive experience with the design of shallow and deep foundations (driven piles and drilled shafts), proprietary retaining walls, braced and tied back excavation support systems, and seismic design including evaluation of liquefaction potential. In addition, he has prepared roadway monitoring programs which have included groundwater observation wells, piezometers, surface settlement platforms, vertical extensometers with magnet/reed switch transducers, inclinometers, and survey monitoring points.

Senior Geotechnical Engineer, NYCDEP Office of Green Infrastructure, Right-Of-Way-Bioswales, Flushing Bay BB-008 Contract Area 3, Queens, New York.

Mr. Bunting coordinated and supervised various aspects of the geotechnical investigation programs for soil borings and in-situ permeability testing for about 1000 preliminary right-of-way bioswales, greenstreet and public property retrofit sites in Queens, New York. The drilling programs included over 900 permeability testing locations and over 600 test borings in total. He reviewed the permeability evaluation and reporting, the geotechnical evaluation, and the design and contract drawing production. Responsibilities included coordinating with 2 boring contractors, preparing a drilling contract and HASP and approving invoices for the work. Mr. Bunting also coordinated with MTA and LIRR agencies to obtain Letters of No Impact and No Objection for subsurface investigations near railroad facilities.

Senior Geotechnical Engineer, NYCDEP Office of Green Infrastructure, Right-Of-Way-Bioswales, Newtown Creek Project, Brooklyn, New York. Mr. Bunting supervised various aspects of the geotechnical investigation programs for soil borings and in-situ permeability testing for about 300 preliminary right-of-way bioswales, greenstreet and public property retrofit sites in Brooklyn, New York. Responsibilities included frequent site visits to oversee field staff quality and review of boring logs and permeability data.

Senior Geotechnical Engineer, NYCDEP Office of Green Infrastructure, Right-Of-Way-Bioswales, Bowery Bay BB-005 Contract Phase 2, Queens, New York. Mr. Bunting's responsibilities include planning, coordinating, and supervising the geotechnical investigation programs for soil borings and in-situ permeability testing for right-of-way bioswales, greenstreet and public property retrofit sites in Queens, New York. The drilling programs include 100's of permeability testing locations and test borings. He coordinates work plans, Health and Safety Plans and drilling contracts. Mr. Bunting's responsibilities will also include reviewing the geotechnical evaluation, the geotechnical program and data management, and the design and contract drawing production.

Senior Geotechnical Engineer, Various Projects, New York City Department of Design and Construction, New York, New York. Mr. Bunting serves as a senior reviewer for various projects under a 3-year, on-call geotechnical services contract. He oversees staffing, field work, report preparation, project fee proposals, record of boring logs, geotechnical recommendation reports, and coordinates with the field staff and the client's project managers.

PRIOR TO CDM SMITH

Senior Geotechnical Engineer, Port of Palm Beach Slip No. 3 Reconstruction Project, Port of Palm Beach, Palm Beach, Florida (2011-2013). Mr. Bunting was responsible for the design of the anchored bulkhead. The bulkhead was replaced due to the dredging of the port. The bulkhead

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consisted of a sheetpile king pile system with 1 row of anchors. Mr. Bunting estimated the tip elevation of the king piles and the estimated length of the soil anchors along with the appropriate type and size. His responsibilities also included reviewing the contractor shop drawings.

Geotechnical Project Engineer, New York City Department of Sanitation, Marine Transfer Stations – North Shore and Hamilton Avenue, Queens & Brooklyn, New York. (2011-2012) Mr. Bunting was responsible for the construction of ramps for marine transfer stations which consisted of 10 piers, an abutment and an approach ramp in Flushing Bay, and 6 piers and 2 abutments on land. His responsibilities included shop drawing review and analysis of driven pile dynamic and static load test results. The driven piles consisted of open ended 30-inch and 36-inch-diameter steel pipe piles. Established production pile driving criteria based on the static load tests.

Geotechnical Engineer, Pier B, Newport News Marine Terminal, Proposed Cruise Terminal Addition, Newport News, Virginia. (1996) Mr. Bunting was responsible for evaluating the existing pile foundation at Pier B and the effect the additional loading from the proposed cruise terminal would have on the piles. He also provided foundation design recommendations and construction considerations for a terminal entrance structure. The foundation design included static and uplift capacities of 12-inch-square, prestressed/precast piles.

Geotechnical Project Engineer, Rubbermaid Site, Regrading Project, Chester, West Virginia. (2007) Mr. Bunting was responsible for slope stability analyses of an environmental site. The site was re-graded with existing on-site material which included a large amount of pottery shards. A memorandum was prepared discussing the findings of the analyses which showed that slopes at 1.5 horizontal to 1 vertical were acceptable.

Geotechnical Project Engineer, Waste Site Area E Slide Remediation near Pittsburgh Airport, Findlay Township, Pennsylvania. (2007) Mr. Bunting was responsible for slope stability analyses and recommendation for remediation of a failed slope. Mr. Bunting's recommendation was to reconstruct the slope at a 4 horizontal to 1 vertical slope by removing material at the top of the slope and redistributing was proposed. In addition, the placement of riprap on an "if and where directed" basis and the placement of spring boxes in accordance with PennDOT standards was recommended to mitigate the effects of groundwater seepage.

Project Engineer, Underground Storage Tank (UST) Site Characterization Report Addendum, 60th Street

Compound, Newport News, Virginia. (2000) As Project Engineer, Mr. Bunting was responsible for overseeing the construction of an additional groundwater monitoring well, obtaining soil and groundwater samples, performing aquifer tests, and coordinating the preparation of an addendum report to respond to Virginia Department of Environmental Quality comments on an initial site characterization report. The project initially consisted of removing five USTs that had been used to store fuel for equipment used by the City. Soil contaminated by the USTs was also removed and incinerated. Mr. Bunting prepared a site characterization report after the removal work was completed. Specific responsibilities included performing slug tests to provide updated groundwater hydraulic conductivity data, direction of groundwater flow and the average groundwater flow velocity, and obtaining and delivering groundwater and soil samples to an environmental laboratory for testing.

Geotechnical Engineer, Calthrop Neck Road Area Sanitary Sewer Improvements, York County, Virginia. (1997-1998) Mr. Bunting was responsible for providing recommendations and construction considerations for 8,500 LF of 8-inch-diameter, polyvinyl chloride (PVC) sewer line and a foundation for a vacuum pump station. His recommendations for the sewer line included specifying material to be used for backfill and bedding, compaction criteria, groundwater control methods, and excavation support systems. The vacuum pump station foundation is a combination of slab-on-grade and spread footings and was designed to minimize differential settlement concerns.

Geotechnical Engineer, Underground Storage Tank Contamination Screening, Frankford and Germantown, Pennsylvania. (1991-1992) Mr. Bunting was responsible for the design of a shoring system (geomembrane-lined soldier beam and lagging wall) in conjunction with the replacement of an underground hazardous material storage tank. Mr. Bunting provided a geotechnical analysis and the preparation of appropriate specifications and drawing details.

Geotechnical Engineer, Hebelka Auto Salvage Yard, Upper Macungie Township, Lehigh County, Pennsylvania. (1992) Mr. Bunting was responsible for determining soil density at a hazardous waste site. Soil density and ultimately the weight of the hazardous material were determined using a nuclear density gauge.

Geotechnical Engineer, Cumberland County Solid Waste Complex, Phase IV Design, Millville, New Jersey. (1994) Mr. Bunting was responsible for setting up and beginning a sealed, double ring infiltrometer test (in-situ permeability test) for a landfill liner.

Wing Yan Vivian Chan, P.E. Geotechnical Engineering

Education

M.S. – Civil Engineering (Geo-engineering),
University of California, Berkeley, 2006

B.E.N.G. – Civil Engineering, The University of
Hong Kong, 2005

Registration

Professional Engineer: Massachusetts

Years of Experience

With CDM Smith: 9

Total Years: 9

Ms. Chan is a geotechnical engineer with experience in subsurface investigation, shallow and deep foundation design, deep foundation installation, retaining wall and excavation support system design, dewatering evaluation, settlement analysis, slope stability evaluation, seismic stability analysis and numerical modeling. Projects Ms. Chan has worked on include the design and construction of various water and wastewater treatment plants, pipelines, pump stations, storage tanks, buildings, shoreline protection, landfill caps and tunnel. She is proficient with the English, Mandarin and Cantonese languages.

Geotechnical Engineer, Marina Barrage, Singapore. Ms. Chan assisted in the evaluation and design for the steel sheet pile cutoff wall for the boat lock and abutment.

Geotechnical Engineer, Flood Protection System Study, Lowell, Massachusetts. Ms. Chan performed various geotechnical analyses, including

retaining wall stability analysis, slope stability analysis, and seepage evaluation for two different sections of the levee system in order to evaluate the stability of the flood protection system after various changes over the years.

Geotechnical Engineer, Stock Island RO Plant Bulkhead Replacement Project, Monroe County, Florida. Ms. Chan assisted in the development of design alternative for the replacement of an existing seawall in the Florida Keys. She performed geotechnical engineering calculations including stability analysis using different computer software as well as toe scouring and wave protection evaluation. She assisted in developing geotechnical recommendations for the design of the seawall and the scouring and erosion protection behind the wall. She also assisted in writing the geotechnical engineering design report and preparing drawings and specifications for construction.

Geotechnical Engineer, Sandalwood Canal, Jacksonville, Florida. Ms. Chan performed geotechnical engineering calculations for the retaining wall stability of different sections of the canal as well as the stability of sheetpiles used as weir of the canal. She assisted in the alternatives design evaluations and the sizing of sheetpiles and tiebacks.

Geotechnical Engineer, Ping Tom Park, Chicago, Illinois. Ms. Chan designed the new shoreline protection system to replace the existing timber pile system along the Chicago River. The new shoreline system combined anchored sheetpiles, riprap and partial submerged water front terrace. She also provided recommendation on the foundation and pile design for other structures within the park as well as geotechnical support during the permitting and construction phases.

Geotechnical Engineer, NYCDEP Office of Green Infrastructure, Right-Of-Way-Bioswales, Flushing Bay BB-08 Contract Area 3 Project, Queens, New York and Newtown Creek Project, Brooklyn, New York. Ms. Chan planned, coordinated, and supervised the geotechnical investigation programs for soil borings and in-situ permeability testing for about 1000 preliminary right-of-way bioswales, greenstreet and public property retrofit sites in Queens and over 300 similar sites in Brooklyn, New York. The drilling programs included over 900 permeability testing locations and over 600 test borings in total. She coordinated the permeability evaluation and reporting for both projects. She also performed geotechnical evaluation, geotechnical program and data management, design and contract drawing production of the Flushing Bay BB-08 Area 3 project in Queens.

Geotechnical Engineer, Harbor Siphon Tunnel and Shaft, New York, New York. The project consists of the design and construction of a new 1.75 mile long, 72-inch diameter pipeline between Brooklyn and Staten Island. The primary purpose of the proposed siphon is to provide a standby pipeline for transmission of water to Staten Island, in the event of an outage of the existing 10-foot diameter Richmond Tunnel, which is the primary transmission facility between Brooklyn and Staten Island. The pipeline will be constructed inside a 12 foot diameter tunnel using gasketed concrete liner segments in various soil conditions (marine clay, glacial till, bedrock, fill) with over 100 feet deep shafts on both sides. The project also includes

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a couple of trenchless crossing under railroad tracks and micropile supported pipeline and structures. The subsurface investigation consisted of extensive land and marine borings, in-situ testing, laboratory testing, environmental testing, and geophysical study. Ms. Chan performed data organization, reduction and presentation. She assisted in coordinating the multiple-phased field investigations with various parties of interest, performed geotechnical engineering calculations, including seepage analysis, settlement analysis and seismic evaluation, and assisted in writing geotechnical investigation reports, baseline reports and other contract documents.

Geotechnical Engineer, Roebling Steel Superfund Site, Florence Township, New Jersey. Ms. Chan served as the geotechnical engineer for the final design of a dredging project to remove sediments contaminated with heavy metals. The project involves preparing a final design report, drawings, and specifications to remove over 250,000 cubic yards of impacted sediment in streams adjacent to the Delaware River. She assisted in the dredging evaluation, the preparation of design report, drawings and specifications.

Geotechnical Engineer, Harbor Point Site, Utica, New York. Operable Unit 1 (OU-1), OU-2 and OU-3 related activities at the 92-acre Harbor Point Site located in Utica, New York. This site is a former manufactured gas plant, one of the largest in New York State. The site remediation includes for the excavation and thermal treatment of an estimated 150,000 CY of MGP wastes and soil, the dredging of Utica Harbor, design and construction oversight of the subaqueous cap, and conducting the feasibility study for the Mohawk River sediments (OU-2). Ms. Chan performed various geotechnical engineering calculations, including slope stability analysis, settlement analysis, seepage/dewatering estimation, piping and heaving evaluations, stress evaluation for slurry wall crossing, cement-bentonite wall stability evaluation, and various material volumes estimation and balancing. She also performed numerical modeling in order to assist in the design and construction sequencing. In addition, she assisted in writing various geotechnical reports and preparation of various specifications and documents.

Geotechnical Engineer, Linsky Way Solidification/Stabilization of DNAPL, Cambridge, Massachusetts. Ms. Chan coordinated the geotechnical drilling for the project and served as a field engineer during the drilling operation. She compiled geotechnical data and information and assisted in the preparation of specifications, drawings, and other contract documents.

Geotechnical Engineer, Ralston Street Lagoon Remediation, Gary, Indiana. Ms. Chan assisted in the

development of various laboratory testing procedures for the treatability study, data organization, reduction and presentation. She performed geotechnical calculations, including settlement analysis and bearing capacity evaluations, in order to assist the development of the treatment or containment system alternatives for the contaminated sludge in the approximately 20-acre lagoon. She also assisted in the preparation of report, preliminary recommendations, presentation, and cost evaluations of the alternatives.

Geotechnical Engineer, Remedial Design at former Wood Preserving Site – IM4/5 Parking Lot, Brunswick, Georgia. The project focused on the redesign of the capping system of one of the two impoundment ponds to a RCRA compliant parking lot cap in a remediation project of a wood preserving site for the EPA Region 4. The ponds were constructed with 350,000 square feet of soil-bentonite subsurface barrier walls and ex-situ solidification of creosote-impacted sediment and soils. Ms. Chan performed design evaluations, assisted in developing design documents, bidding documents, technical specifications, and contract drawings.

Geotechnical Engineer, Catskill/Delaware Ultraviolet Light Disinfection Facility, Westchester County, New York. Ms. Chan reviewed various geotechnical-related project submittals, request-for-information, weekly monitoring reports, and assisted in geotechnical aspects of change orders in support of the landmark 2-bgd ultraviolet disinfection facility estimated to cost \$570 million. The project's geotechnical challenges include 100 foot deep temporary excavations involving more than 600,000 CY of excavation below groundwater level and excavation of bedrock using controlled blasting.

Geotechnical Engineer, Forensic Evaluation of Fail Slope and Trunk Sewer Preliminary Assessment, Yonkers, New York. Ms. Chan served as the project engineer for the forensic evaluation of the failure of a 48" trunk sewer as well as the preliminary assessment of the rest of the 7.7 mile long sewer line. She coordinated the permitting, assessment, surveying and geotechnical drilling for the project and served as a field engineer during the drilling operation. She compiled data and information for the preliminary assessment, conducted evaluation and provided recommendations for improvement.

Dincer Egin, Ph.D., P.E., P.G

Geotechnical Engineering

Education

Ph.D. - Durham University, England
Minor Degree - Mining Engineering & Economics, Montan University, Austria
M.S. & B.S. - Geological Engineering, Hacettepe University, Ankara, Turkey

Registration

Professional Engineer: New Jersey, New York, Wisconsin
Professional Engineering Geologist- Registered in Washington
Professional Geologist- Registered in Washington
Diplomate, Geotechnical Engineering

Years of Experience

With Louis Berger: 10
Total Years: 35

Dr. Egin has over 35 years of engineering and construction experience in challenging projects in New York, New Jersey metropolitan area, Pennsylvania, Florida, Utah, California, West Virginia, District of Colombia, American Samoa, and in many international projects in Europe, Asia, and Africa in addition to Americas. He currently manages the Geotechnical Department of the Louis Berger Group's Corporate Office. He has worked in very difficult subsurface conditions, and converted them to buildable areas. He has worked in the Meadowlands from early geotechnical engineering studies to foundation design solutions. Dr. Egin's ground improvement designs and solutions resulted in the development of a former major landfill in Dover New Jersey to a FedEx Ground facility, 3 hotel buildings, covering foot print areas more than 200,000 square foot. This was the first full development of a landfill to a commercial facility in New Jersey.

He is the recipient of the Louis Berger Group's 2008 Technical Excellence Award, and the prestigious Diplomate in Geotechnical Engineering by the Geo Institute of ASCE. He has broad-based professional experience in a number of civil engineering projects starting from site feasibility and development to final completion, including site assessments, investigations, engineering, construction staging, design review and development, preparation of specifications, development of economical ground improvement techniques, mitigation and development of landfills and brownfields, pavement design for highways and

airports, tunnels, instrumentation, rock engineering, rock-slope stability, retaining walls, slope remediation designs and construction, controlled inspection and remediation for public sector and private sector clients. He has recently completed a major geotechnical investigation for the NSA, USACE for a data center in Utah, and served in the design and construction team for the rehabilitation/reconstruction of the prestigious Lincoln Memorial Reflecting Pool, and World War II Memorial Slurry Wall Repairs in Washington, DC.

NYC Law Department, Preliminary Geotechnical Investigation and Engineering Report, Staten Island, Richmond County, New York, 2014. Dr. Egin planned and conducted a geotechnical investigation and engineering services to investigate and prepared a preliminary geotechnical investigation report (Phase 1) for potential development at the New Creek Blue Belt, in Staten Island, New York City. The project site is located in eastern Staten Island; about 1-1/2 miles south of the Interstate I-278, and occupies an area of about 70 acres. The proposed development is expected to consist of the construction of two stories single, or multi-family homes, at grade parking and site access roads, as well as the installation of utilities. He performed an initial geotechnical investigation that consisted of the drilling of nine (9) geotechnical borings, within street right of way, to a maximum depth of 52 feet, sampling, groundwater observations, and geotechnical field and laboratory testing to characterize subsurface conditions for collecting and providing data for possible foundation systems for the proposed buildings that could occur under a development scenario. Both shallow and deep foundation systems were evaluated and a foundation system consisting of timber pile support was selected as a feasible system.

U.S. Army Corps of Engineers – New York District (USACE), Geotechnical Investigation and geotechnical design for the proposed Saints Field Pier and Port Reading Avenue Pier, at Woodbridge Creek, Woodbridge, New Jersey. He has performed a geotechnical review of the existing borehole data, and also a limited review of the soil test results by others, to evaluate the subsurface conditions for wetland development, the proposed two timber piers and the observation deck structures. The subsurface below the proposed timber pier consisted of a layer about 10 feet thick of organic soils, peat, silt and clay, underlain by medium

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dense to dense silty sand, over very dense sand and gravel. Because of the presence of organic soils, soft clay and silt, and high groundwater, a deep foundation system consisting of helical piles or micro piles were reviewed and selected due to their least disturbance to the wetland. Because of the tidal fluctuations and the corrosiveness of the soils and groundwater, helical piles with a sacrificial section for corrosion during the design life of the structure was recommended.

NJDOT- Geotechnical Engineering and Preliminary Geotechnical Report for the Design of Flood Wall at NJ Route 29, City of Trenton, New Jersey (2014). Dr. Egin conducted this work under NJDOT Activity Code 3095 which consisted of the collection and evaluation of the existing documentation and, conducting preliminary geotechnical analysis and engineering, including recommendations for the re-construction of the breached retaining structure located about 500 feet south of the intersection on of Rt. 29 (Southbound) and Amtrak Bridge over Delaware River in the City of Trenton, New Jersey. He conducted geotechnical analysis, and the preliminary design criteria and methodology for the proposed flood wall in accordance with the AASHTO LRFD Bridge Design Specification with New Jersey Stipulations, Section 3; Section 16: Foundation Design Criteria; Section 17: Abutments and Walls; Section 33; Cofferdam and Sheet Piling; and Section 34: Geotechnical Engineering. He prepared a preliminary design of a reinforced concrete gravity wall and temporary sheet piled wall to protect the Rt. 29 during construction of the flood wall.

Kinder Morgan Liquids Terminal, LLC, Permeability test report to assess the infiltration potential of the ground within the diked tank containment areas at Perth Amboy Terminal, New Jersey, 2014. He developed an investigation program, conducted visual observations of the membrane and concrete liners, and developed and directed permeability investigations of earthen liners, for all secondary containment areas (diked areas) at the Perth Amboy Liquids Fuels Terminal Facility which houses more than 200 storage tanks of various sizes, capacity and types. Some of the storage tanks have been put into service as early as 1929. The aim of this investigation was to assess the infiltration potential of the containment areas, including the potential for soil and groundwater contamination in the event of an accidental release of petroleum products. He conducted supervision of the field studies, evaluated the data and prepared a report containing the visual inspection of the concrete and membrane liners, as well as the results of field (in situ) permeability tests to depths of about five (5) feet below the existing grade (i.e. approximate groundwater depth) at 30 shallow soil borings completed

within each earthen secondary containment area. His report also evaluated the expected performance of the existing compacted soil, concrete and membrane liners in case of an accidental release of petroleum products is also evaluated.

Geotechnical Investigation and Engineering Report for Rutgers Honors College and School of Arts and Sciences, New Brunswick, New Jersey. As part of the development of Rutgers Honors College and School of Arts and Sciences and New Brunswick Theological Seminary (NBTS) buildings, he planned, and supervised a geotechnical investigation that consisted of geotechnical borings and sampling, environmental sampling, groundwater observations, and geotechnical and environmental laboratory testing to characterize subsurface conditions for the proposed site development. He prepared a geotechnical report which evaluated the subsurface conditions and provided geotechnical engineering analyses leading to recommendations for the selection of suitable and economical foundation system for the proposed "Rutgers Honors College and School of Arts and Sciences Athletic fields Theological Seminary (NBTS)" development.

SJTA-South Jersey Transportation Authority, Drilling, Sampling, Laboratory and Field Tests for Drainage Facilities for Engineering Review Contract, Atlantic County and Camden County, New Jersey (2015) Dr. Egin planned, directed a geotechnical investigation, and field permeability tests at about 60 infiltration basins in both directions of the Atlantic City Expressway and also along the medians. The purpose of this investigation was to re-assess the subsurface conditions and the characteristics to facilitate drainage/ infiltration to promote groundwater recharge.

Jet Aviation, Pavement Design for the Proposed Expansion of Apron between Taxiway M and J - Phase II, Teterboro Airport, New Jersey. He conducted a pavement design and design report based on a daily average departure of 15 (and Equivalent Annual Departure of 5,475) of a standard fleet of Global Express (Bombardier Global BD-700) and the development of typical pavement sections using the FAA's Airport Design and Evaluation-Advisory Circular, AC No: 150/5320-6E (U.S. Department of Transportation, Federal Aviation Administration). The pavement is designed for a performance period of 20 years, with 2013, being the anticipated initial year of service.

Virginia A. Roach, P.E., BCEE

Green Design/Green Infrastructure

Education

M.S. - Civil/ Environmental Engineering,
Worcester Polytechnic Institute, 1992

B.S. - Civil Engineering, Worcester Polytechnic
Institute, 1985

B.A. - Mathematics, College of the Holy Cross,
1981

Registration

Professional Engineer: Massachusetts

Years of Experience

With CDM Smith: 30

Total Years: 30

Ms. Roach has 30 years of civil and environmental engineering experience.

Throughout her career, she has been involved in a broad range of stormwater management studies, site designs and construction projects, as well as wastewater, combined sewer overflow (CSO), and water projects throughout the United States. Ms. Roach was a contributing author to the 2012 WEF Design of Urban Runoff Controls Manual of Practice, and the recently completed WEF Green Infrastructure Implementation manual.

Project Manager, NYC DEP Office of Green Infrastructure OGI: Design Services

Contract. The New York City Green Infrastructure Plan is to manage the first inch of runoff from 10 percent of impervious surfaces in combined sewer tributary areas in Queens, Brooklyn and the Bronx by 2030. Ms. Roach is managing a green infrastructure project with the NYCDEP Office of Green Infrastructure across a 1,200-acre area of Queens. Over three years, CDM Smith is providing design and engineering services for green infrastructure in Flushing Bay combined sewer tributary area BB-008 through construction. Green infrastructure improvements

include approximately 500 right-of-way bioswales, as well as stormwater greenstreets and various types of green infrastructure practices on public properties (porous pavements, vegetated bioretention areas and subsurface storage and infiltration). Ms. Roach is the Project Director for a similar green infrastructure project in the Queens BB-005 combined sewer area tributary to Bowery Bay.

Project Manager, NYC DEP Edenwald Houses Green Infrastructure Planning and Design. Ms. Roach managed the planning and design of green infrastructure development at Edenwald Houses, the largest New York City Housing Authority (NYCHA) development in the Bronx with 41 buildings on nearly 53 acres. CDM Smith completed a facility plan and design for the Edenwald site incorporating green infrastructure controls to maximize storm flow attenuation to the extent practical, and is providing construction services over the next two years. This project will reduce combined sewer overflows to the Hutchinson River and thereby improve the water quality of the river and harbor.

Stormwater Design Lead, Green Capitols Infrastructure Improvements, Hartford, Connecticut. Ms. Roach designed a "Green Capitols" project on the grounds of Hartford, Connecticut's capitol building. The Hartford Metropolitan District Commission (MDC) partnered with the Connecticut DEP and State Capitol Office of Legislative Management to design various green infrastructure improvements around the capitol to demonstrate to Connecticut municipal officials and homeowners the potential benefits of green technologies. The improvements include a rainwater harvesting system that captures roof water for use in site irrigation, permeable paver and pervious concrete walkway demonstration areas, porous asphalt parking areas, urban and residential rain garden infiltration areas and a green roof. Construction of the project was completed in 2010.

Senior Technical Lead, East 140th Consolidation and Relief Sewer and Union Buckeye Green Infrastructure Projects, Cleveland, Ohio. For the Northeast Ohio Regional Sewer District (NEORS) Ms. Roach is the Senior Technical Lead for the design of green infrastructure and storm sewers to divert, treat and offload stormwater runoff from catchments within the project areas to reduce CSOs. The projects include the design of numerous natural storage basins and several miles of new storm sewers.

Project Manager, Portside at Pier One, Massport, East Boston, Massachusetts. Ms. Roach managed the civil/site design of the Portside at Pier One development project for Roseland Property Company. This project included utilities design, "green roof" design for development of buildings and landscaped areas over the concrete pier and over a subsurface garage, geotechnical engineering investigations, foundation design, assistance with permitting, due diligence site investigation,

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remedial design and Licensed Site Professional (LSP) services and construction oversight services for the redevelopment of the Massachusetts Port Authority's (Massport's) Pier One site in East Boston, Massachusetts.

Stormwater Design Manager, Harvard University, Allston, Massachusetts. Ms. Roach is managing the stormwater facilities planning and design for the proposed Harvard University Allston campus. The development of the Allston campus will improve the stormwater infrastructure of a broad watershed area, improve the quality of stormwater runoff to the Charles River, and incorporate sustainable measures that will ultimately lead to environmental benefit in the area. Sustainable measures under pilot study and design for the Harvard Campus include bioretention areas and street planters, green roof design, porous pavement and subsurface infiltration systems.

Project Manager and Lead Practitioner, Stormwater Master Plans, Various Locations. Ms. Roach was the Project Manager for the Northampton, Massachusetts Stormwater and Flood Control System Assessment and Utility Plan. The purpose of this project was to meet specific goals of the city's Sustainable Northampton Comprehensive Plan, as well as consider the implementation of a new Sustainable Stormwater and Flood Control Utility to fund capital projects and maintenance of the city's stormwater and flood control facilities. This project assessed the adequacy of existing drainage systems within select areas within the City of Northampton, and developed and evaluated alternatives for addressing areas where the system needed improvements to meet present and future stormwater management requirements. Alternatives included green design elements as well as large pipe solutions. In addition, the alternatives evaluation addressed ways to cost-effectively maintain the city's flood control facilities. The product of this assessment was a prioritized long-term improvement plan, laying the groundwork for a Stormwater and Flood Control Utility, implemented in 2014.

Ms. Roach was the lead practitioner, performing quality reviews, for the Greenwich, Connecticut drainage master planning.

In 1999, Ms. Roach completed a drainage design report to resolve flooding problems along Lawrence Street Brook and Chubbs Brook, with drainage areas totaling 1,700 acres in the City of Beverly, Massachusetts. She managed the design of the recommended improvements, which were constructed in 2001, 2003 and 2004. Subsequently, she managed the study and design of drainage improvements for the 1,000-acre North Beverly Brook watershed, constructed in 2008 and 2009.

Other flood studies and subsequent drainage improvement

designs managed by Ms. Roach include a study to reduce flooding both in a 275-acre densely populated residential area in East Saugus, Massachusetts, and in a 128-acre urban residential area in Quincy, Massachusetts. She obtained FEMA funding and managed the design of drainage improvements for the 1,500-acre Shute Brook watershed in Saugus, constructed in 2007.

Project Manager, Stormwater Compliance, Merrimack, New Hampshire. Ms. Roach worked with the Town of Merrimack, New Hampshire on annual reporting and developing a stormwater ordinance to meet the requirements of EPA MS4 stormwater regulations. The objectives of the new stormwater ordinance are to prohibit non-stormwater discharges, to require sediment and erosion control during construction, and to address post-construction runoff in new development and redevelopment.

Project Manager/Engineer, Various CSO, Drainage, and Sewer Projects. Ms. Roach managed numerous other CSO, drainage, and sewer projects. She managed five major CSO conceptual design projects for the Hartford, Connecticut Clean Water Project, including sewer separation, consolidation conduit and tunnel storage designs. She performed a CSO study for the City of Fall River, using the STORM model to determine the feasibility of various CSO control alternatives. Utility and roadway projects include reconstruction of approximately 6,000 feet of Chestnut Hill Road in Rochester, New Hampshire, and the Massachusetts Department of Transportation (MassDOT) Spring Street reconstruction design project in Williamstown, Massachusetts, that included drain, sewer, water main, and roadway improvements. Ms. Roach managed the design of sewer separation and water system improvements in downtown Exeter, New Hampshire, improvements recommended by CDM Smith in a comprehensive infiltration/inflow (I/I) study, sewer system evaluation survey, and CSO study for the town. The Exeter improvements were constructed with no change orders.

Project Manager, Best Management Practices Design, Indian Lake and Salisbury Pond, Worcester, Massachusetts. Ms. Roach managed the design of best management practices (BMPs), including particle separators and a 1-acre sediment forebay, to mitigate sediment and pollutant loads to Indian Lake and Salisbury Pond in Worcester, Massachusetts. Particle separators were constructed in 2006 with funding from an EPA 319 Grant.

Nancy Oram Vigneault, P.E., BCEE

Green Design/Green Infrastructure

Education

M.S. – Environmental Engineering, University of New Haven, 1999

B.S. – Civil Engineering, Clarkson University, 1997

Registration

Professional Engineer, Connecticut, New York, Massachusetts

Years of Experience

With CDM Smith: 8

Total Years: 17

Ms. Vigneault has 17 years of experience in diverse areas of environmental engineering, including wastewater facilities and sewer system design, stormwater permitting, stormwater evaluations and control, drainage design, combined sewer overflow (CSO) abatement plans, CSO storage facility design, combined sewer separation design, inflow/infiltration (I/I) studies, sewer system evaluations, solid waste design, civil/site design and resident inspection.

Project Manager, City of Plattsburgh Stormwater Conveyance System and Green Infrastructure (GI) Planning Project, Plattsburgh, New York.

Ms. Vigneault worked with the City of Plattsburgh to develop a GI demonstration project and a method to evaluate stormwater conveyance system vulnerabilities in current conditions and for future conditions that account for climate change. Ms. Vigneault managed a project team that developed a storm system model, evaluated various storm events, and predicted flooding areas. She also developed a GI evaluation matrix to be used to select a site for design and construction of a GI project.

Project Manager, City of Glens Falls Phase I Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP), Glens Falls, New York. Ms. Vigneault worked with the city in developing the first phase of their LTCP. She planned for field work including flow monitoring, surveying rims and inverts of select manholes, and CSO and water quality sampling in 2010. Ms. Vigneault developed a sampling protocol report which was approved by NYS DEC and she managed the water quality sampling. The CSO planning program addressed the proposed modifications to the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) permit for the city's Water Pollution Control plant and CSOs discharging to the Hudson River and Glens Falls Feeder Canal. The city receives wastewater from the Town of Queensbury, Town of Moreau, and the Village of South Glens Falls. Wet weather treatment capacity evaluations and review of work that meets the nine minimum controls were evaluated. She also managed the financial capability assessment and the public participation meetings. The Phase I CSO LTCP addresses the water quality impacts of the current federal and state combined sewer overflow regulations on the City. A draft LTCP was submitted to NYSDEC. Ms. Vigneault also worked with the City to develop a GI planning document that could be used by the planning board and developers in the city to incorporate GI into their projects.

Project Engineer, CSO Alternatives Evaluation for "Zero Discharge," Hartford, Connecticut. For Hartford Metropolitan District Commission (MDC), Ms. Vigneault reviewed the combined sewer system (CSS) in the Franklin Avenue drainage area and developed alternatives to collect CSOs and divert the overflows from the Wethersfield Cove, a special water body, which is connected to the Connecticut River in the northern part of the Town of Wethersfield. The 1,000-acre drainage area was modeled using XP-SWMM (Storm Water Management Model). Ms. Vigneault gained an understanding of the model and the results obtained from the model for overflows at eight regulators and two locations where combined sewage exits the drainage area during wet weather events. Alternatives including storage, a deep rock tunnel, full separation, a new interceptor to the treatment plant, and a collection conduit to collect only overflows from the eight regulators were sized. Stakeholder meetings were held with the MDC, Town of Wethersfield and City of Hartford officials, and a Wethersfield Cove citizens group to discuss project objectives, progress, design criteria and results. Ms. Vigneault presented the design criteria, results and cost estimates in a report to the MDC and the stakeholders of the project.

Project Manager, North Beverly Brook Drainage Study, Beverly, Massachusetts. Ms. Vigneault managed the drainage study for the North Beverly Brook drainage area in the City of Beverly. She guided the project team in drainage calculations for determining sub-drainage areas, estimating time of concentration, travel time, curve number and peak flow rate from each sub-drainage area.

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Ms. Vigneault managed the HEC-HMS and HEC-RAS modeling, which was completed to estimate the peak flow rates and analyze the backwater effect from tidal influence of Lower Shoe Pond at the downstream end of the drainage area. She developed alternatives to improve flooding in known problem areas. At the completion of the study she presented the results at a public meeting for the residents of the drainage area.

Project Manager, Conceptual Design of Drainage

Improvements, Groton, Connecticut. For a 7.7-acre drainage area in Groton, Connecticut, consisting of 16 catch basins and 15 to 18-inch diameter drainage pipe, Ms. Vigneault designed improvements to reduce sediment discharging at the outfall. She analyzed the contributing drainage area and sized a particle separator and valve to reduce suspended solids discharging to the Mystic River and to prevent tidal backflow from entering the drainage system.

Project Manager, City of Plattsburgh CSO Upgrades

Projects, Plattsburgh, New York. Ms. Vigneault worked with the city on two projects related to reducing CSOs in accordance with the city's approved LTCP. The MacDonough Park Sewer System Improvements included an evaluation of alternatives to reestablish CSO 025 to reduce the frequency of surcharging of manholes in MacDonough Park. Ms. Vigneault managed the hydraulic modeling task conducted to determine weir lengths and elevations in the proposed regulator(s) and the trunk sewer size to achieve a five to ten year level of control. She developed preliminary designs of an alternative which replaced the trunk sewer through the park with a larger sewer and new regulators and an alternative which proposed constructing a 36-inch diameter pipe under the railroad to remove the bottleneck caused by a 15-inch diameter interceptor currently under the railroad and a revised regulator and outfall at CSO 002. Final design was completed for the alternative increasing the combined under the railroad to CSO 002 with a 36-inch diameter pipe and installing a new regulator structure within MacDonough Park to reestablish CSO 025 in 2011. Ms. Vigneault managed the Cumberland Avenue Pump Station CSO Upgrades project which evaluated various CSO storage tank alternatives to achieve a two to three year level of control. The goal of the study was to develop alternatives which would reduce manhole surcharging and CSOs from twice a year to once every two to three years. The volume of the storage tank to achieve a two year level of control was approximately 1 million gallons. Alternatives for above-grade and below-grade storage facilities were evaluated as well as an alternative which conveys the CSO that discharged to the ground surface due to manhole surcharge to the existing CSO 014 outfall at Lake Champlain. Due to

cost, a modified alternative consistent with the city's LTCP was designed that installed a new regulator, replacing an existing regulator structure and alleviated flooding to the ground surface caused by combined sewer system surcharge.

Project Engineer, Washington County Sewer District II

CSO LTCP. Ms. Vigneault worked with Washington County Sewer District II to develop their LTCP to abate CSOs. She worked with the CSS modelers and subcontractors to make sure appropriate flow data and topographic survey of select manholes and regulators were collected to develop a sewer system model. This program addresses the proposed modifications to the NYCDEC SPDES permit for WCSD's Water Pollution Control Plant and CSOs discharging to the Hudson River and Bond Creek.

Project Engineer, Albany Pool Phase I CSO LTCP, Capital District Regional Planning Commission, Albany, New York.

This project utilized a regional approach to address the abatement of CSOs for the City of Troy, City of Rensselaer, City of Cohoes, Village of Green Island, City of Watervliet and City of Albany. The program addresses the proposed modifications to the NYSDEC SPDES permit for each of the Albany Pool Communities and CSOs discharging to the Mohawk and Hudson Rivers. Ms. Vigneault worked with the Albany Pool Communities of Rensselaer and Troy to evaluate the contributions from their CSOs utilizing water quality data and SWMM model information. She also developed alternatives based upon the evaluation of the existing data and model.

Project Engineer, CSO Storage Facility Design, Lewiston, Maine.

Ms. Vigneault designed a 1.3 million gallon (MG) Water Street CSO storage facility for the Androscoggin Drainage Area in the City of Lewiston. She coordinated and analyzed the SWMM flow modeling effort and geotechnical investigation results in sizing and designing the storage facility. A series of five offline precast concrete box culverts and one inline "V" bottom box culvert are proposed for storage of combined sewage. Influent and effluent connection structures were designed to reroute the sewer interceptor through the inline "V" bottom culvert interceptor. The influent connection structure collects flow from an overflow pipe and from a 48-inch interceptor. A new 54-inch prestressed concrete cylinder pipe is replacing the existing overflow pipe between the existing regulator structure and the new influent connection structure. The effluent connection structure houses the new regulator and provides a connection to the existing 48-inch interceptor downstream of the storage facility. A submersible pump station with SCADA capabilities was designed to pump back stored sewage to the interceptor after the storm is over.



Mary Weber, P.E.

Green Design/Green Infrastructure

Education

B.S. - Civil Engineering

Registration

Professional Engineer: Washington

Years of Experience

With Louis Berger: 26

Total Years: 1

Ms. Weber has 26 years of experience in surface water management planning and design including low impact development and green infrastructure. She is experienced in the analysis, design, management, and coordination of surface water projects, and is familiar with a wide variety of hydraulic and hydrologic computer model applications including SWMM, HEC-RAS and HSPF. Ms. Weber has analyzed and designed green infrastructure, stream restorations, stormwater conveyance systems, fishways, detention ponds, sediment ponds, water quality treatment and fish-passable culverts. She is also skilled in evaluating flooding problems and developing and designing flood control solutions.

Community Reconstruction Zone Plans, New York Rising Community Reconstruction Program, State of New York.

New York Rising Community Reconstruction Program was developed to assist communities heavily impacted by Superstorm Sandy to redevelop stormwater management systems and community designs to prepare for large storm events like Sandy, and everyday flooding issues. Several pilot projects were developed as part of the project that included green infrastructure to reduce stormwater runoff and pollutants in the receiving waters. Ms. Weber was responsible for evaluating the benefits of seven pilot projects within the Gravesend and Idylewild communities. This included reviewing the conceptual designs of green infrastructure to ensure technical feasibility and optimizing them to maximize the flow reduction and pollution removal benefits.

Living with the Bay: A Comprehensive Regional Resiliency Plan for Nassau County's South Shore. Phase 1 – Mill River.

The Louis Berger Team is providing environmental review services for the duration of the public scoping process for Phase I of the Living with the Bay project, developed through Rebuild By Design. The first phase of this project, known as "Slow Streams" runs along Mill River, proposes to reduce tidal flooding and manage stormwater in the Mill River watershed through the installation of a sluice gate, developing of floodplain storage areas and construction of bioswales within the watershed. Project elements include developing a technical approach to conducting the environmental review for the project, conducting an existing information review, characterize environmental constraints, and intense coordination with the design team, interested parties, and involved agencies. Ms. Weber was responsible for preparing the technical approach to Stormwater Management section and Surface Waters and Wetlands section of the environmental review.

Project Engineer, SE Redmond Regional Stormwater Facilities Plan. Ms. Weber assisted the City of Redmond to develop a regional stormwater facilities plan for the SE Redmond area. A key objective was planning for stormwater conveyance, dispersed low impact development (green infrastructure) within the basin, regional detention, and treatment to meet current and future needs. HSPF and SWMM modeling were conducted to design flow control and the primary conveyance system. The area is largely undeveloped, with some commercial/ industrial land uses clustered near Evans Creek. The area lacks a formal drainage system and many of the existing developments discharge their stormwater through infiltration systems. Some of the area falls within wellhead protection zones 1 and 2, where infiltration from pollution generating surfaces is severely restricted. Additional work on this project included assessing the benefits of green storm infrastructure as part of future redevelopment. Green stormwater infrastructure, such as bioretention swales and permeable sidewalk, was incorporated in the basin modeling to assess the impacts on the required size of the flow control and water quality treatment facilities. This project determined a regional plan that will allow the area to be redeveloped. The project team assisted the City in obtaining an Ecology Retrofit grant that resulted in an award of over \$900,000 for the construction of one of the regional facilities identified in the plan.

Project Engineer, Union Hill Road Phase III/SE Regional Stormwater Ponds. Based on the results of the SE Regional Facilities Plan, Ms. Weber prepared the design of first stage of two of the proposed regional ponds. These will mitigate for added impervious surface as a result of the widening of Union

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Hill Road. In addition, the ponds will retrofit for the existing impervious surface on Union Hill Road, 192nd Avenue NE, NE 84th Street, 188th Avenue NE and the King County Road Maintenance yard. Water quality treatment will be provided via constructed wetlands. In addition, the project includes re-constructing the infiltration pond used to serve the Cadman site. Ms Weber also designed a boxless Filterra, a green infrastructure technique, to treat the runoff from Cadman prior to discharging into the infiltration pond.

Project Manager, Padden Creek Daylighting Project. Ms. Weber lead the design of a natural stable channel to remove the creek from a 2310-foot-long tunnel. This project will not only restore natural biological functions to the creek but will also alleviate flooding for the 100-year event. The project includes design of a 22-foot-wide by 4-foot-high by 75-foot-long fish-passable box culvert and pedestrian bridge. In addition, the project included green infrastructure to treat runoff for water quality including a bioretention swale. The project design has been completed and it will be constructed in the summer of 2015.

Ted Brown, P.E., LEED® AP

Green Design/Green Infrastructure

Education

M.S., Civil Engineering, University of Virginia,
Charlottesville, VA, 1994

B.A., Economics, University of North Carolina,
Chapel Hill, NC, 1988

Registration

Professional Engineer: New Jersey, New York,
Maryland, North Carolina

LEED Accredited Professional for New
Construction

Years of Experience

With BioHabitats: 9

Total Years: 21

Mr. Brown has over 20 years of experience in environmental restoration, watershed management and planning and stormwater management services. Recent project work focus includes stormwater best management practices (BMPs) and green infrastructure (GI) planning and design projects for New York City in support of their long term control plan, watershed planning and policy development for Montgomery County, Maryland in support of the latest generation of National Pollutant Discharge Elimination System (NPDES) MS4 permit, and several stormwater and ecological master planning efforts for major Universities. In each of these institutional master planning efforts, green infrastructure and ecological sustainability have been focal points of the campus strategy and institutional vision. Prior to joining the Biohabitats Team, Mr. Brown worked for eight years at the Center for Watershed Protection (CWP), a nationally recognized non-profit that develops innovative technical guidance relating to watershed assessment and management, stormwater management, NPDES regulatory compliance, and natural resource conservation. While at CWP, he served as Director of Watershed Implementation and played important roles in the development and writing of

state stormwater manuals for the states of New York, Vermont, Georgia, and Minnesota. His CWP work also included writing national guidance for EPA to support the NPDES Phase II Stormwater Program.

Teaneck Creek Park Habitat Restoration, Teaneck, NJ. Mr. Brown serves as engineer of record for this wetland and floodplain restoration project. In partnership with Bergen County, Rutgers University and Teaneck Creek Conservancy, Mr. Brown has participated in site assessments, assisted with the development of the hydrological and hydraulic modeling study, reviewed an invasive and adaptive management plan, and overseen the development of bid design and specs for the construction of the wetland and floodplain restoration. The restoration is part of an overall remediation plan for the previously contaminated site. The restoration will include restoring eroding drainage gullies using regenerative storm water conveyance features, attenuating flood flows using sand seepage berms and diversion berms, and developing invasive vegetation management strategies using modified site hydrology and grading approaches.

New York City CSO-PlaNYC GI Initiative - Neighborhood Demonstration Areas, New York City, NY. Mr. Brown served as project manager and assisted in the field reconnaissance, design, and development of full construction plans for various GI practices to address CSOs in the 26th Ward, Newtown Creek, and Bronx River areas of Brooklyn and the Bronx. The goal of the demonstrations was to manage one-inch of runoff from a minimum of 10% of the impervious surfaces within the neighborhoods areas, and monitor the impact of the designs on reducing flow in the combined sewer system.

New York City CSO-PlaNYC GI Initiative - BMP Pilots, New York City, NY. Mr. Brown assisted in the design and planning for a number of engineering construction documents including bioretention, bioswales, blue roof, green roof, permeable pavement, and subsurface detention systems. The pilots also included water quality and quantity monitoring components to measure the impact of the designs on reducing combined sewer overflows. The pilots were part of a design-build contract with the City, and many were constructed, including Metropolitan Avenue (designer), North-South Conduit (reviewer), and NYCHA Bronx River Houses (reviewer).

Van Cortlandt Park Restoration and Flood Control, Bronx, NY. Mr. Brown served as technical advisor and QA/QC reviewer for the field work and analysis related to the engineering feasibility study determine available storage in the Van Cortlandt lake system to reduce the volume of CSOs at the Wards Island wastewater treatment plant. To inform the design for increasing the amount of storm flow attenuation within Van Cortlandt lake watershed, the Biohabitats team conducted a

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wetland delineation and tree evaluation survey, and oversaw alternative designs for improvements to Elm and Birch Ponds and shoreline improvements for Van Cortlandt Lake.

New York City CSO-PlaNYC GI Initiative - BMP Manual, New York City, NY. Mr. Brown served as task manager and QA/QC reviewer of various chapters of the BMP design manual including blue roofs, subsurface storage vaults, and gravel beds. The chapters included guidance for calculation requirements; siting considerations; design of inlets, drains, pretreatment, outlet control structures, materials specification, and climate considerations; construction sequencing; and operations and maintenance. The chapters were added to the final "Guidelines for the Design and Construction of Approvable Stormwater Management Systems for Complying with New York City's Stormwater Performance Standard."

Ecological and BMPs Planning to Address CSOs, New York, NY. Mr. Brown was project engineer for this effort to address water quality and ecological concerns in the City's waterways. His role included developing stormwater management guidance and retrofit design concepts and overseeing watershed plan development. Design guidance work included the development of a draft manual for the design, installation, and maintenance of rooftop and subsurface stormwater controls. Retrofit design work included concept development and support for bioretention, blue roof control, and subsurface storage at a City housing development and bioretention treatment in Shoelace Park and in a major roadway median.

Fresh Kills Park, Staten Island, NY. Mr. Brown was project engineer on the restoration of approximately 2,200 acres of the Freshkills landfill. Working with a team of consultants, Biohabitats led the ecological restoration portion of this project and provided innovative stormwater management design services. Mr. Brown's role was primarily focused on the stormwater conveyance and treatment system design for the South Park and West Shore Expressway service road areas.

New York City Long Term Control Plan (LTCP). As project engineer, Mr. Brown was responsible for assessing opportunities to employ stormwater BMPs to mitigate the quantity and quality of stormwater runoff entering New York City's entire sewer system. Given identified opportunities and constraints for this ultra-urban area, Biohabitats considered a wide array of technologies, including collection, filtering and treatment systems; non-structural and structural strategies; changes in existing maintenance and management practices; education tools and stakeholder awareness programs; and changes in development regulations, architectural guidelines and land use policies.

Shore (Belt) Parkway Water Quality Best Management

Facilities, New York City, NY. As project manager, Mr. Brown worked with NYCDEP to develop final construction drawings for stormwater quality BMPs to be incorporated into planned roadway improvement projects associated with bridge crossings on the Belt Parkway, located in Jamaica Bay. The BMPs emphasized vegetative filtering and uptake followed by infiltration through the sandy soils. The design team addressed several site constraints, including avoiding a force main, high groundwater table, tree avoidance, and adapting to the roadway conveyance system without compromising safety considerations.

Passaic Valley Sewer Commission (PVSC), Blue Trail, NJ.

Mr. Brown served as the technical lead responsible for assisting the PVSC in their ongoing efforts to restore the recreational, ecological and economic vitality of the Passaic River. Tasks included assisting PVSC and the National Park Service in identifying and eliminating sources of pollution, improving public access to the River, reconnecting communities to the river through the design and construction of new kayak and canoe launch areas, and changing the negative perception of the Passaic River. Biohabitats' focus was on integrating stormwater BMPs with the kayak and canoe launches to address both the ecological and recreational needs of the local communities.

Savage Library Environmental Site Design Retrofit, Howard County, MD.

Mr. Brown served as the technical reviewer for stormwater engineering during the complete overhaul of the Savage Library exterior landscaping. As part of the Howard County Stormwater and Watershed Management Evaluation Design-Build contract, the landscaping improvements included an innovative bioretention stormwater planter in the courtyard area to treat rooftop runoff, a bioretention cell in the front of the library as a dramatic landscape feature from the street, and new permeable pavement in the parking lot to reduce runoff from impervious surfaces.

Waterfront Partnership of Baltimore Harbor Action Plan, Baltimore, MD.

Mr. Brown served in a technical peer review and quality assurance role for Biohabitats work related to the Healthy Harbor Action Plan. Biohabitats primary effort related to developing and implementing innovative pilot scale restoration practices around the Inner Harbor of Baltimore. Examples include floating wetlands, trickling filters to treat bacteria, algal turf scrubbers, vacant lot restoration to urban gardens, and pier regeneration as elevated wetlands and water aerators. For each pilot project, planning level costs and pollutant load reductions were quantified and summarized alongside conceptual plans depicting the technology.

Jeb Benzing Cost-Benefit Analysis

Education

B.A. - Environmental Geology, Colgate University, 2000

Years of Experience

With Binera: 3

Total Years: 15

Mr. Benzing, a Program Manager and Lead Senior Risk Analyst with Binera, Inc., has considerable experience working directly with clients to achieve high quality end products to meet their diverse needs. He is highly skilled in the application of risk management methodologies and working with stakeholders to integrate continuous risk management practices into their planning processes. He routinely manages and supports numerous programs for Binera's diverse client set. Prior clients include PANYNJ, Amtrak, FEMA, DHS DoD & the Commonwealth of Massachusetts. Mr. Benzing is also a resiliency subject matter expert, with extensive experience in many facets of emergency management and security,

including emergency and disaster response and mitigation, planning, preparedness, and exercises. This array of experience has enabled him to effectively tailor the risk management process for officials at all levels of government, as well as partners in the private sector.

Project Lead – Port Authority of New York and New Jersey, Multi-Hazard Risk Assessment (April 2013 to Present) –

Mr. Benzing is the task lead for the team conducting a full multi-hazard risk assessment for all assets controlled by the Port Authority of New York and New Jersey. This assessment involves the integration of SMRT (System-Wide Multi-Hazard Risk Tool) into the Port Authority's emergency planning process. The risk assessment includes an interdependency analysis across all CI/KR systems impacted by Port Authority assets, including mass transit, highway, pipeline, air transportation, telecommunications, and energy. The interdependency analysis also includes an assessment of key external assets. Risk is evaluated and compared for all relevant natural and man-made hazards, and the results of the risk assessment are used to conduct a cost-benefit analysis of possible mitigation measures. Mr. Benzing is responsible for managing all phases of project execution.

Project Lead - Port Authority of New York and New Jersey Tropical Cyclone Risk Assessment and Countermeasure

Cost-Benefit Analysis (April 2013 to Present) – Mr. Benzing is the project lead for the Cost-Benefit Analysis of Natural Hazard Mitigation Options for assets controlled by the Port Authority of New York and New Jersey. This analysis involves an evaluation of the expected risk reduction and return on investment for roughly \$2 billion of potential natural hazard mitigation measures. Mr. Benzing is responsible for managing project tasks, budget and schedule. As part of the analysis, the Binera team is identifying the storms impacting the NY-NJ region (approx. 20,000 storms) from an existing synthetic storm database, representing 100,000 years of simulated storms in the Atlantic Basin. Once identified, Binera will perform modeling to estimate potential consequences and to evaluate the effectiveness of existing and proposed resiliency capabilities – the results of which will be used to support the Port Authority's emergency planning process and capital spending plan. Binera is producing a number of risk communication products, including GIS-based probabilistic flood maps and dynamic flood path diagrams for vulnerable areas as part of this effort.

Program Manager – National Railroad Passenger Corporation (Amtrak) Multi-Hazard Risk Management (April 2012

- Present) – Mr. Benzing serves as the technical lead for the team providing comprehensive, all-hazards risk management services for Amtrak. This effort includes an analysis of the systemic impacts of hazards to critical infrastructure and key assets, including impacts on multiple stakeholders (shared services). The results of the on-going risk assessment activities and subject matter expertise provided by the team serve as the cornerstone foundation used by Amtrak to guide risk management activities and investments in mitigation measures. This effort involves the development of an interactive Dashboard to support decision-making and migration of prior terrorism-focused risks into the all-hazards platform of the SMRT (System-wide Multi-hazard Risk Toolset).

Task Lead – Commonwealth of Massachusetts Threat & Hazard Risk Identification Assessment (THIRA) (July 2012 to January 2013) – Mr. Benzing served as the Task and Technical Lead for the

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team that conducted an all-hazards risk assessment using the SMRT methodology for the Commonwealth of Massachusetts in support of their most recent THIRA conducted to meet the requirements of Presidential Policy Directive-8 and more specifically the National Preparedness Goal. This effort included an in-depth analysis of the terrorism, natural hazard and technological failure risks across all Critical Infrastructure and Key Resources (CI/KR) in Massachusetts. The results of this assessment were used to support the THIRA guidance and to structure the State-wide Hazard Mitigation Plan. The SMRT risk management software is being used by the Commonwealth to guide future planning and investment activities.

Highlights of Mr. Benzing's knowledge and skills include:

- Provides risk and resiliency-based subject matter expertise for full spectrum of stakeholders, including federal, state and local government as well as private sector clients
- Experienced program manager with a strong emphasis on programs requiring advanced risk analytics
- Extensive experience evaluating existing work flows and identifying and incorporating systemic improvements across organizations
- Skilled exercise evaluator with experience facilitating hot washes and drafting after action reports for senior leadership/command staff

Michelle Terry

Cost-Benefit Analysis

Education

B.S. - Mathematical Science, Worcester Polytechnic Institute, 2010

Years of Experience

With Binera: 4
Total Years: 5

Ms. Terry is a Natural Hazard Risk Analyst and GIS Specialist with four years of experience assessing risk for federal, regional, and local government clients. She developed several methodologies for assessing natural hazard risk to clients' assets, networks, population, and economic activity. She creates a custom approach to natural hazard risk assessment specific to each client's needs, informed by her experience with the wide variety of historical hazard databases, hazard simulation tools, and state-of-the-art methods. In her role as Lead Modeler for the Port Authority of NY and NJ (PANYNJ), Ms. Terry is working with a team of researchers to develop and implement a novel approach to hurricane

storm surge risk assessment combining a simulated hurricane database, probabilistic SLOSH surge modeling, and detailed ADCIRC modeling. In her role as Lead Modeler for Amtrak, she developed a natural hazard risk assessment approach using both historical hazard consequences and simulated hazard effects to assess hazard likelihood and physical and operational consequences to the Amtrak network. Ms. Terry also developed several approaches to assessing natural hazard risk to population and economic activity for the FEMA Grants Program Directorate's risk formula. Ms. Terry uses GIS to effectively present risk results in map form.

Lead Modeler - Port Authority of New York and New Jersey (PANYNJ) Tropical Cyclone Risk Assessment and Countermeasure Cost-Benefit Analysis (April 2013 - Present): Ms. Terry is the lead modeler for the Cost-Benefit Analysis of Tropical Cyclone Mitigation Options for assets controlled by the Port Authority of New York and New Jersey. Ms. Terry is working with a team of researchers to develop a site-specific probabilistic storm surge risk assessment methodology for PANYNJ's critical assets. Ms. Terry is responsible for creating a representative GIS-based model of the NY-NJ coastal area, simulating hurricane storm surge in the Advanced Circulation model (ADCIRC), integrating simulated inundation levels with probabilistic storm surge data and tidal data, and producing flood maps for vulnerable areas to assist stakeholders in identifying appropriate mitigation projects for both current and future climate conditions.

Risk Analyst - FEMA Grant Programs Directorate (GPD) Risk Analysis for Strategic Allocation (June 2010 - May 2014): Ms. Terry supported the FEMA GPD by improving risk models that support the allocation of funds under the Homeland Security Grant Program. She supported risk team members by developing a national-level GIS-based natural hazard risk assessment methodology for tornadoes, hurricanes, earthquakes, floods, wildfires, and extreme heat events in a multi-hazard framework.

Lead Modeler - National Railroad Passenger Corporation (Amtrak) Risk Assessment (April 2012 - December 2013): Ms. Terry developed a methodology to assess systemic impacts of natural hazards to Amtrak's critical assets and operations. Ms. Terry's responsibilities included generating consequences for earthquake, flood, and hurricane scenarios using the HAZUS-MH model and integrating the results with historical frequency and operational consequence data to determine hazard likelihood and system impacts.

Risk Analyst - NASA Langley Research Center (June 2012 - August 2013): Ms. Terry worked with a team of researchers at Binera and the Space Missions Analysis branch at the NASA Langley Research Center to develop the Exploration Maintainability Analysis Tool (EMAT), a probabilistic simulator that evaluates the need for spare parts and maintenance activities during long-term space missions.

Risk Analyst for the NERAC Ethanol Transportation Risk Assessment (May 2012 - July 2012): Ms. Terry assisted in a risk assessment of truck and rail transportation of ethanol through the NERAC region in Massachusetts by developing a GIS-based consequence analysis. Ms. Terry combined location-based information on anticipated transportation routes, possible areas of effect, and population information in a GIS to assess and compare the consequence of an ethanol spill using different transportation methods. Ms. Terry also assisted in presenting these results in map form in a clear and concise manner.

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Sherry C. Crouch, P.E., CFM

Cost-Benefit Analysis

Education

B.S. - Civil Engineering, Loyola Marymount University, 1996

Registration

Professional Engineer: California and Virginia
Certified Floodplain Manager

Years of Experience

With CDM Smith: 5
Total Years: 17

Ms. Crouch is a professionally licensed civil engineer with 17 years of experience in disaster response, hazard identification, risk assessment, benefit-cost analysis and floodplain management. Under nationwide contracts with the Federal Emergency Management Agency (FEMA), she has worked extensively on pre- and post-disaster assessment activities and hazard mitigation grant activities. Though Ms. Crouch has experience with all types of natural hazards, including floods, earthquakes, tornados, wildfires, and hurricanes, she specializes in hydrology and hydraulics in both floodplain analysis and water supply. She worked for FEMA's National Flood Insurance Program and aided in a clean water supply project for villages surrounding Mount Kilimanjaro.

Subject Matter Expert and Program Manager, Grants Implementation

Branch, New York Sandy Recovery Office. Under two separate task orders, CDM Smith is providing technical support in the analysis of potential mitigation

measures for critical infrastructure impacted by Hurricane Sandy throughout New York. Under one of the task orders, Ms. Crouch helped to set up a team to provide technical evaluation and benefit-cost analysis (BCA) support for potential Hazard Mitigation Grant Program (HMGP) projects submitted by the State of New York, and to perform a Loss Avoidance Study to analyze the performance of previously implemented mitigation projects. The objective of the second task order is to evaluate projects that demonstrate the successful combination of 406 and HMGP (404) mitigation funding opportunities. Ms. Crouch and the CDM Smith staff provided technical assistance with three demonstration projects identified by FEMA (Bay Park Sewage Treatment Plant, New York University Medical Center, and Long Island Power Authority), helped to develop a 406/404 trifold for stakeholders and Standard Operating Procedures for Joint Field Offices, and is participating in ongoing 406/404 workgroup efforts.

406 Mitigation and Benefit-Cost Analysis Specialist, Public Assistance Program DR-4085-NY, New York City, New

York. Ms. Crouch was requested to assist FEMA in the evaluation of mitigation options for the Long Island Power Authority. Following an extensive analysis, a \$1.4 Billion agreement under the Sandy Alternative Procedures Pilot Program that was authorized by the Sandy Recovery Improvement Act (SRIA) was reached, including \$730 Million in mitigation funding. Ms. Crouch is continuing to provide policy analysis on issues regarding Section 406 mitigation, preparing and reviewing Benefit-Cost Analyses (BCAs) for projects related to a number of critical facilities in New York, and evaluating Section 406 mitigation funding options as they relate to the Pilot Program.

406/404 Mitigation and Benefit-Cost Analysis Specialist, Public Assistance Program DR-4022-VT, Burlington, Vermont,.

Ms. Crouch was requested to perform an evaluation of the Waterbury State Office Complex in Vermont following Hurricane Irene under task orders for both the HMTAP and PA TAC contracts. FEMA deemed the state hospital buildings to be "critical action facilities", and several mitigation projects were being considered for the 45 damaged of 47 buildings on the campus. She helped to determine which projects were eligible under the 406 Mitigation program and then to evaluate the residual risk that could be addressed through proposed Hazard Mitigation Grant Program (404) projects. Ms. Crouch then helped to implement the eligible 406 measures through the Sandy Alternative Procedures Pilot Program that was authorized by the Sandy Recovery Improvement Act (SRIA).

406 Mitigation and Benefit-Cost Analysis Specialist, Public Assistance Program DR-1791-TX,

Galveston, Texas,. Ms. Crouch responded to Hurricane Ike in support of mitigation requests for the University of Texas Medical Branch hospital in Galveston, TX. The hospital complex consists of dozens of buildings over a 100-acre campus, and was severely damaged by the hurricane. She was tasked with evaluating various complex mitigation proposals and deciphering the risk that would

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be reduced under each project and evaluating the benefits of each project for the benefit-cost analysis (BCA). Applications for mitigation grants were submitted under the 406 Mitigation, the Hazard Mitigation Grant Program (404) and the Pre-Disaster Mitigation program, requiring an analysis to ensure benefits did not overlap between projects. For one particular project, she devised an innovative approach to preparing a defensible BCA for a unique project that was considered a hybrid 406 Mitigation and Improved Project under the PA regulations valued at over \$90 million.

Subject Matter Expert and Program Manager, Grants Implementation Branch, FEMA Headquarters. CDM Smith is tasked by FEMA to provide technical support for the implementation of Hazard Mitigation Assistance (HMA) grants nationwide, including on-site support as needed for any of FEMA's ten regional offices. CDM Smith is providing on-site support to the States of Vermont and Colorado and to FEMA Regions I and VIII for technical reviews and the preparation of benefit-cost analyses (BCAs) for approximately 150 Hazard Mitigation Grant Program applications and providing technical review support to FEMA Headquarters and the Regions for the Pre-Disaster Mitigation and Flood Mitigation Assistance programs. The task order also includes support in identifying cost-cutting and streamlining measures in the administration of HMA grant reviews. CDM Smith is preparing a white-paper with suggested approaches to simplify guidance for grant applicants and procedures for grant reviewers. Ms. Crouch is acting as a policy and BCA expert, proving technical reviews and overseeing the entire team.

Subject Matter Expert and Program Manager, Hazard Mitigation Grant Program (HMGP) Technical Reviews - FEMA Region VII (Kansas) and FEMA Region VI (Texas). CDM Smith is tasked to perform technical reviews for FEMA Regions VI and VII, including an eligibility and completeness review, an engineering review, a benefit-cost analysis (BCA) review, and sometimes an environmental and historic preservation (EHP) review for proposed HMGP projects. Ms. Crouch trained the CDM Smith team, comprised of water resources, structural and electrical engineers, and performs quality control reviews of all projects. The projects consist primarily of tornado safe rooms, flood reduction projects, wildfire mitigation projects and projects to protect electrical distribution systems.

Subject Matter Expert, Hazard Mitigation Grants Policy Branch, FEMA Headquarters. CDM Smith is tasked by FEMA to provide policy and guidance development support for the Hazard Mitigation Assistance (HMA) grant program. Specifically, CDM Smith provides technical assistance for HMA program needs related to legislation, rulemaking, policies

and guidance. Under this task order, CDM Smith is analyzing the potential impacts of strengthening the construction requirements for flood related mitigation projects, reviewing and crafting potential language changes to policy, guidance, and federal regulations for various project types, and is analyzing the benefits of implementing a program management system for the Grants Policy Branch. Ms. Crouch serves as a Subject Matter Expert for all HMA related issues and provides general guidance for all CDM Smith team members.

Program Manager, Environmental Impact Statement, California East Bay Hills Hazardous Fuels Reduction Projects, FEMA Region IX. Region IX selected CDM Smith for the preparation of a highly controversial Environmental Impact Statement for wildfire hazardous fuels reduction mitigation projects on an expedited schedule. The project has gained interest from stakeholders at all levels, including Congressional attention. The EIS includes multiple hazardous fuels reduction projects in adjacent areas; therefore, the cumulative impacts of the projects are being analyzed.

Program Manager, Hazard Mitigation Grant Program (HMGP) Environmental Planning and Historic Preservation Reviews and Environmental Assessments - FEMA Region IX (California, Hawaii, and American Samoa) and Region VI (Texas). CDM Smith is tasked with the review of HMGP grant applications submitted by the States of California, Hawaii, and Texas, as well as American Samoa, for compliance with the National Environmental Policy Act, Section 106 of the National Historic Preservation Act, the Endangered Species Act, and other federal regulations and executive orders. The tasks include the evaluation of approximately 50 projects for which supplements to a Programmatic Environmental Assessment or the preparation of an Environmental Assessment will be prepared on behalf of FEMA.

Program Manager, Programmatic Environmental Assessments - FEMA Headquarters. Under three separate task orders, CDM Smith was selected to prepare Programmatic Environmental Assessments (PEAs) for a Hazard Mitigation Assistance (HMA) Minor Localized Flood Control Policy, a policy related to the Construction and Restoration of Flood Protection Systems Using Non-Federal Funds which would revise FEMA's AR and A99 National Flood Insurance Program regulations, and the HMA Wildfire Policy that outlines HMA-eligible wildfire mitigation project types. The PEAs are prepared in compliance with the National Environmental Policy Act (NEPA) as well as other laws and considerations including those related to historic preservation, the Endangered Species Act, Executive Orders 11988 and 11990, and other applicable requirements.

Manuel A. Perotin, P.E., CFM

Cost-Benefit Analysis

Education

M.S. – Engineering Management, Missouri University of Science & Technology, (2002)

B.S. – Civil Engineering, United States Military Academy, (1998)

Registration

Professional Engineer: Florida, Missouri

Years of Experience

With CDM Smith: 2

Total Years: 16

Mr. Perotin is a professional engineer with 16 years of experience in civil engineering, risk and vulnerability assessments, hazard mitigation, benefit-cost analysis, floodplain management, planning, disaster recovery, and project management. Under nationwide contracts with the Federal Emergency Management Agency (FEMA), he served on post-disaster damage, mitigation assessment, and hazard mitigation assistance grant technical review teams, in addition to serving as an instructor teaching benefit-cost analysis and building science courses throughout the country. He has assisted state and local government agencies with preparing or updating emergency management plans, conducting training and exercises, tracking operations during an emergency, and aiding in coordinating reimbursement through the Federal Highway Administration Emergency Response (FHWA-ER) and FEMA Public Assistance (PA) programs. Mr. Perotin served on active duty for six years as a U.S. Army Corps of

Engineers (USACE) officer, including service in Iraq, where his unit earned a Meritorious Unit Commendation and he earned a Bronze Star Medal.

Technical Lead, Hazard Mitigation Grants Policy Branch, FEMA Headquarters, Various Locations. Mr. Perotin serves as a subject matter expert for all Hazard Mitigation Assistance (HMA) related issues, provides general guidance for all CDM Smith team members, and recommends methods to expedite the review process. We are tasked by FEMA to provide policy and guidance development support for the HMA grant program. Specifically, we provide technical assistance for HMA program needs related to legislation, rulemaking, policies, and guidance. Under this task order, we are analyzing the potential impacts of strengthening the construction requirements for flood related mitigation projects, reviewing and crafting potential language changes to policy, guidance, and federal regulations for various project types, and is analyzing the benefits of implementing a program management system for the Grants Policy Branch.

Technical Lead, Hazard Mitigation Grant Program (HMGP) Technical Reviews – FEMA, Various Locations. Mr. Perotin serves as a technical expert who reviews or provides quality assurance oversight for benefit-cost analysis (BCA) reviews. CDM Smith is tasked to perform technical reviews for FEMA Headquarters, including an eligibility and completeness review, an engineering review, BCA review, and an environmental and historic preservation (EHP) review for each proposed HMGP project. Prior to CDM Smith

Technical Expert, National Technical Review for the FEMA HMA Grant Applications, BCA Team, Various Locations, 2005 – 2011. Mr. Perotin served as a technical expert, assisting FEMA with the technical review of several hundred hazard mitigation assistance grant applications; technical review reanalyzed applicant's BCA, then reviewed and ranked applications based on completeness, feasibility, and technical accuracy. BCAs were reviewed for supporting documentation and source credibility. Technical Expert, HMGP Technical Assistance, FEMA, Various Locations, 2005 – 2013. Mr. Perotin served as a technical expert who reviewed or provided quality assurance oversight for BCA reviews of HMGP projects in Florida, Iowa, Kansas, Louisiana, Missouri, Mississippi, and Texas.

Lead Trainer, BCA Training, FEMA, Various Locations, 2005 – 2012. Mr. Perotin was a lead trainer providing courses to building officials, local, state and federal emergency managers on BCA and preparing grant applications for proposed mitigation projects. Courses were based on FEMA's BCA modules for wind, seismic, tornado, riverine, and coastal flooding.

Technical Lead, BCA Software Reengineering, FEMA, Various Locations, 2007 – 2009. As the technical lead on this project, Mr. Perotin led the re-engineering of the FEMA BCA flood and hurricane data modules. He was responsible for the overall redesign of the flood and wind modules to include

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addressing a list of shortfalls with the existing software, developing a methodology, and coordinating peer review.

Technical Lead, Louisiana and Mississippi Post Katrina Benefit-Cost Analysis for Residential Structures, Louisiana and Mississippi Gulf Coast, 2005 – 2006. Mr. Perotin served as the BCA lead and created a database to simultaneously calculate the damages avoided for several thousand residential structures impacted by Hurricanes Katrina and Rita. He used a geographic information system (GIS) to estimate elevations for residential structures based on Light Detection and Ranging (LiDAR)/U.S. Geological Survey (USGS) topographic data, FEMA Advisory Base Flood Elevations (ABFE), and geocoded damage assessment data. Utilizing the elevation data along with flood probability data and standard assumptions for building replacement and contents value, the database associated each structure with the appropriate flood depth damage function to calculate the damages avoided by elevating the structures to the ABFE.

Technical Lead, Technical Assistance and Research Contract (TARC), FEMA, Various Locations, 2005 – 2013. Provided technical assistance related to the engineering and benefit-cost analysis of flood and wind retrofitting mitigation guidance across multiple task orders with the FEMA Building Science Branch. Served as a contributing author or reviewer of the following FEMA publications: P-259, Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures; FEMA 543, Design Guide for Improving Critical Facility Safety from Flooding and High Winds; FEMA P-55, Coastal Construction Manual; and FEMA P-804, Wind Retrofit Guide for Residential Buildings. Mr. Perotin also served on post disaster Mitigation Assessment Teams (MAT) who conducted technical evaluations to evaluate design practices and construction methods following natural disasters. The teams reported observations, documented conclusions, and provided recommendation to improve building performance. He evaluated the performance of critical facilities, commercial and residential buildings, and safe rooms. He served as a MAT member following Hurricanes Katrina, Isaac, and Sandy; led the team that assessed damages in Joplin as part of the 2011 Spring Tornadoes MAT, and served as the overall team leader for the 2008 Midwest Floods MAT. In addition, he served as an instructor for courses on residential and critical facility design in hurricane and flood prone regions based on knowledge of the flood provisions in the International Codes Council's International Codes Series.

Project Manager/Technical Lead, Hazard Mitigation Grant Program BCA Technical Assistance, North Dakota Department of Emergency Services (NDDDES), Bismark, North Dakota, 2011 – 2013. As project manager and technical lead, Mr. Perotin provided technical support to local sub applicants by completing an eligible, complete benefit-cost analysis for mitigation funding consideration under the FEMA Hazard Mitigation Grant Program. Staff worked with more than 30 communities to conduct benefit-cost analyses for approximately 100 projects including residential acquisitions, drainage improvements, and electrical retrofits. Staff assisted with data collection to support assumptions in each benefit cost analysis as well as helped subapplicants in identifying additional benefits to illustrate project cost effectiveness. The project costs ranged from \$100,000 to \$10,000,000 with total combined value of over \$100 million. In addition to working with local sub applicants, staff assisted NDDDES and the State Hazard Mitigation Officer with addressing FEMA's requests for information.

Technical Lead, BCA Training, Florida Division of Emergency Management (FDEM), Florida, 2011. As technical lead, Mr. Perotin was a lead trainer providing courses to building officials, planners, and local emergency managers on BCA and preparing grant applications for proposed mitigation projects. Courses were given in all seven FDEM regions and based on FEMA's BCA modules for wind, riverine, and coastal flooding.

Technical Lead, Duck Pond Area Drainage Improvements Project, Hillsborough County, Florida, 2005. Mr. Perotin served as the BCA technical lead and completed the BCA for an \$8 million HMGP application. The project helped mitigate damages to residential and commercial structures, avoided repetitive road closures, and reduced the emergency response costs associated with the flooding.

Project Manager, Emergency Management Support, Florida Department of Transportation (FDOT) District 7, Tampa, Florida, 2004 – 2013. Mr. Perotin was the project manager which included supporting District 7 with all four phases of emergency management. Tasks included updating policies, procedures, and responsibilities defined in the District Comprehensive Emergency Management Plan (CEMP); conducting exercises; training FDOT personnel on emergency management and the FHWA-ER program; coordinating with five counties and more than 35 municipalities regarding debris removal; and supporting the district with monitoring operations during an emergency.

Ann Folli, PWS

Regulatory Compliance

Education

M.S. - Environmental Sciences, New Jersey Institute of Technology and Rutgers University, 2004

B.A. - Biological Sciences, State University of New York at Buffalo, 1992

Registration

Professional Wetland Scientist (PWS)

Years of Experience

With Louis Berger: 16

Total Years: 23

Ms. Folli is manager, environmental sciences with Louis Berger, with 23 total years of experience, including 16 years with Louis Berger. She has experience completing wetland delineations, preparing wetland impact permit applications, assisting with the design and implementation of wetland mitigation sites, and completing monitoring activities in accordance with regulatory permit conditions. Ms. Folli has assisted with numerous ecological studies, including the assessment of wetlands and other habitats and the identification of flora and fauna species, including working with threatened and endangered flora and fauna species. Ms. Folli is also experienced with the required processes of wetland mitigation banking.

Principal Scientist, New Jersey Transit, Access to the Region's Core (THE Tunnel) EIS, New York and New Jersey. Responsible for addressing several ecological aspects of a Draft, Supplemental Draft, and Final Environmental Impact Statement for the Access to the Region's Core/Trans-Hudson Express Tunnel (THE

Tunnel) project, which was an ambitious project seeking to expand trans-Hudson River rail capacity to Midtown Manhattan. The project area extended from Frank R. Lautenberg Station in Secaucus, New Jersey, to Fifth Avenue and West 34th Street in Manhattan and was to include a new rail yard in Kearny, NJ and two new tunnels under the Palisades and Hudson River, connecting to a new facility under West 34th Street in Manhattan. Also responsible for working with multiple regulatory agencies to identify permitting needs and mitigation strategies.

Principal Scientist, New Jersey Department of Environmental Protection (in coordination with the National Oceanic and Atmospheric Administration), Lincoln Park Wetland Restoration Project, Jersey City, New Jersey. Responsible for the completion of a wetland delineation and subsequent approval by New Jersey Department of Environmental Protection (NJDEP). Also responsible for the preparation of state and federal permit applications required to advance the wetland restoration project. Permits acquired for the project include US Army Corps of Engineers (USACE) Section 404 Nationwide Permit No. 27 and NJDEP Waterfront Development Permit - In-Water/Upland, Freshwater Wetland General Permit No. 16, and Water Quality Certificate. Also responsible for assisting in the completion of tidal wetland restoration design studies, preparation of design plans including planting plans, and completion of necessary specifications. Responsible for attending construction meetings and overseeing project implementation, including planting and herbivory control installation. Project included three years of monitoring fish and benthic species, avian studies, and vegetation, hydrology, and soils development, which was compiled into annual monitoring reports.

Principal Scientist, New Jersey Meadowlands Commission, Restoration of Rutherford/East Rutherford Drainage Ditch System, New Jersey Meadowlands. Responsible for the completion of a wetland delineation pursuant to the procedures outlined in the USACE's Wetlands Delineation Manual (Environmental Laboratory, 1987) and the 1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands. Also responsible for the preparation, submittal, and acquisition of a USACE, New York District Jurisdictional Determination and Section 404/Section 10 Individual Permit and NJDEP Freshwater Wetlands General Permit and Water Quality Certificate.

Project Scientist, Marsh Resources, Inc., Meadowlands Mitigation Bank, Phase 3 Conceptual Design and Permitting, Carlstadt, New Jersey. Responsible for conceptual restoration design and permitting of Phase 3 of the MRI Meadowlands Mitigation Bank. Project involved the investigation of existing conditions (including hydrology, topography, soils, wetlands, and contamination) at the +/-70-acre proposed wetland bank site. Conducted wetland delineation pursuant to the procedures outlined in the USACE's Wetlands Delineation Manual (Environmental Laboratory, 1987) and the 1989 Federal Manual

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for Identifying and Delineating Jurisdictional Wetlands and obtained Jurisdictional Determination from the USACE, New York District. Also prepared and submitted applications for Sections 404/10 permit to the USACE, New York District and a Waterfront Development Permit and Water Quality Certificate were submitted to the NJDEP for wetland impacts associated with construction of the wetland mitigation bank. Responsible for preparation and subsequent approvals of the Mitigation Banking Instrument from the Meadowlands Interagency Mitigation Advisory Committee serving as the Interagency Review Team.

Principal Scientist, EarthMark Mitigation Services, LLC., Richard P. Kane Natural Area, Freshwater Wetland Mitigation Site and Tidal Wetland Mitigation Bank, South Hackensack and Carlstadt, Bergen County, New Jersey. Responsible for assisting with the planning, design, permitting, and construction of a 230-acre tidal wetland mitigation bank and a 17-acre freshwater forested wetland restoration project within the New Jersey Meadowlands District. Duties included assisting with coordination with the regulatory agencies sitting on the Interagency Review Team, technical review of baseline data collection for hazardous waste, plant communities, wetlands, hydrology, and soil samples; development of tidal marsh and freshwater forest design plans; and preparation and review of the Mitigation Banking Instrument and long term monitoring and maintenance plan. Also responsible for preparation of applications for USACE Jurisdictional Determination and Section 404/Section 10 Individual Permit and NJDEP permit application for Waterfront Development Permit - In-Water, Consistency Determination, and Water Quality Certificate. All permits and approvals were subsequently obtained. The Project was subsequently constructed.

Principal Scientist, New Jersey Department of Environmental Protection, MSLA 1-D Landfill Site, Kearney, New Jersey. Responsible for completing a wetland delineation pursuant to the procedures outlined in the USACE's Wetlands Delineation Manual (Environmental Laboratory, 1987) and the 1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands on a +/- 95-acre parcel of land within the N.J. Meadowlands District using established methods and preparing a wetland delineation and assessment report. A request for a Jurisdictional Determination was also prepared, which was subsequently approved by the USACE, New York District. Also responsible for preparing applications for USACE Nationwide Permit No. 38 and NJDEP Coastal General Permit No. 24 and Water Quality Certificate for subsequent landfill closure activities.

Principal Scientist, New Jersey Sports and Exposition Authority, Meadowlands Railroad Project, East Rutherford, New Jersey Meadowlands. Responsible for assisting in the acquisition of USACE, New York District Section 404/10 approval and NJDEP approval of Waterfront Development Permit and Water Quality Certificate for remedial activities being conducted in the vicinity of Ackerman's Creek, Berry's Creek, and Walden Marsh prior to construction of the Meadowlands Rail project providing access to Giant's Stadium and Xanadu.

Principal Scientist, New Jersey Department of Environmental Protection, Nicholas Trucking, Jersey City, New Jersey Meadowlands. Principal scientist. Responsible for securing USACE, New York District approvals and NJDEP Waterfront Development Permit and Water Quality Certificate for chromate waste remedial activities being conducted immediately adjacent to the Hackensack River in the New Jersey Meadowlands District.

Principal Scientist, New Jersey Department of Environmental Protection, Office of Natural Resource Restoration, in coordination with the National Oceanic and Atmospheric Administration Restoration Center, USACE, and PANYNJ, Woodbridge Creek Restoration Project, Public Access and Educational Facilities, Woodbridge Township, Middlesex County, New Jersey. Responsible for completion of a wetland delineation within select areas of the project area. Also responsible for the preparation of applications for a NJDEP Waterfront Development Permit—In-Water, Freshwater Wetland General Permit No. 17, and Water Quality Certificate and USACE Section 404 Nationwide Permit No. 18 for the construction of two eco-friendly boardwalks being constructed for the purposed of passive recreation through the restored tidal marsh. Also responsible for the development of interpretive signage to be placed along each boardwalk explaining historical and ecological significance of the project area.

Ajay Kathuria, P.E., L.S.R.P.

Regulatory Compliance

Education

M.S. - Civil Engineering (Water Resources and Environmental Engineering), State University of New York (SUNY) at Buffalo, New York, 1995

B.E. (Hons.) - Civil Engineering, Birla Institute of Technology & Science (BITS), Pilani, India, 1992

Registration

Professional Engineer: New Jersey, New York

Years of Experience

With Louis Berger: 7

Total Years: 21

Mr. Kathuria has more than 21 years of experience in environmental investigation, remediation, and risk assessments including due diligence Phase I ESAs, preliminary assessments, remedial investigations, soil-gas, sub-slab, and indoor air quality investigations for vapor intrusion assessments; remedial design and implementation oversight, construction health and safety monitoring and air/dust monitoring management; property acquisition and litigation support, fact/expert witness testimonies, strategic business development and client service, technical and professional mentoring, creative and innovative environmental technologies and information systems tools development. He is also a licensed site remediation professional (LSRP) in the state of New Jersey, and a registered professional engineer in New Jersey and New York. Relevant professional experience includes LSRP of record and oversight of private and publicly funded investigation and remediation projects, project management, fixed-price remediation contracts management with associated CCC/CLL policies; third-party reviews of technical approach and costs for environmental remediation

projects by others; remedial systems design and implementation oversight for soil, groundwater and vapor mitigation projects, including use of innovative remedial technologies.

Project Manager and Lead Engineer, Debris Removal Scope Preparation for Emergency or Disaster Response Pre-Positioned Contract, Somerset County, New Jersey. Responsible for the preparation of debris removal scope of work and specifications for Somerset County, NJ for Pre-Positioned Contract for work to be performed during emergency or State or Federally declared disaster events. Work involved preparation of initial draft scope and specifications based on Louis Berger's post-hurricane Sandy experience, and several meetings with Somerset County, and review of County files to incorporate County standard requirements and forms, and past County experience with debris removal during response to hurricane Irene.

Groundwater Remedial Investigation, Meadowlands Sport Complex Site, East Rutherford, New Jersey. LSRP of record for New Jersey Sports and Exposition Authority providing oversight of outstanding groundwater remedial investigation activities for the American Dream project located at the Meadowlands Sports Complex Site.

Project Manager, Subsurface Evaluator, and LSRP of Record, JPMorgan Chase Bank, N.A., UST Closure Project, Sussex, New Jersey. For the removal and closure of a leaking waste oil UST previously abandoned at an existing JPMC bank branch. Remedial activities included public notification for the proposed work, removal and closure of the waste oil UST including pumping and off-site disposal of contents from the tank and the excavation area, excavation and off-site disposal of petroleum impacted soils, and groundwater monitoring. The remedial activities resulted in the issuance of an unrestricted Response Action Outcome (RAO) for this area of concern. Professional Services: \$30,000; Construction: \$35,000; Size: N/A; Cost: \$65,000.

LSRP of Record, Cleanup of Groundwater Impacts from Former Dry Cleaner at a Redevelopment Project, Newark New Jersey. Responsible for overseeing the completion of due diligence, Site Investigation, Remedial Investigation, and Remedial Action involving In-Situ Chemical Oxidation (ISCO) followed by Monitored Natural Attenuation (MNA) under a Classification Exception Area (CEA) to address PCE groundwater contamination contributed by a former dry cleaner operations at a redevelopment project site for La Casa de Don Pedro, Newark, NJ. A Response Action Outcome (RAO) has been issued for this site with a groundwater Remedial Action (RA) permit and long-term monitoring due to presence of contributory regional chlorinated VOCs contamination.

Project Engineer, New Jersey Sports Exposition Authority, Self-Implementing PCB Clean-up, Lot 27, Xanadu Project, East Rutherford, New Jersey. Responsible for coordinating the delineation of PCBs contamination detected in soils as a result of fill material during previous investigations

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for the former Lot 27 at the Xanadu redevelopment project, preparation of remedial action workplan in compliance with NJDEP regulations, and remediation plan and EPA notification in compliance with USEPA regulations for the self-implementing clean-up of PCBs impacted area, and review of PCBs remediation project bid specifications and health and safety provisions.

Project Engineer, New Jersey Department of Environmental Protection, Pump & Treat (P&T) Pilot Study and Remedial System Evaluation, Cleaveland Industrial Center Site, Chlorinated Solvents Cleanup Project, Washington Township, New Jersey. For providing remedial design services to NJDEP regarding the chlorinated solvents impacted groundwater remediation at this site. Project experience includes remedial design assistance and implementation of a P&T pilot test to evaluate contaminant mass removal and improvements in the existing dual-phase extraction (DPE) system efficiency, including subcontractor bid coordination and selection, and day-to-day coordination and oversight of the P&T system operation, maintenance, monitoring, and reporting.

Project Manager and Lead Engineer, RCRA Facility Investigation (RFI), Fort Rucker, Alabama, US Army Environmental Command (USAEC) Contract. As part of a small business team under contract with USAEC, responsible for design and implementation of a RFIs at two (2) sites at Fort Rucker, Alabama, including Human Health Risk Assessment (HHRA) and Screening Level Ecological Risk Assessment (SLERA). The contaminants of concern at the two sites include potential soil and groundwater impacts from historic on-site construction debris disposal, and chlorinated solvents from historic landfill disposal activities, respectively.

Project Manager, New York City Economic Development Corporation, UST Removal, New York, New York. For implementing removal of an abandoned 4,000-gallon lubricating oil underground storage tank, and post-remedial sampling and closure requirements in accordance with NYSDEC DER-10 regulations.

Project Manager, New York City School Construction Authority, PCB Impacted Soils Investigation and Remediation, New York, New York. Involved with the investigation of PCB impacted soils from window caulking materials at several NYCSCA schools in New York, and development of remedial plan in compliance with USEPA, NYSDEC, and NYSED guidance and regulations. Specific responsibilities included coordination of field PCB investigation and data evaluation for 8 schools under NYCSCA, located throughout Manhattan, Bronx, and Queens Boroughs,

with preparation of PCB surface soil investigation report, remediation plan, including remedial cost estimates, and EPA notification and request for waiver of 30-day notification requirement documents.

Project Manager and Lead Engineer, New York State Department of Environmental Conservation, Metal Etching Site (NYSDEC Site No. 1-30-110), Freeport, New York.

Responsible for completing Basis of Design (BOD) based on the results of the remedial investigation completed by others, followed by detailed remedial design plans and specifications for the cleanup of soil, groundwater, and sediments impacted with chlorinated solvents, metals, and PAHs from past site operations. The remedial design to implement the NYSDEC Record of Decision (ROD) involved excavation and off-site disposal of several contaminated soil areas to groundwater table, removal of USTs known or encountered during excavation, removal and off-site disposal of contaminated sediments from adjacent creek, restoration of entire site, including construction of porous (pervious) pavement in several remediated areas as part of the post-condition stormwater management.

Project Manager, Brownfields Redevelopment Project, Former Celotex Industrial Park Site, Edgewater, New Jersey. Responsible for the coordination of environmental health and safety monitoring and construction support for all on-site construction workers for the on-going remediation and development of a brownfields site at the edge of the Hudson River into a residential condominium complex. Additional responsibilities include preparation and implementation of remedial investigation work plans to address contamination issues including, but not limited to arsenic, lead, coal tar, and petroleum and polyaromatic hydrocarbons for both soil and groundwater.

Michael Dunn, P.E.

Regulatory Compliance

Education

B.S. - Civil Engineering

Registration

Professional Engineer: New Jersey, New York, Pennsylvania, Virginia, North Carolina, Utah

Years of Experience

With Louis Berger: 12

Total Years: 19

Mr. Dunn is manager of civil engineering with more than 19 years of technical experience on a wide variety of civil and environmental engineering projects. Work experience includes stormwater management and water quality design and analysis, planning and design of local roads and state highways, hydrologic and hydraulic (H&H) design, Soil Erosion and Sediment Control, and plan review of related projects. He has completed construction documentation including plans, technical specifications, and quantity and cost estimates for various highway and roadway, and stormwater management projects.

County of Passaic, Preparation of a Watershed-Based Management Plan for Molly Ann Brook Watershed, Passaic County, New Jersey. Responsible for development of a prepared a Watershed-Based Management Plan of the Molly

Ann Brook Watershed in Passaic County New Jersey. Additionally detailed visual assessments were conducted in critical areas to identify potential best management practices (BMPs) to control causes and sources of fecal coliform as well as areas which would benefit from various stream bank stabilization projects. Performed the hydrologic calculations, conceptual engineering designs, and assessments that were necessary to bid installation of these selected restoration practices. These assessments included the amounts of technical and financial assistance needed, associated costs and/or the sources and authorities to be relied upon to implement this plan. Scheduling was developed for the implementation of the BMPs such that the project could be implemented in a reasonable expeditious manner.

New Jersey Turnpike Authority, Interchange 6 to 9 Widening Program, Final Design, Section No. 4, Interchange 7A, Mercer County, New Jersey, Task leader for hydrology/hydraulics/permitting. This project consisted of Final Design and NJDEP permit document preparation for Design Section No. 4 of the NJTA Widening Program that included the Interchange 7A connection between the Turnpike and Route I-195 and 2.3 miles of mainline widening between Milepost 59.7 and Milepost 62.0. The design included preparation of NJDEP permit documents for a Freshwater Wetlands Individual Permit (FWIP), Flood Hazard Area Permit (FHAP), Water Quality Certification, "No Net Loss" Reforestation Plan Approval and Mercer County Soil Erosion and Sediment Control Plan Certification. The FHAP requires design of stormwater best management practices to control the quantity and quality of rainfall runoff from 20 new lane-miles of mainline roadway and ramp pavement before discharging into waterways. The FWIP necessitated an alternatives analysis of various embankment slopes and retaining wall costs to minimize or avoid wetland impacts versus wetland mitigation costs. Completed plans and reports for the FHAP and FWIP in design section No. 4 are on schedule to be submitted to the Authority at the end of July, 2008. The Final Design also includes construction of Interchange 7A ramp connections to and from the inner and outer roadways of the widened dual-dual Turnpike, widening of existing toll plaza, construction of 13 bridges, 10,400 linear feet of retaining wall, 3,500 feet of noise barrier and 18 overhead sign structures. Responsible for preparing stormwater management and highway drainage design in which Stormwater Quality Basins were designed to minimize right-of-way impacts due to implementing the New Jersey Stormwater Rule. Designed 15 extended detention basins and one (1) stormwater wetland within the project. Highway Drainage along the roadway was designed to limit flooding on the highway by setting the inlet spacing appropriately. In addition, was responsible for preparing the backwater analysis and scour protection for the structures that crossed the four separate regulated waters within Design Section No. 4. Size: 2.3 miles of mainline widening between Milepost 59.7 and Milepost 62.0; Cost: \$XX;

New Jersey Turnpike Authority, Interchange 6 to 9 Widening Program, Mercer County, New Jersey. Provided preliminary engineering and environmental investigations to study a 35-mile widening of the New Jersey Turnpike from the vicinity of the mainline interconnection with the Pearl Harbor Memorial Turnpike Extension at Milepost 51, commonly referred to as Interchange 6,

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to the existing 10 lane dual-dual roadway at Interchange 8A. Photo mosaics and topographic survey of the entire project corridor as well as locating and assessing potential environmental and socioeconomic constraints, including wetlands, hazardous waste, land use, soil suitability/geology, cultural resources, streams/rivers, major utilities, as well as air and noise constraints were prepared. Findings from these investigations were utilized to evaluate alternative conceptual designs and development of the Preliminary Design plans. Responsible for preparing alternatives for preliminary Stormwater Management and drainage design. In addition, was responsible for analyzing the preliminary H&H design for structures that cross major rivers and streams along the 35 mile project corridor. Coordinated with NJDEP and the NJTA to ensure that drainage, stormwater management and H&H designs were permissible as well as constructible. Also responsible for the development of plans and estimates for the preliminary phase of the project. Also assisted in the preparation of the Environmental Impact Statement (EIS). Responsible for addressing the existing condition as well as the Environmental Impacts and Mitigation for Soils and Geology, Water Resources and Floodplains.

New Jersey Turnpike Authority, Garden State Parkway Interchange 10 Improvements, Township of Middle, Cape May County, New Jersey. Stormwater management/drainage/hydraulics and hydrology designer. Provided engineering analysis in performing a feasibility assessment for the roadway improvements along Interchange 9, 10, and 11 in the Township of Middle, Cape May County, New Jersey. The roadway improvements includes eliminating the existing signalized intersections at Interchanges 9, 10, and 11, eliminating direct access to the Garden State Parkway, and replacing them with grade separated ramp connections or eliminating the local road intersection. Responsible for preliminary stormwater management, drainage design, H&H design, and scour analysis for structures that cross tidally influenced and riverine streams along the project corridor.

New Jersey Turnpike Authority, Garden State Parkway Interchange 125 Improvements, Sayreville, New Jersey. Hydrology/hydraulics task leader. Provided preliminary and final design engineering and environmental investigations to design the missing legs of the existing partial interchange at the Garden State Parkway Interchange 125. Responsible for the preparation of the Highway drainage design included water spread calculations performed in accordance with NJDOT design criteria. Since the project involved flood hazard areas from the Raritan River, responsible for the preparation of an Individual Flood Hazard Area Permit. For other smaller

tributaries within the project, responsible for the preparation of a Flood Hazard Area Verification where verification was necessary to verify that drainage swales with drainage areas less than 50 acres were manmade and would not be required to show impacts to riparian zones and therefore riparian zone mitigation would not be required.

New Jersey Department of Transportation, Tuckahoe Road NJT Bridge (a.k.a. Jim Lee Crossing) (C.R. 557), Atlantic County, New Jersey. Responsible for the design and preparation of the stormwater management plans for a bridge removal and roadway widening project in Atlantic County, New Jersey. The stormwater management incorporated the new New Jersey stormwater management rules and regulations to account for stormwater quantity, quality, and groundwater recharge.

New Jersey Meadowlands Commission, Restoration of Rutherford/East Rutherford Drainage Ditch System, Bergen County, New Jersey. Highway drainage task leader. Work involved coordination with NJDOT, NJDOT's highway designer, and the New Jersey Meadowlands Commission to reduce local flooding on Route 17 in the vicinity of the NJ Transit Bergen County Line rail bridge. Task Leader responsible for evaluating and improving the existing and proposed roadway drainage systems to ensure that a minimum of 6 inches of freeboard is maintained between the 25-year peak flood elevation and the Route 17 roadway low point at the New Jersey Transit Railroad crossing. The roadway drainage analysis is based on a hydrologic and hydraulic analysis using StormCAD of the existing and proposed drainage ditch systems. Also responsible for analyzing smaller design storms through the stormwater ditch system, such as the 10-year storm design event to compare the cost between various alternatives to achieve the NJ Meadowlands and NJDOT's Route 17 storm sewer drainage improvement goals. Responsible for modifying the NJDOT's StormCAD models, running the revised models, and checking for continuity with the ditch modeling results. Coordinated with NJDOT's design engineer to revise the NJDOT's plans will then be revised to reflect these design upgrades. To ensure the successful integration of the upgraded design, LBG will coordinate with the NJDOT's consultant when the revised drawings are submitted.

Patricia K. Forgang, CHMM

Regulatory Compliance

Education

B.S. - Chemical Engineering, University of Virginia, 1983

Registration

Engineer-in-Training: New Jersey
Certified Hazardous Materials Manager (CHMM), Certificate 2006

Years of Experience

With CDM Smith: 28
Total Years: 28

Ms. Forgang has 28 years of experience in regulatory permitting, state funding, and compliance of a variety of projects, including municipal and industrial wastewater, water supply, infrastructure (dams and bridges), a recreational park, solid waste and hazardous waste operations, as well as project management of multi-faceted and complex contaminated site cleanups, and design/build projects. Ms. Forgang has assisted a variety of public and private clients to comply with the Clean Water Act, including the Pollutant Discharge Elimination System; the Resource Conservation and Recovery Act (RCRA); the Toxic Substances Control Act (TSCA); the Clean Air Act; underground storage tanks (USTs); and specific to New Jersey, the Industrial Site Recovery Act (ISRA), as well as all Division of Land Use Regulation (DLUR) permit matters involving freshwater and coastal wetlands, flood hazard areas, coastal areas, stormwater management, threatened and endangered species, cultural resources, and Category One waters, and US Army Corps of Engineers permitting. These projects encompass regulated discharges to

groundwater, surface water, and air, and hazardous and solid waste landfill design, construction, and operations, and large-scale facility design/build projects.

Assistant Project Manager, Superstorm Sandy NJDCA Disaster Recovery Support and Remedial Design Term Contract, State of New Jersey. Ms. Forgang served as internal project manager to the firm's Community Development Block Grant (CDBG)-U.S. Department of Housing and Urban Development (HUD) team, working from the New Jersey Department of Community Affairs (NJDEA) offices, as they began the action plan effort to assist the State of New Jersey in Superstorm Sandy recovery efforts. Her duties included financial management of authorized services and subcontractor management.

Deputy Program Director, NJDEP, Superstorm Sandy Disaster Recovery Support and Remedial Design Term Contract, State of New Jersey. Ms. Forgang serves as Deputy Program Director on New Jersey Department of Environmental Protection's (NJDEP's) CDBG Disaster Recovery (CDBG-DR) Program, which is assisting thousands of households whose homes have been damaged or destroyed by Superstorm Sandy. Ms. Forgang is responsible for helping lead standing-up this large program and organizing dozens of firm staff as well multiple specialty subcontractors to proceed with this important grant program. Her duties also include management and financial tracking of all specialty subcontractor work and incurred costs, assisting with program scheduling, additional work scoping and budgeting, client interfacing, and field team planning. Program funding is provided by HUD to the State of New Jersey.

Task Leader, Design/ Build Permitting, U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA), Site Remediation, Lodi, Bergen County, New Jersey. Ms. Forgang was the permit task leader responsible for preparing the environmental permit and permit-equivalent applications to implement remediation activities at a radio tower site located in Bergen County. She was responsible for assisting the client with applying for NJDEP Division of Land Use Regulation (DLUR) emergency wetlands permit authorization, as well as NJDEP DLUR general permit equivalency for work in delineated freshwater wetlands and transition areas, and a Bergen County Soil Conservation District - SESC Plan certification. Wetland restoration of the remediated wetland areas was required as part of the permit approval and successfully performed.

Project Manager, Co-Composting Facility Stormwater Management Facility, Florence and Mansfield, New Jersey. Ms. Forgang managing a stormwater management facility project at the county's co-composting facility located within the Burlington County Resource Recovery Complex. Because there are regulated freshwater wetlands present and threatened/endangered species habitats within the project area, approvals from NJDEP are needed for construction of the facility. A freshwater wetlands delineation and site surveying have been completed. She is responsible for Division of Land Use Regulation

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permitting, which includes demonstrating compliance with the state's stormwater management rules. In addition, Ms. Forgang assists the county with obtaining local soil erosion and sedimentation control plan certification to conduct the civil site work. All construction permits have been obtained to enable commencement of construction.

Project Manager, Legalization of Warehouse Building in Floodplain, Phillipsburg, Warren County, New Jersey. For a confidential chemical manufacturer located in Phillipsburg, Warren County, Ms. Forgang was responsible for assisting with assisting the client to legalize a warehouse building. The site is mostly located in the regulated Flood Hazard Area of the Delaware River; the client has this building constructed in the FHA several years earlier without obtaining the appropriate state permit. The permit for construction of the building that was required, under NJDEP's Division of Land Use Regulation, included a Flood Hazard Area (FHA) individual permit along with application for a hardship waiver. This required FHA line verification and riparian zone determinations, as well as development of significant engineering documentation to support the hardship waiver application. As a result of Ms. Forgang's efforts, the FHA permit and hardship waiver were both granted by the state.

Task Leader, Permit Applications for a Recreational County Park, Burlington County, New Jersey. Ms. Forgang was the permit task leader responsible for preparing the environmental permit applications for a recreational park project in Burlington County, New Jersey. She was responsible for assisting the client with applying for several permits/approvals, including: NJDEP DLUR - Freshwater Wetlands General Permit Authorizations; NJDEP DURP - Coastal General Permit for Recreational Facilities at Public Parks; NJDEP DLUR - Flood Hazard Area; and Burlington Soil Conservation District - SESC Plan certification. Special environmental studies were performed to address the potential presence of the bog turtle, and special considerations were incorporated to account for bald eagle foraging habitat.

Task Leader, Permit Applications for a Solar Energy Project, Parsippany-Troy Hills, New Jersey. Ms. Forgang was the permit task leader responsible for preparing environmental permit applications for a sustainable energy (solar power) project. The client operated a regional wastewater treatment plant and this alternative energy project was intended to reduce their electricity costs related to operating the plant. Ms. Forgang was responsible for assisting the client with applying for several permits/approvals, including NJDEP's Solid Waste Landfill Disruption Permit, and a Morris County Soil Conservation District - SESC Plan certification. In addition to

permitting, she assisted the client with obtaining New Jersey Environmental Infrastructure Trust project financing.

Hope Luhman, Ph.D., RPA

Historic Preservation/Cultural Resources

Education

Ph.D. - Anthropology
M.A. - Anthropology
M.A. - Social Relations
B.A. - Anthropology

Registration

Accredited by the Register of Professional Archaeologists (RPA)

Years of Experience

With Louis Berger: 19
Total Years: 31

Dr. Luhman joined Louis Berger in 1994 as an archaeologist and became a vice president of the company in 2012, with overall responsibility for Louis Berger's nationwide cultural resource management practice. She has the ability to commit the resources of the firm on an immediate response basis, with access to the full range of corporate support. In addition, Dr. Luhman manages archaeological, architectural, and historic preservation planning projects involving historic and precontact resources, nationwide and engages in general business development. She coordinates interdisciplinary and multitask studies; interfaces with reviewing agencies, clients, and subconsultants; participates in public outreach and education programs; contributes to technical reports; prepares agreement documents and special exhibits; and provides expert witness testimony. Dr. Luhman has experience working with federal, state and local agencies, private developers, commercial entities, and utilities.

National Cooperative Highway Research Program (NCHRP) 25-25 Task 79, Successful Practices for Effective Tribal Consultation. Project manager. Research study completed for the NCHRP and the American Association of State Highway and Transportation Officials Standing Committee on the Environment (SCOE). Research showcases findings regarding the most successful tribal consultation programs. The analysis identifies the common elements in working assumptions and activities that seem to make the greatest difference and highlights other elements for programs to consider adopting. The broad comparative discussion provides specific guidance for creating, establishing, and maintaining effective and successful consultation with Indian tribes in the context of surface transportation planning and project delivery. 2013; Cost: unknown Size: N/A

Connecticut Department of Transportation (CTDOT), Cultural Resource Services. Contract manager. Three-year contract (2011-2014) to provide cultural resource services for project-specific studies for all phases of archaeological investigations and architectural resource surveys. Project examples include the following.

- Phase I Archaeological Reconnaissance Survey, Safety Improvements on Route 127 at Evers Street, State Project No. 15-335, Fairfield County, Connecticut. Phase I archaeological survey conducted in association with proposed roadway improvements to Route 127. 2013

Vermont Agency of Transportation (VTrans), Statewide Archaeological Consultant for the State of Vermont. Contract manager. Three-year contract (beginning 2009), which was renewed for an additional three years, to assist the VTrans Archaeology Officer in complying with Section 106 by performing archaeological background investigation, field studies, associated lab work, report write-up, and developing and implementing any necessary public outreach components. To date, 11 task orders have been received and are completed or presently underway. 2009-2015. Examples of completed projects include the following.

- Phase IB Archaeological Survey, Lunenburg NH CULV (27), US 2 Bridge No. 126, Over Hudson Brook, Town of Lunenburg, Essex County, Vermont.
- Phase I Archaeological Survey, Jericho Center Multimodal Connection, Jericho STP EH 12(10), Town of Jericho, Chittenden County, Vermont.
- Phase I Archaeological Survey, Proposed Pittsford-Brandon NH 019-3(494), Stormwater Pond, Towns of Pittsford and Brandon, Rutland County, Vermont.

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- Field Inspection, Proposed Pittsford-Brandon NH 019-3(494) Stormwater Pond, Towns of Pittsford and Brandon, Rutland County, Vermont.

New York State Education Department (NYSED)/New York State Department of Transportation (DOT), Cultural Resource Services. Contract manager. Two consecutive five-year contracts (2007-2012; 2012-2017) to provide cultural resource services primarily associated with NYS DOT Regions 8-11, but may also include other state agency undertakings. Task orders have been project-specific studies for all phases of archaeological investigations and architectural resource surveys. For the first contract (2007-2012) 28 task orders, including cultural resource reconnaissance surveys (archaeological and architectural), site examinations, data recovery plans, data recovery excavations, and architectural documentation were completed.

- Cultural Resource Reconnaissance Survey, Site Examination, Data Recovery Plan, and Data Recovery Excavation, Shaker/Powell Hotel Site, Route 155 and Old Niskayuna Road Intersection Improvements, PIN 1132.15.101, Town of Colonie, Albany County, New York. Project manager and principal investigator.
- Archaeological and Architectural Reconnaissance Survey, Gorham Street Bridge and Approach Removal, PIN 3805.50.101, Village of Waterloo, Seneca County, New York. Project manager and principal investigator.
- Reconnaissance (Phase I) Survey, Republic Airport Development Aircraft Hangar, PIN 0903.55.101, Town of Babylon, Suffolk County, New York. Project manager and principal investigator.
- Cultural Resource Reconnaissance Survey, Jericho Turnpike, PIN 0042.27.121, Towns of Huntington and Smithtown, Suffolk County, New York. Project manager and principal investigator. 2007-2012

New York State Thruway Authority/New York State Canal Corporation, Phase IB Archaeological Survey, Phase II Site Evaluation, Phase III Data Recovery Chuctanunda Terrace Site (A05740.000467), Amsterdam Pedestrian Bridge, Montgomery County, New York. Project manager/principal investigator. Conducted full range of archaeological investigations on a multi-component prehistoric and early to mid-nineteenth-century site along the Mohawk River in Amsterdam, New York. Assisted with the environmental assessment and other permitting documents for the project. 2010-2013

National Grid, Alternatives Analysis, Documentation and Interpretive Signage, Glenwood Station No.2, Glenwood Landing, New York. Project manager. As part of the New York State regulatory process, a complete alternative reuse and redevelopment analysis was prepared for an early twentieth-century power station on Long Island. This effort was followed by a HAER Level II equivalent documentation and the development of an interpretive panel on the history of electric generation at the site. This work required extensive research into the history of electric generation on Long Island and the design of power plants. 2011-2013

Master Services Agreement, Vermont Transco, L.L.C., Cultural Resource Services. Agreement contract to provide archaeological and historical professional and consulting services. Contract manager. 2011-present. Examples of completed or ongoing projects include the following.

- Vermont Gas Systems Addison Natural Gas Expansion Project, Chittenden and Addison Counties, Vermont. Senior field supervisor. Third-party review of submitted reports, maps, and other documentation of archaeological investigations of a new 42-mile pipeline project in northwestern Vermont. 2012-ongoing
- K-41 Structure Replacement and Maintenance Project, Franklin and Orleans Counties, Vermont. Senior field supervisor. Field assessment, archaeological site and National Register review, and memorandum preparation in support of Section 248 filing for a 51-mile electrical transmission maintenance and upgrade project. 2012-ongoing

National Grid, On-Call Cultural Resources Services, Northeast/New England. Contract/project manager. Contract/project manager/principal investigator. Seven work orders completed under a two-year contract to provide archaeological and historical professional and consulting services. Examples of completed projects given below. 2009-2011

- Site-file Review and Map Preparation, A24 (115kV) Improvement Project, Bridgewater Substation (Pleasant Street, Bridgewater) – Proposed Municipal Substation (Bird Road, Mansfield), Towns of Bridgewater, West Bridgewater, Easton and Mansfield - Bristol County, Massachusetts.
- Site-file Review and Map Preparation, Auburn Street Substation Rebuilding Project, Town of Whitman, Plymouth County, Massachusetts.

Stephen Bedford, Ph.D.

Historic Preservation/Cultural Resources

Education

Ph.D. - Department of Art History and Archaeology, 1994

M.Phil. 1981

M.A. - Art History 1979

B. Arch. 1976

B.S. - Building Sciences 1976

Years of Experience

With Louis Berger: 6

Total Years: 33

Dr. Bedford has been an architectural historian for more than three decades for clients including local governments, state agencies, transportation projects, and the military. He has worked in all aspects of cultural resource management and managed the production of environmental documents for major actions and master plans, and meets the qualifications required by the National Park Service (NPS) for historic resource documentation. Bedford has worked closely with state agencies in New York, New Jersey, Connecticut, Massachusetts, and Rhode Island on various types of projects, including National Register nominations, Section 106 consultations, and reconnaissance and intensive surveys that included large numbers of buildings. He has prepared Section 106 documents, including MOAs and MOUs for the Navy and DOTs. He has both reviewed and written the cultural resources sections of environmental documents. His experience also includes projects in California, Connecticut, D.C. Hawaii, Iowa, Massachusetts, Maryland,

New Hampshire, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, and Washington, as well as Italy and Spain.

National Grid. Alternatives Analysis, Documentation and Interpretive Signage. Glenwood Station No.2 Glenwood Landing, New York. Serving as senior architectural historian and senior researcher. As part of the New York State regulatory process, a complete alternative reuse and redevelopment analysis was prepared for an early twentieth century power station. Negotiated with SHPO. Worked with Louis Berger Engineers and Architects to develop alternative uses for the building, and determine prudent and feasible uses of the building. This effort was followed by a HAER Level II-equivalent documentation, and the development of an interpretive panel on the history of electric generation at the site. 2013-2015

LIPA/PSEG. Alternatives Analysis, Documentation and Interpretive Signage, Transformer Maintenance Building, Glenwood Landing, New York. Served as senior architectural historian and senior researcher. As part of the New York State regulatory process, a complete alternative reuse and redevelopment analysis is being prepared for a National Register-eligible transformer building. Working with Louis Berger Engineers and Architects to develop alternative uses for the building and determine prudent and feasible uses of the building. 2014-2015

U.S. Naval Facilities Engineering Command Navy Region Hawaii. Historic Context Studies Served as senior architectural historian and senior researcher. The objective was to provide a comprehensive historical understanding of the base and its environs, which is a critical need for an active base that is also a National Historic Landmark and a national war memorial. Performed research, writing, and QA/QC. Collaborated on organization of data, proposed new NHL boundaries, assisted in presentations to National Trust, SHPO and Historic Hawaii Foundation. 2009-2014. Project received commendation from Historic Hawaii Foundation.

GSA. Potomac Hill Campus Master Plan EIS and Supporting Documents. Architectural Historian and QA/QC. Assisted GSA in SHPO and Commission of Fine Arts meetings. Reviewed all supporting cultural resource-related documents, including the Cultural Landscape Assessment. (2014-2015, ongoing).

NJTA. Glenwood Rest Stop, GSP Milepost 153, Service Station Documentation. Served as primary historian and photographer for the documentation of a historic gas station. Conducted research, collaborated on writing and photographed site for the NJHPo required documentation prior to demolition (2014-2015)

NJDOT. Route 29 Drainage Improvements, Trenton. Served as supervisory historian for report on a section of Route 29 that was prone to flooding. Conducted research, collaborated on writing (2014)

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Massachusetts Bay Transportation Authority, Reconnaissance Level Cultural Resource Survey, Shawsheen River Bridges MBTA Contract No. B92PS09, Norfolk and Suffolk Counties, Massachusetts. Architectural historian and advisor on materials for repair. This project was the preservation of two nineteenth century stone arch bridges located on the MBTA/AMTRAK main line. With a goal of improving service and preserving the bridges, steel bridges were constructed within the shell of the existing bridge and the stone arch was repaired according to the Secretary of the Interior's Standards. Prepared the review documents for MBTA/SHPO and approved stone colors and methods of construction. 2009-2014

Massachusetts Bay Transportation Authority. Shore Line Bridge, Readville, Boston, Massachusetts. Eligibility Determination, Section 106 and 4(f) Reports. Primary historian. Confirmed eligibility of late nineteenth century railroad bridge, conducted historical research, and prepared Section 106 analysis as well as contributed to 4(f) analysis. 2013-2014

Massachusetts Bay Transportation Authority. Lagrange Street Bridge, Boston, Massachusetts. Categorical Exclusion. Primary Historian. Prepared cultural resource sections of categorical exclusion document for a through girder bridge that was scheduled for replacement. 2013

Fitzgerald & Halliday. Principal Architectural Historian. 1998-2009. Selected cultural resource projects completed include the following.

Port Authority of New York, JFK Airport, Unit Terminal Building Replacement EA, New York (for Landrum Brown). Primary historian for eligibility assessment of building. As part of a proposed replacement project for Delta's former PanAm Terminal, which had been determined eligible for the National Register. Successfully challenged DOE and the determination was reversed. Project was terminated by events of 9/11

NJDOT, Preservation Plan for New Jersey Routes 1&9. Historian. Negotiated with SHPO on eligibility determination and mitigation Prepared history, performed integrity analysis and made preservation recommendations for one of the first super highways in the United States. 1998

Christina Muir

Historic Preservation/Cultural Resources

Education

M.S. - Historic Preservation, Columbia University, 2008

B.A. - History, Union College, 2005

Years of Experience

With Louis Berger: <1

Total Years: 10

Ms. Muir has experience in architectural surveys, cultural landscape surveys, and historical research for projects for various federal, state, and local agencies in Connecticut, Florida, Kentucky, Massachusetts, New Hampshire, New Jersey, New York, Oklahoma, Pennsylvania, Tennessee, and Vermont. These projects are carried out primarily in fulfillment of Sections 106 and 110 of the National Historic Preservation Act of 1966 and the National Environmental Policy Act of 1969, and include field documentation of a wide range of resource types, background research, National Register determinations of eligibility, and historic context studies.

Mad Horse Creek Wetland Restoration Project Phase I Cultural Resource

Survey, Lower Alloways Creek Township, New Jersey. Architectural Historian. Report preparation. 2015.

Town of Harrison, New Jersey, Cultural Resources Screening Study for New Harrison Elementary School. Architectural Historian. Performed field survey and prepared screening study report. 2015

New Jersey Department of Transportation (DOT), Cultural Resources Survey for Route 206 Monmouth Road/Juliustown Road Intersection Improvements. Architectural historian. Historical research, report preparation. 2015

Gannett Fleming and New Jersey Turnpike Authority, Historic American Engineering Record documentation for the Garden State Parkway Brookdale North Service Station, Essex County, New Jersey. Historical research, report preparation. 2015

New York State Education Department, Phase I Architectural Survey for the Replacement of BIN 1025220 Over Schoharie Creek, Lexington, New York. Architectural historian. Field survey and documentation, historical research, report preparation. 2015

Northeast Energy Direct, PA-MA. Architectural Historian. Performed field surveys and documentation for a multi-state pipeline. Ongoing

Jan Hird Pokorny Associates, Inc. Architectural Conservator. 2011-2015. Selected projects listed below.

- 4 East 75th Street, New York. Assisted with preparation of project documents and acted as project manager for the façade restoration of the historic townhouse.
- 18 Fiske Place, Brooklyn, New York. Performed conditions study, prepared construction documents and New York City Landmarks Preservation Commission application materials and acted as project manager for the façade restoration of the private residence in the Park Slope Historic District.
- Bellport-Brookhaven Historical Society, Bellport, New York. Performed a conditions survey and prepared construction documents for exterior restoration work at the Ralph Brown Building and John Chester Boathouse in conjunction with an EPF Grant from the New York State Office of Parks, Recreation and Historic Preservation (OPRHP).
- Bellevue Men's Shelter, New York. Preparation of pre-preliminary though construction documents and specifications, as well as application materials and presentation for the New York City Public Design Commission for repairs/upgrades to the East Elevator Penthouse as part of an elevator equipment upgrade.
- The Century Association, New York. Prepared restoration documents and New York City Landmarks Preservation Commission application for work at the main entry of the landmark club building, acted as project manager through completion of the work. Prepared documents for the replacement of the wood windows on the main façade.

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- Ellis Island Recreation Building, New York. Preparation of an Interior Architectural and Schematic Design Report.
- I. Miller Building, New York. Prepared construction documents and specifications and acted as project manager throughout construction for the exterior restoration of the 46th Street facade of the landmark building in Time Square.
- Mesick Cohen Wilson Baker, Architects, LLP. Historic Preservation Specialist. 2008-2011. Selected projects listed below.
- The Doane Stuart School, Rensselaer, New York. Preparation of a Historic Resource Inventory Form for the former Van Rensselaer High School to determine eligibility for the NY State Register of Historic Places.
- Florida Southern College, Lakeland, Florida. Preparation of a National Historic Landmark nomination for the modern campus designed by Frank Lloyd Wright.
- New York State Education Department Main Building, Albany, New York. Paint investigation, preparation of specifications and drawings for the restoration of the historic paint scheme, construction administration throughout bidding process.
- State University of New York at Albany. Preparation of a Getty Foundation Campus Heritage Preservation Plan for the Uptown Campus designed by Edward Durell Stone.

Lauren Hayden, RPA

Historic Preservation/Cultural Resources

Education

M.A. - Anthropology, Hunter College CUNY, 2007

B.A. - Anthropology, Lycoming College, 1999

Registration

Accredited by the Register of Professional Archaeologists (RPA)

Years of Experience

With Louis Berger: 9

Total Years: 14

Ms. Hayden's background includes archaeological investigations at prehistoric sites dating to the Paleoindian through the Late Woodland periods and historic sites dating to the eighteenth through the early twentieth centuries throughout the northeast, southwest, and southeast. As an archaeologist, Ms. Hayden is responsible for implementing surveys and excavations, performing background and site-specific research, and analyzing and interpreting archaeological data and artifacts. She has worked in Colorado, Connecticut, Florida, Illinois, Kansas, New Hampshire, New Jersey, New York, Pennsylvania, Vermont, Virginia, and Wyoming.

Project Archaeologist, First Energy, Monroe-Glassboro 345kV Transmission Line, New Jersey. Phase I cultural resource survey in association with a 114-mile transmission line and substation.

Project Archaeologist, Jersey Central Power & Light, Larrabee-Oceanview 230kV Transmission Line (Project), New Jersey. Phase I cultural resource survey in association

with constructing a new 16.2-mile 230kV transmission line between the existing Larrabee Substation in Howell to the existing Oceanview Substation in Neptune.

Project Archaeologist, Atlantic City Electric, Pine Hill-Terrace 69kV Transmission Line Rebuild, Washington Township, Gloucester County and Gloucester Township and Pine Hill Borough, Camden County, New Jersey. Phase I cultural resource survey for 8.2-mile-long project.

Project Archaeologist, Atlantic City Electric, Phase IA Cultural Resource Investigation Lewis-Higbee 69kV Transmission Line Rebuild, Atlantic County, New Jersey.

Project Archaeologist, Atlantic City Electric, Phase IA Cultural Resource Investigation Lewis-Ontario 69kV Transmission Line Rebuild, Atlantic County, New Jersey.

Archaeologist, Pennsylvania Power and Light, Phase I/II Cultural Resource Investigations, Susquehanna to Roseland 500kV Transmission Project, Luzerne, Lackawanna, Wayne, Pike, and Monroe Counties, Pennsylvania. Cultural resource survey of 100-mile transmission corridor and more than 100 miles of temporary access roads in support of federal, state, and local permitting processes. Project identified and evaluated 178 prehistoric and/or historic archaeological sites and more than 1,000 historic architectural resources. Supervised Phase I investigations in Lackawanna, Luzerne and Wayne counties and Phase II investigations in Luzerne County. Produced graphics and co-authored report.

Archaeologist, National Park Service, Phase I Archaeological Investigation, Sailor's Haven Boardwalk and Helipad, Fire Island National Seashore, Long Island New York. Conducted Phase I fieldwork and authored report.

Project Archaeologist, New Jersey Department of Environmental Protection, Mad Horse Creek Wetlands Restoration Project, Salem County, New Jersey. Phase I cultural resource survey for the restoration of 230 acres of tidal marsh, forest, grassland, emergent freshwater marsh in Salem County, NJ.

Project Archaeologist, DASNY, Phase IB Cultural Resource Survey for Proposed Beacon Institute for Rivers and Estuaries, Beacon, New York. Cultural resource survey conducted as part of an environmental impact statement (EIS) prepared under SEQRA.

Project Archaeologist, ESE Consultants, Inc. (ESE), Phase II Archaeological Investigations, Archaeological Site 28-ME-281, West Windsor Township, Mercer County, New Jersey.

Gannett Fleming, Phase I/II Archaeological Investigations New Jersey Turnpike Authority Salt Storage Facility, Wright/Eyre/Gabell Farmstead Site (28-Bu-559), Florence Township, Burlington County, New Jersey.

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Project Archaeologist, New Jersey Department of Transportation (NJDOT), Phase I Cultural Resource Survey Route 29 Cass Street to Calhoun Street Drainage, Trenton, New Jersey. Cultural Resource Investigation, Route 29, Trenton, New Jersey.

Project Archaeologist, New Jersey Department of Transportation (NJDOT), Phase I Cultural Resource Survey Route 206 Monmouth Road/Juliustown Road Intersection Improvements Project, Springfield Township, New Jersey.

Project Archaeologist, County of Passaic, Paterson, New Jersey; North Jersey Transportation Planning Authority, Newark, New Jersey; and New Jersey Department of Transportation, Phase I Cultural Resources Survey for Proposed Two Bridges Road Bridge and West Belt Highway Extension. Cultural resource survey as part of overall Environmental Assessment document under the National Environmental Policy Act (NEPA) for proposed project. For the Ewing, New Jersey.

Project Archaeologist, New Jersey Turnpike Authority (NJTA), Phase I Cultural Resources Investigations for Proposed Improvements to Interchange 8A, Middlesex County, New Jersey. Conducted Phase I archaeological survey of the areas of potential effects related to proposed improvements to the on and off ramps at Interchange 8A as required as part of the EO 215 process.

Archaeologist, NJTA, Phase I/II Cultural Resource Investigations of Detention Basin, Wetland Mitigation and Pipeline Relocation Areas as Part of the New Jersey Turnpike Interchanges 6 to 9 Program, Burlington, Middlesex, and Mercer Counties, New Jersey. Archaeologist. Participated in cultural resource survey of more than 70 detention basin locations and more than 20 miles of pipeline relocations.



William J. Friers, P.E.

Structural Engineering

Education

M.E. - Rensselaer Polytechnic Institute, 1976
B.S. - Civil and Environmental Engineering,
Clarkson University, 1973

Registration

Professional Engineer: Massachusetts, New
York, West Virginia

Years of Experience

With CDM Smith: 5
Total Years: 42

Mr. Friers is a civil engineer with more than 40 years of design and construction oversight experience in civil engineering projects. He has experience in structural and geotechnical investigations, instrumentation data evaluation, preparation of geotechnical reports, and construction monitoring for many types of projects. His activities have ranged from detailed design, through project management and strategic planning in the electric utility, federal, municipal, and commercial sectors. He has successfully managed a unique variety of engineering projects from conception to completion. His responsibilities have included: request for funding, engineering, supervision of designers and draftsmen, equipment specification, bid review, estimating, budgeting, scheduling, cost control and construction management.

Task Manager, Engineering Assessment, Safety Inspection, Inspection and Maintenance Plans and Emergency Action Plans Tomhannock Reservoir

Earthen Dam, Rensselaer, New York. Mr. Friers was task manager for the Engineering Assessment (EA) of the Tomhannock Reservoir dam and its appurtenant structures. As part of the EA, a subsurface investigation was performed, and stability and seepage analyses were completed in accordance with New York State Department of Environmental Conservation (NYSDEC) regulations. Mr. Friers co-authored the final EA report that included the evaluation and hazard classification of the structure, conceptual design elements for stabilization of the embankment dam, recommendations for alternative measures to improve or monitor the stability of the dam, remediation of deteriorated spillway wingwalls and estimated costs for recommended actions. Work is expected to progress for a 2012 completion date.

Other services provided under Mr. Friers' direction included a Safety Inspection of the dam and spillway, preparation of an Inspection and Maintenance Plan, and an Emergency Action Plan for this 60- foot-high earthen dam and concrete gravity spillway. Dam break analysis and inundation mapping of the downstream areas were developed using HEC RAS for hydraulic calculations and HEC-geoRAS was used to map the resulting flood stages into the digital terrain data of the GIS system. The resulting inundation areas were plotted as a layer superimposed on the topographic mapping.

Task Manager, Engineering Assessment, Inspection and Maintenance Plans, Emergency Action Plans Wright Lake and Bradley Lake Dams, Troy, New York. Mr. Friers was task manager for the Engineering Assessment (EA) of the Wright and Bradley Lake Dams and their appurtenant structures. As part of the EAs, a subsurface investigation was performed, and stability and seepage analyses were completed in accordance with NYSDEC regulations. Mr. Friers authored the final Engineering Assessment reports that included the evaluation and hazard classification of the structures, conceptual design elements for stabilization of Bradley Lake embankment dam, recommendations for alternative measures to improve or monitor the stability of the dams, and estimated costs for recommended actions. Mr. Friers developed an Inspection and Maintenance Plan, and an Emergency Action Plan for these two High Hazard earthen dams. Dam break analysis and inundation mapping of the downstream areas were developed using HEC RAS for hydraulic calculations and HEC-geoRAS was used to map the resulting flood stages into the digital terrain data of the GIS system. The resulting inundation areas were plotted as a layer superimposed on the topographic mapping.

Task Leader Levee Inspection and Condition Assessment, Council Bluffs, Iowa. Mr. Friers performed a visual inspection and condition assessment of 26-mile-long Council Bluffs levee system associated with a prolonged flood-event. Mr. Friers prepared a report delineating the damages sustained by the levee system for the Project Sponsor's submittal to the U.S. Army Corps of Engineers and Federal Emergency Management Agency. The report included recommended remedial actions to meet regulatory requirements and estimated costs for recommended actions.

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Engineer of Record, Tomhannock Reservoir Dam Rehabilitation, Troy, New York. Mr. Friers was engineer of record for the design of rehabilitative measures to address slope stability and seepage issues for this 60-foot-high, 700-foot-long embankment dam and the replacement of the dam's cracked and spalling spillway training walls. In addition, he served as lead civil engineer on this project.

Lead Civil/Structural Engineer, Inspection and Evaluation of Dams and Related Structures, Mongaup River Basin, New York. Mr. Friers participated with a team of professionals to perform a condition survey and engineering assessment of three hydro projects located on the Mongaup River, including six dams, four powerhouses and over two miles of conveyance structures. The project included the review of stability analysis of all dams, hydraulics and hydrology studies, operation and maintenance (O&M) procedures and generation revenue projections.

Project Manager, Phase II Evaluation, Cherry Valley and West Parish No. 4 Dams, Springfield Massachusetts. Mr. Friers is serving as CDM Smith's project manager for the Phase II Inspection and Investigation for Springfield's Cherry Valley and West Parish #4 Dams. The inspections are required by order from the Massachusetts Office of Dam Safety as a subsequent investigation to the Phase I inspection to provide recommendations to bring the significant-hazard poor-condition dams into compliance with the state regulations. Mr. Friers managed a subsurface investigation program, and reviewed stability and seepage analyses that were performed in accordance with the state regulations. He co-authored the final Phase II Inspection/Investigation reports that included the evaluation and hazard classification of the structure, alternative concept design elements to protect the dam against overtopping flow and improve the spillway flow capacity to meet regulatory requirements, and estimated costs for recommended actions.

Task Manager/Project Engineer, Phase 1 Dam Inspections, Worcester, Massachusetts. Mr. Friers has been performing and managing dam safety inspections of up to 21 high hazard and significant hazard earth and concrete dams and dikes in Worcester and several surrounding towns that impound municipal water supply reservoirs and recreational ponds. The inspections are performed for the municipal dam owner at the required frequency in accordance with the Office of Dam Safety state regulations. Mr. Friers and the inspection team have evaluated the condition of the impoundment structures and appurtenances based on visual observations and a review of historical records. As the professional engineer in charge of the inspection, he managed and co-authored the final Phase I

inspection/evaluation reports which included the evaluation and hazard classification of the structures, recommendations for maintenance and remedial actions, and estimated costs for recommended actions.

Task Manager/Civil Engineer, Condition Assessment, and Structural Evaluation, Germantown and Englewood Dams, Dayton, Ohio. Mr. Friers reviewed record drawings and previous safety inspection reports, and interviewed owner's personnel to develop a field investigation program to determine the nature of observed cracking of twin unreinforced outlet conduits that extend through the existing earth embankment dams. Field investigations included visual inspection of the conduits, LIDAR surveys, concrete cores through the principal spillway conduit outside walls and geotechnical laboratory testing of soil samples and petrographic testing of concrete cores. Structural analyses of the conduits were modeled using FLAC3D software and data obtained during the field investigation program.

Structural Engineer and Technical Advisor, Alternatives Assessment, Kissimmee River Restoration, Okeechobee, Florida. Increased discharges from upstream structures, associated with the Kissimmee River Restoration project, required additional spillway capacity at the S-65E Lock and Spillway. Mr. Friers helped assess proposed alternatives for increasing the spillway capacity by 30 percent. He evaluated the constructability, permitting requirements, impacts on wetlands, and geotechnical and structural complexities of alternatives. He also reviewed results of hydrologic/hydraulic studies for each alternative.

Task Manager, Condition Assessment, Structural Evaluation and Remediation, Hillsborough River Dam, Tampa, Florida. Seeping/leaking issues were identified in this 30-foot-high concrete dam in January 2010. Mr. Friers reviewed record drawings and previous safety and underwater inspection reports, and interviewed owner's personnel to determine potential root causes of the observed leakage. He recommended further investigations, including geotechnical and underwater inspection and testing programs. Mr. Friers coordinated with geotechnical engineers to develop the detailed geotechnical test program, tailored to address unique site conditions, including soil borings, packer testing, piezometer installations, and underwater dive inspection with dye testing and laboratory testing of core specimens. A report with recommendations for remedial work was written.

Timothy A. Verwey, P.E.

Structural Engineering

Education

B.S. – Civil Engineering, University of Central Florida, 1987

Registration

Professional Engineer: Florida, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, Texas, Virginia

Years of Experience

With CDM Smith: 23
Total Years: 26

Mr. Verwey has over 25 years of experience as a structural engineer with an emphasis on analysis and design of environmental engineering structures. He has developed design criteria, project specifications, provided analyses, prepared and reviewed contract documents, performed structural condition surveys and evaluations, carried out value engineering studies, provided peer reviews, and performed engineering services during construction for water, wastewater, and hazardous waste facilities in the public and industrial sectors. He specializes in computer applications of both structural engineering design and engineering analyses, including finite element analysis of plate and shell structures, and 3-dimensional structural analysis. Mr. Verwey has managed all aspects of structural engineering on numerous projects of diverse sizes. He is experienced in design planning, modifying and repairing existing structures, designing deep and shallow foundation systems, designing new structures, designing unusual structures, and performing design-build.

Structural Engineer, Lake Okeechobee Fast-Track (LOFT) Basis of Design Report and Reservoir Test Cell Project, Okeechobee, Florida. This \$230M, fast-track project includes the design of approximately 7,000 acres of storage and stormwater treatment reservoirs, three 500-cubic feet per second (cfs) pump stations, multiple hydraulic control structures, and over four miles of canal conveyance improvements. Mr. Verwey prepared the structural basis of design criteria. The criteria included the governing codes, loading requirements, load combinations, construction materials, and material properties to be used in the final design.

Project Structural Engineer, Pinellas County Water Management District Channel 1, Channel 1B5, Channel 2, Channel 3, Channel 4, Channel 4A, Channel 4E, and Channel 5 Improvements, Pinellas County, Florida. Mr. Verwey served as the project structural engineer of record for the design and construction for all eight projects. The structural improvements included concrete lining of the side slopes, concrete bottoms, concrete struts across the bottom, weir walls, steel sheet pile cut off walls, and box culverts.

Project Structural Engineer, South Florida Water Management District Lakeside Ranch Stormwater Treatment Area North. Mr. Verwey served as the project structural engineer of record for the design and construction. The structural design included a 16-ft wide by 12 ft high cast-in-place concrete box culvert, and 21-ft tall concrete retaining walls at each end of the box culvert.

Structural Engineer-of-Record, Nova Canal (B5/B6) Stormwater Drainage Improvements and Samuel Butts Park, Daytona Beach, Florida. Mr. Verwey was the structural engineer-of-record for the design of a timber boardwalk with pavilions and interpretative learning centers for the City of Daytona Beach Samuel Butts Park. The boardwalk project was part of a stormwater improvement project for the City. After the Phase I stormwater management features were constructed, a park was constructed around the larger of the two ponds during a second construction phase. Park amenities include a 1.2-mile exercise trail, an elevated boardwalk, and a learning center for the archaeological site. The timber boardwalk is supported on timber piles. Timber handrails with wire screen infill protect residents, while providing an open viewing area. The timber canopy and benches provide relief from the sun while honoring the environment.

Structural Engineer, Water Control Structures. Mr. Verwey was the structural engineer of record for Pinellas County Water Management District Channel 1, Channel 1B5, Channel 2, Channel 3, Channel 4, Channel 4A, Channel 4E, and Channel 5 improvements; South Florida Water Management District (SFWMD) Lakeside Ranch Stormwater Treatment Area North – Box Culvert design; and Nashville, Tennessee International Airport Stormwater Treatment Facility.

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Structural Engineer, FEMA projects. Mr. Verwey served as structural engineer-of-record for Omohundro WTP emergency repair and new design of two pedestrian elevated walkways, Nashville Metro Water Services, Nashville, Tennessee; Garfield Ladner Memorial Concrete Fishing Pier design to replace timber pier destroyed by Hurricane Katrina, Waveland Mississippi; Solid Waste Transfer Station Emergency structural inspection after Hurricanes Jeanne and Francis, Martin County, Florida; Solid Waste Transfer Station Emergency structural inspection after Hurricanes Jeanne and Francis, Indian River County, Florida.

Project Structural Engineer, Master Pump Stations Replacement and Rehabilitation, Final Design and Construction, Orange County, Florida. Orange County identified 14 master pump stations within the County's three wastewater service areas that required evaluation and upgrades as necessary to maintain reliable service and meet changes to the conditions of service. Subsequently, Orange County wished to implement rehabilitation of 8 of the 14 pump stations. The \$1.5 million master pump station replacement/rehabilitation project included an additional hydraulic analysis, final design, and bidding and construction services related to the eight pump stations. The final design was based on constructing new submersible pump stations at four pump stations. Total pumping capacity of the new submersible stations ranged from 560 gpm to 6,900 gpm. Mr. Verwey provided structural design services and construction services for this project.

Structural Engineer, Pump Station Rehabilitation, Fort Lauderdale, Florida. This \$4 million project consisted of the rehabilitation of five wastewater pump stations, including the replacement of existing piping, valves, and ventilation system; installation of new pumps with variable frequency drives; an above-grade service entrance rated electrical equipment; and bypass pumping during construction. Mr. Verwey's was responsible for the structural design component of this project.

Structural Engineer-of-Record, Water and Wastewater Pump Station Upgrades, Miami Beach, Florida. Mr. Verwey was the structural engineer-of-record for the City of Miami Beach's water and wastewater system improvements program consisting of the construction of two 4 MG ground storage water tanks, upgrades and modifications to 23 wastewater pump stations and 5 water pump stations, and the construction of one new water booster pump station and one new wastewater booster pump station.

Structural Engineer, Storage Tank and Pump Stations, Various Locations. Mr. Verwey served as the structural engineer-of-record for the South Central Hillsborough Intertie Booster Pump Station, Tampa, Florida; Off Stream Reservoir Pump Station, Tampa, Florida; Fawn Ridge Storage Tank, Hillsborough County, Florida Winters Branch Pump Station, Upper Occoquan Sewerage Authority; Mansker Creek Wastewater Treatment Plant Flow Equalization Tank and Pump Station, Goodlettsville, Tennessee; Alcovy River Pump Station, Gwinnett County, Georgia; Ground Storage Tank and Booster Pump Station, City of Callaway, Florida; Stormwater pump station electrical control panel canopies, Orange County, Florida; Scott Mill Hill, Oakwood Villas, and Lakeforest vacuum sewer pump station design, Jacksonville Electric Authority; South Pointe Booster Pump Station, City of Miami Beach, Florida; Sugar Creek Pump Station, Charlotte Mecklenburg Utilities. He also served as structural engineer for the Hightower storage tank and pump station, Rockdale County, Georgia; inspection and evaluation of elevated water storage tanks, Lee County, Florida; Wading River pump station chemical feed building, Attleboro, Massachusetts.

Structural Engineer, Prestressed Construction. Mr. Verwey served as the structural engineer responsible for the performance specification for wire wrapped prestressed circular tanks for the Mansker Creek Wastewater Treatment Plant Flow Equalization Tank and Pump Station, Goodlettsville, Tennessee; Ground Storage Tank and Booster Pump Station, City of Callaway, Florida; Hightower storage tank and pump station, Rockdale County, Georgia; the Central Hillsborough Water Treatment Facility, Hillsborough County, Florida; Southeast Water Purification Plant, Houston, Texas; Arbennie Pritchett Water Reclamation Facility, Okaloosa County, Florida; Mud Creek wastewater treatment plant, Valdosta, Georgia; North County Water Treatment Plant Expansion, Indian River County, Florida.

Lead Structural Engineer, Rehabilitation Projects. Mr. Verwey served as the lead structural engineer on the following projects: Cockrell Branch and Russia Branch Pump Station Improvements, Upper Occoquan Sewerage Authority; Omohundro Water Treatment Chlorine Room Modifications, Nashville, Tennessee; Iron Bridge Regional water reclamation facility, master pump station improvements, Orlando, Florida; Pump Station "A" improvements, Reedy Creek Improvement District; Pump Station inspection and repair recommendations, Walt Disney World.

Muzamil Husain P.E.

Structural Engineering

Education

M.S. - Civil Engineering (Structural)

B.S. - Civil Engineering

Registration

Professional Engineer: New Jersey, New York

Years of Experience

With Louis Berger: 14

Total Years: 18

Mr. Husain has more than 18 years of experience as a Project Manager and Structural Engineer for the planning, design, inspection and management of complex, multi-task projects. He has diverse experience including design of transportation and facility structures, bridges, retaining walls, sign structures, precast, prestressed and post tensioned concrete, timber and steel structures. He has thorough knowledge of design requirements, specifications and procedures manuals of state and local agencies, and experience with federal as well as private development facilities. These clients include the New Jersey Department of Transportation (NJDOT), New Jersey Turnpike Authority (NJTA), South Jersey Transportation Authority (SJTA), the Port Authority of New York and New Jersey (PANYNJ), New York Department of Transportation (NYSDOT), Delaware River Joint Toll Bridge Commission (DRJTBC), Pennsylvania Turnpike Commission (PTC),

Pennsylvania Department of Transportation (PennDOT), Delaware River Port Authority (DRPA), National Park Services (NPS) and various counties and agencies in the region.

Meadowlands Commission, Secaucus High School Wetland Enhancement, NJ - Structural Project Engineer responsible for the layout and design of 1500 ft long boardwalk with 50 ft and 60 ft long span bridges and viewing areas on pile foundations. Also responsible for the pile foundation design and review of shop drawings for the boardwalk bridges.

NJDEP, Lincoln Park Wetland Restoration, NJ - Structural Project Engineer in charge for developing structural design of the pedestrian bridge and abutments on piles for the walkway thru the park. Also responsible for the structural and hydraulic design of the concrete weir structure between the pond and the tidal channel traversing the site.

NY State, Sunken Meadow Marsh Restoration, Structural Engineer for providing Engineering Services for Stream Bank Erosion Control in Response to Hurricane Sandy Damages. The Restoration Project will restore tidal flow to the creek above the dike to improve water quality and restore conditions suitable for tidal marsh restoration and Phragmites control, as well as restoring fish and shellfish habitat. Responsible for doing onsite evaluation of existing structures including bridges, culverts and dikes. Prepared reports and recommendations for repair of structures and future protection and designed a pedestrian bridge, connecting the recreational area, beach and local community.

NJTA, Interchange 6-9 Widening Program Section 4 Interchange 7A, New Jersey. Structural design lead for the 2.3-mile segment of the widening program that includes mainline widening and ramp connections with Interchange 7A and Route I-195 including expansion of the existing toll plaza from 10 to 13 lanes. This design section included the construction and/or replacement of 13 bridge structures, retaining walls, 22 sign structures and noise barriers. Responsible for overseeing the design, preparation of contract documents and review of shop drawings including the four ramp bridge structures with complex geometry connecting Toll Plaza and Inner and Outer Turnpike Roadways. Also responsible for the interdepartmental coordination including highway, drainage, lighting, electrical, environmental and utility engineering. Helped in the preparation of overall staging schemes and plan development for the whole project including I-195 Bridge over the Turnpike. Lead the construction support services for this \$200M project. (2007-Present; John Keller, PE; 732.750.5300, Ext. 8263)

NJ Turnpike Authority, Interchange 6-9 Widening Program Section 2 Interchange 7 - Project Engineer in charge for the design of two U-turn bridges including structural design, plans, specifications and construction estimation development, along with coordination with Prime and sub consultants. The design also included 30 sign structures and 14 retaining walls and noise barriers. Lead the construction support services for the entire project.

NJTA, GSP MP 35 to MP 38 Widening and Interchange Improvements. Structural Task Leader in charge of the design for three Mainline bridges over Washinton Avenue and Delilah Road. Responsible for the complete contract documents including staging plans, utility coordination. These

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bridges are designed as jointless structure using integral abutment concept. (2012-Present; John Withers, P.E.; (732)750-5300, Ext. 8283; Lamis Malak, P.E.; (732) 750-5300, Ext. 8247) NJTA, GSP Interchange 9, 10 and 11 Improvements. Structural project engineer for the design of three dual GSP bridges over Shell Bay Avenue, Stone Harbor Boulevard and Crest Haven Road. Responsible for the structural design and coordination with the locals for the ramps and access road impacts and utilities. These bridges are designed as jointless structure using integral abutment concept.

NJDOT, U.S. Route 9 Edison Bridge Over Raritan River Project (Section 25K and 1F). Structural Project Engineer.

Construction engineering services and design of a new 29-span, 4,390-foot-long bridge for the design-build contract for the new southbound roadway between the existing bridge and the Driscoll Bridge. Prepared the design-build procurement documents (30% design) and coordinated design review and extensive project coordination with field staff during construction. This D-B project for the State finished ahead of schedule. Responsibilities for this project were the design of bridge abutments and layout of piles. Utilized spreadsheets, STAAD/Pro model and Florida pier program. Also responsible for design, layout and reinforcement detailing of median retaining wall, two outlet structures and three sign support structures.

NPS, Childs Park Rehabilitation, Delaware Water Gap National Recreational Area, PA - Structural Project Engineer responsible for the design and construction support services for the replacement of three pedestrian bridges located in Childs Park. The bridges consisted of steel stringers supported on concrete pads on rock abutments. The concrete pads were lined with natural stone facing. The bridge decking consisted of timber planks and railings. The steel stringers were faced with timber railing façade to mimic complete timber structure. Reviewed shop drawings and provided assistance to field engineers during construction.

NJDOT, I-76/I-676 Bridge Deck Replacement, Gloucester City, Camden County, New Jersey. Project manager/structures task leader. The project involves concept development for the superstructure replacement of four bridges and deck replacement of five bridges for I-76/676 off of Walt Whitman Bridge between Newton Creek North Branch and US 130 NB. Responsible for managing the concept development task and lead the final design of the structures. The project also involves the final design for the replacement superstructure and rehabilitation of Interstate 76 over the South Branch of Newton Creek, Klemm Avenue and Conrail, and deck replacement for Interstate 676 over Newton Creek.

Passaic County, Two Bridges Road over the Pompton River and the West Belt Highway Extension, Township of Fairfield, Borough of Lincoln Park and Wayne Township, Essex, Morris and Passaic Counties. Project Manager for the for the scoping, preliminary and final design including preparation of an EA for the replacement/rehabilitation of the Two Bridges Road over the Pompton River and the extension of the West Belt Highway to Two Bridges Road and Passaic Avenue, located in Passaic, Morris and Essex Counties. The proposed improvements will provide a connection of Route 23, via the West Belt Highway, to Two Bridges Road and Passaic Avenue. The project will Improve structural capacity at the river crossing and improve traffic movement at the intersections.

NJDOT, Route 47 Bridge over Big Timber Creek South Branch, Westville and Brooklawn Borough, New Jersey. Structural project engineer for the Concept Development for the replacement of existing Route 47 Bridge over Big Timber Creek, which is functionally deficient and functionally obsolete with the fracture critical through girders system in the main span. The purpose of the proposed project is to replace the existing bridge with a bridge in accordance with current NJDOT bridge standards. (2012-2014; Andrew Maevsky; 609.530.2472)

NJDOT, Route 31 over Peters Brook, Hunterdon County, New Jersey. Project Manager for the limited scope Concept Development for the replacement of superstructure of the Rt 31 Bridge over Peters Brook. The critical issues are the staging and detour and maintenance of traffic during construction. Accelerated bridge construction is proposed to minimize impacts to the traffic and cost efficiency.

NJDOT, Sussex County Bridge K-07 Replacement, Hopatcong, Stanhope & Byram - Structural Project Engineer. This project involves construction of a new 60 ft span arch bridge for Route 605 over Lackawanna Cutoff and rehabilitation of existing parallel bridge as a historical filled spandrel, reinforced concrete arch bridge structure to be maintained as a pedestrian and bicycle access to a hiking route adjacent to the railroad track. Responsibilities included inspection and preparation of rehabilitation details for the existing bridge and design the substructure and retaining walls for the proposed bridge. Supervised the geotechnical exploration and prepared the quantity and cost estimates for the project. Also responsible for preparing and coordinating the intricate architectural details for the precast arch, spandrels and parapet. Also responsible for providing the construction engineering services with the Department's Resident Engineer.

John R. Valentin, P.E.

Structural Engineering

Education

B.S. Civil Engineering, University of Pittsburgh

Registration

Professional Engineer: New Jersey, New York

Years of Experience

With Boswell: 10

Total Years: 32

Mr. Valentin has over 32 years of structural experience related to the inspection, design and construction of bridges and buildings. He has served as a Project Manager and a Project Engineer on structural projects for numerous governmental agencies. These agencies include the New Jersey Turnpike Authority (NJTA), New Jersey Department of Transportation (NJDOT), New York City Transit (NYC Transit), New York City Department of Transportation (NYCDOT), the Triborough Bridge and Tunnel Authority (TBTA), Metro-North Railroad (Metro-North), New York State Department of Transportation (NYSDOT), New York State Thruway Authority (NYSTA) and the Port Authority of NY & NJ (PANY&NJ).

RETAINING WALL EVALUATIONS/NEW DESIGN:

- Retaining Wall Evaluation and Design – Various Municipalities.
- Borough of New Milford - Hirschfeld Brook, NJ. (2011)
- County of Bergen - River Drive Improvements, City of Garfield, NJ. (2010)
- Borough of Oakland - Allerman Brook Improvements, Bergen County, NJ. (2010)
- Staten Island Rapid Transit Operating Authority - Design of Structural Rehabilitation II, Staten Island, NY.
- NJTA Interchange 88/89 Signing Project. Final design (2006-2008)
- NJDOT - Paterson Plank Road Grade Separation Project. (2001)

BRIDGES – WATERFRONT:

- Castle Point and Sinatra Park Waterfront Walkway Reconstruction, Hoboken, NJ. (2010)
- City of Hoboken - Castle Point and Sinatra Park Waterfront Walkway Reconstruction, Hudson County, New Jersey. (2009)
- PANY&NJ, QAD, Condition Survey of Port Newark Berths 2-36. (2005)

BRIDGES – NEW DESIGN:

- County of Bergen - Arch Bridge Design - River Terrace Estate, LLC - "Central Park" Bridge, River Farm Lane, Borough of Saddle River, NJ (2014)

BRIDGES - RECONSTRUCTION:

- County of Bergen – Repair of Colonial Road Arch Over Pond Brook, Structure No. 0200-20A, Borough of Franklin Lakes, New Jersey: (2014)
- County of Bergen – Replacement of River Drive/Saddle River Avenue Bridge (a.k.a. Marsellus Bridge) over Saddle River, City of Garfield/Township of South Hackensack, NJ (2014)
- County of Bergen – Engineering Design Services for County Bridge No. 0200-23A on East Anderson Street Over the Hackensack River, City of Hackensack/Township of Teaneck, NJ (2014)
- County of Warren – Reconstruction of Bridge #08001A, Charles Street Over Trout Brook, Town of Hackettstown, New Jersey. (2013)

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- County of Passaic – Rehabilitation of Warburton Avenue Bridge over Goffle Brook, Borough of Hawthorne, NJ. (Construction Completed - 2014)
- County of Bergen – Restoration of Cooper's Pond - Borough of Bergenfield, New Jersey. (2011)
- County of Sussex – Rehabilitation of Bridges No. P-13 over Little Flat Brook, Township of Sandyston; B-03 over Culver Creek, Borough of Branchville; and D-30 over Papakating Creek, Township of Frankford, NJ. (2009 - 2010)
- New Jersey Turnpike Authority (NJTA) GSP Division – Driscoll Bridge Rehabilitation and Widening Project. (1999-2004)
- County of Bergen - Rehabilitation of Bear Swamp Road Bridge over the Ramapo River in the Township of Mahwah. (2006)
- County of Passaic - Design of the superstructure and the widening of the substructure of French Hill Road over Singac Brook. (2005 and 2007)
- County of Bergen – Bergen Turnpike Bridge Rehabilitation and Widening, Ridgefield and Ridgefield Park. (2005-2009)
- County of Warren – Rehabilitation of Warren County Bridge #03002, Hardwick/Prospect Streets over Pequest River. (2007-2008)
- Route I-280 Bridge Eastbound and Westbound Bridges over Eagle Rock Avenue and the I-280 Westbound Bridge over Erie Railroad, Roseland, Essex County, NJ. (2005)
- NJDOT - Manhattan Avenue Viaduct. Structural Engineer for the inspection and rehabilitation design.

BRIDGES – REPLACEMENT:

- County of Warren – Culvert #01006 Replacement, County Route #612 Over a Tributary to the Pequest River, Township of Allamuchy, New Jersey. (2014)
- County of Essex - Replacement of Hoover Avenue Bridge Over Third River, Township of Bloomfield, NJ. (2014)
- County of Essex –Superstructure Replacement of Dougal Place Bridge over Kane Brook, Borough of West Caldwell, and Lyons Avenue Bridge over Elizabeth River, Township of Irvington, NJ (2014)

- County of Warren - Replacement of Bridge No. 10031 County Route 519 Over the Lopatcong Creek, Township of Harmony, NJ. (2012)
- County of Mercer - Replacement of Mercer County Bridge #230.9 Carrying Old Mill Road Over Stony Brook, Township of Hopewell, NJ. (2012)
- County of Essex - Becker Park Improvements, Roseland and Livingston, NJ. (2011)
- County of Essex – Replacement of the Springfield Avenue and Chancellor Avenue Culverts at Lightning Brook. (2005 and 2007)
- County of Passaic - Replacement of the Belmont Avenue Bridge over Molly Ann's Brook, Borough of Haledon. (2005/2006)

BRIDGES – PEDESTRIAN:

- County of Bergen - Replacement of Bridge #SRCP 13 - Saddle River County Park, Borough of Glen Rock/Village of Ridgewood, NJ (2014)

BRIDGES – INSPECTIONS:

- Metro-North - Movable Bridges.
- PANY&NJ - Goethals Bridge and Outerbridge Crossing, New York.
- NJ Transit – Inspection of Bergen Tunnels, Jersey City, NJ.
- NYSDOT - Brooklyn Bridge, Brooklyn, New York.
- PANY&NJ - New Jersey Marine Terminal Bridges, Port Newark and Port Elizabeth, NJ.

RETAINING WALL EVALUATIONS/NEW DESIGN:

- Retaining Wall Evaluation and Design – Various Municipalities.
- Borough of New Milford - Hirschfeld Brook, NJ. (2011)
- County of Bergen - River Drive Improvements, City of Garfield, NJ. (2010)
- Borough of Oakland - Allerman Brook Improvements, Bergen County, NJ. (2010)
- NJTA Interchange 88/89 Signing Project. Final design (2006-2008)
- NJDOT - Paterson Plank Road Grade Separation Project. (2001)

Seth M. Nehrke, P.E., D.WRE

Civil Engineering

Education

M.S. – Civil Engineering, Colorado State University, 2002

B.S. – Civil Engineering, Colorado State University, 2001

B.A. – Environmental Studies (Ecosystems), State University of New York at Binghamton, 1996

Registration

Professional Engineer: Florida, Georgia
Diplomate, Water Resources Engineer (D.WRE),
American Academy of Water Resources
Engineers

Years of Experience

With CDM Smith: 11

Total Years: 16

Mr. Nehrke is an environmental engineer with experience in stormwater management planning, modeling, design, construction, and operations. He has been project engineer or manager for more than 90 projects across Florida, Georgia, Louisiana, Kansas, Massachusetts, Mississippi, Alabama, Texas, Virginia, Puerto Rico, Australia, Tanzania, and the Cayman Islands. His experience includes both urban and rural hydrology and hydraulics, Florida Environmental Resource Permit (ERP) and Environmental Protection Authority (EPA) National Pollutant Discharge Elimination System (NPDES) permit compliance, erosion and sediment control, and sea level rise evaluations. He has designed more than \$60 million in water resource and stormwater capital improvements, and he is registered in the state of Florida as a Qualified Stormwater Management Inspector by the Florida Department of Environmental Protection (FDEP). He is proficient with the US EPA Storm Water Management Model (SWMM), ICPR, NetSTORM, ExtendSim8, ArcView GIS, Microstation, TR-20, and TR-55.

Project Engineer/Project Manager/ Technical Manager, Southbrook

Floodplain Enhancement Project, Leon County, Florida. Mr. Nehrke is serving as project engineer, project manager, and technical manager for the design of a floodplain and conveyance enhancement project. He performs technical reviews, stormwater modeling, and alternatives analyses, develops design plans and leads permit coordination efforts.

Engineer-of-Record/Project Manager, City of Jacksonville Low Impact Development Demonstration Projects,

Jacksonville, Florida. Mr. Nehrke is serving as engineer-of-record and project manager for the analysis and design of two Low Impact Development (LID) projects in the City of Jacksonville. The Valens Drive LID project combines LID streetscaping practices with the development of a regional stormwater facility to help mitigate area flooding. The Wurn and Spring Glen Parks Recreational LID project incorporate LID practices at local parks in the form of pervious pavement, recessed planters, and irrigation supplementation with stormwater runoff. Both projects lessen the City's environmental footprint while helping address the nitrogen Total Maximum Daily Load (TMDL) for the St Johns River.

Project Engineer/Technical Reviewer, Stormwater Master Plan Update, Miami Beach, Florida.

The City of Miami Beach selected CDM Smith to update the stormwater master plan to meet flooding conditions that are becoming more frequent and noticeable to the community. The technical component of this project requires a multi-disciplinary team to address geotechnical, structural, electrical, and civil aspects of a series of projects to control flooding in a tight urban environment. Mr. Nehrke provided technical review of the system stormwater models. Mr. Nehrke also performed statistical analyses of measured tidal data to set project boundary conditions and develop the sea level rise mitigation plan. Mr. Nehrke also performed continuous simulation modeling to analyze the combine effect of rainfall and tidal backwater conditions on the existing system as well as the proposed alternatives.

Project Engineer, SGIWW Levee Restoration, Calcasieu Parish, Louisiana.

Mr. Nehrke provided tidal frequency analysis to support the design and specifications package for this levee restoration project. The project involved replacement of an existing flood mitigation levee in Calcasieu Parish. Mr. Nehrke performed review and analysis of existing tidal and wind information to calculate potential static water elevations and wave heights. A recurrence analysis was then performed to determine the statistical probability of levee overtopping at different design elevations. This information was ultimately used by the client and the design team in setting the crest elevation of the new levee.

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Project Engineer/Project Manager, Bear Run Drainage Improvements Project, Clay County, Florida. Mr. Nehrke is serving as project engineer and project manager, for the design of an upgraded collection and conveyance system as well as a regional stormwater management facility. To mitigate flooding in the Bear Run subdivision and adjacent areas a collection and conveyance system is being designed to intercept runoff and route it to a regional stormwater management facility for attenuation and treatment prior to discharge to an adjacent wetlands. Mr. Nehrke is serving as engineer of record, as well as providing technical modeling reviews and leading the project permitting efforts.

Project Engineer, Shoreline Protection Emergency Restoration Phase I, Coastal Louisiana. Mr. Nehrke provided tidal frequency analysis to support the design and specifications package for this fast-tracked shoreline stabilization project resulting from the Deepwater Horizon oil spill in the Gulf of Mexico. The project involved deployment of gabion mattresses along erosion vulnerable portions of barrier islands in order to reduce further erosion due to loss of vegetative cover caused by oil exposure. Mr. Nehrke performed review and analysis of existing tidal information to specify the vertical elevations at which the shoreline protections were to be located.

Project Engineer, Nova Canal Flood Control and Integrated Water Resource Program, Volusia County, Florida. After the historic flooding experienced in Volusia County, Florida during the unnamed storm of May 2009, the community stakeholders retained CDM Smith's services to model, design, and permit three flood control structures to mitigate the effects of overland and tidal backflow during storm events. Mr. Nehrke worked as part of a multi-discipline team to successfully complete a Stormwater Modeling Preliminary Engineering Report that was used as the basis of design for the flood control infrastructure design and permitting.

Project Engineer, Conceptual Flood Assessment, Orange County, Florida. Mr. Nehrke provided design and stormwater modeling services that were utilized to provide aid in flood protection for Orange County, Florida. He used ICPR to update the county's models to the latest version, as well as utilizing both AutoCAD and ArcMap to create base maps for each major basin analyzed. The updated models were then analyzed to determine if there were any deficiencies present. All inaccuracies were corrected and the models were used to simulate hurricane conditions and determine the extent and duration of the resulting flooding. Conceptual pumping routes were then determined to help the county develop an emergency preparedness plan.

Task Manager/Engineer-of-Record, Natural Resources Conservation Service (NRCS) Wetland Reserve Plan of Operation (WRPO), Hendry and Okeechobee Counties, Florida. Mr. Nehrke is serving as task manager and engineer-of-record for the design, permitting, and analysis of three WRPOs for the U.S. Army Corps of Engineers (USACE)/NRCS. The Starvation Slough site covers approximately 4 square miles with four major conveyances flowing to the Kissimmee River, the ABC Ranch Flaghole site comprises approximately 7 square miles with eight major ditch systems, while the Devil's Garden site covers approximately 16 square miles with nine major ditch systems and four above ground reservoirs. The goal of WRPOs is to develop cost-effective restoration plans that will return sites to historic, natural ecological conditions that existed prior to agricultural manipulation. Mr. Nehrke is performing hydraulic and hydrologic modeling using the EPA Storm Water Management Model (SWMM), Hydrologic Simulation Program Fortran (HSPF), and Soil, Plant, Atmosphere and Water (SPAW) modeling software to provide a comprehensive analysis of existing conditions as well as future improvement alternatives. Mr. Nehrke is also the engineer-of-record for the design plans and specifications that are being developed to support the restoration of the two WRPO projects.

Project Engineer, SFWMD Lake Okeechobee Fast-Track (LOFT), Okeechobee, Florida. Mr. Nehrke worked as part of a multi-disciplinary team to successfully complete a fast-tracked Basis of Design Report assessing both water quality and water quantity issues for the sensitive Lake Okeechobee system. He provided support for the SWMM stormwater modeling of the S-154, S-133, Taylor Creek, S-191, S-153, S-135, and C-44 basins in Okeechobee, Martin, and St. Lucie Counties (approximately 350 square miles). Mr. Nehrke assisted with data collection pertaining to topography, rainfall data, land use, soils, and stormwater infrastructure along with other project hydrogeometric properties. His responsibilities included assisting with model set-up, calibration, control measure evaluation, alternative investigation, statistical analysis, and report writing.

Michael T. Oleson, P.E.

Civil Engineering

Education

B.S. - Civil Engineering, University of Wisconsin-Platteville, 1997

Registration

Professional Engineer: Wisconsin, Texas

Years of Experience

With CDM Smith: 16

Total Years: 18

Mr. Oleson has 18 years of experience in water resources and civil engineering including work on major flood control and transportation projects. His experience has included major grading work, bioengineered channel design, floodplain widening, utility relocations, vehicular and pedestrian bridges, and urban and rural transportation projects. He also has experience performing storm water utility studies, stream bank stabilization, and construction inspection. Mr. Oleson's civil design expertise includes knowledge of MicroStation and InRoads software packages.

Program Manager, Fort Worth Central City Project (Trinity River), Fort

Worth, Texas. Mr. Oleson serves as the program manager for all of CDM Smith's task order work for the U.S. Army Corps of Engineers (USACE) Fort Worth District and is responsible for coordinating a multi-discipline project team working on

design development of the Fort Worth Central City (FWCC) project. Mr. Oleson's work on the project started in the concept development and preliminary design stages in support of two Environmental Impact Statement (EIS) processes and has continued into Planning, Engineering and Design (PED) services for USACE. Through Mr. Oleson's efforts the project received its Record of Decision (ROD) and signed Programmatic Partnership Agreement (PPA) to allow design and construction to proceed on the project in under two years.

The FWCC project is a \$909 million flood protection and urban revitalization project immediately north of downtown Fort Worth near the confluence of the West Fork and Clear Fork Trinity rivers. Key elements of the project include the excavation and construction of an 1.6 mile bypass channel to divert and control flood flows, three flood control gates to isolate the interior area during high flood flows, and a 400ft wide downstream dam with a lock structure. The project also includes four large vehicular bridges, roadway improvements, utility relocations, floodplain mitigation and ecosystem restoration work in order to meet the technical objectives and goals of the project.

Mr. Oleson has led a total of thirteen (13) task order assignments in support of the USACE design advancement activities of different components of the project. Key components of those assignments have included: hydraulic and hydrologic modeling, support of physical model construction, bypass channel design advancement, ground water modeling, and geotechnical support.

Project Engineer, Fort Worth Central City Project, Fort Worth, Texas. Mr. Oleson was a member of the multi-discipline project team working on development of the preliminary engineering design of the Fort Worth Central City (FWCC) project in support of the Draft Environmental Impact Statement (DEIS). Mr. Oleson's involvement in the project was to lead several of the civil related design and plan preparation activities in support of the project. His responsibilities included the evaluation and selection of floodplain mitigation areas, layout and design of the bypass channel and preliminary layout of the major roadway improvements.

Project Engineer, Trinity River Corridor Project, Dallas, Texas. The Trinity River project is a feasibility study that is investigating alternatives for relocating a portion of the Trinity River and construction of a recreational lake. Key components of the study include flood control, water quality, regulatory feasibility, and economic evaluation. Mr. Oleson has been assisting the project team in developing cost estimates for the study alternatives.

Project Engineer, Lincoln Creek Flood Control Project, Milwaukee, Wisconsin. Mr. Oleson worked on the design and construction of stream improvements for Lincoln Creek, an 8.5-mile stream reconstruction project that included the design of bioengineered channel enhancements, numerous vehicular and pedestrian bridges, two railroad undercrossings, numerous water main and sewer relocations, and native plantings. The \$115 million project was completed in two phases and

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21 separate contract packages. His responsibilities included project management, coordinating numerous subconsultants and engineering disciplines, civil engineering design, developing construction plans and specifications for bidding, estimating, reviewing contractor submittals, and construction inspection. Mr. Oleson also assisted with the extensive coordination and communications effort during design and construction, which was required between citizen groups and public agencies including the Wisconsin Department of Natural Resources, the City of Milwaukee, and Milwaukee County.

Project Engineer, Bee Branch Creek Restoration Alignment Study, Dubuque, Iowa. Mr. Oleson led the preliminary design effort for the Bee Branch project. The Bee Branch project studied alternatives to an existing enclosed sewer that is approximately 100 years old. The project included the study of alignment alternatives for placing an open channel in a heavily urbanized environment while limiting property acquisitions. CDM Smith's work on this previously controversial project included meeting frequently with a citizen's committee to allow them to guide the project and create the most acceptable solution. Mr. Oleson developed the preliminary design of the preferred alternative including coordination with the city and railroad and developing cost estimates for the project.

Project Engineer, Northern Illinois University Storm Waterway Improvements, DeKalb, Illinois. CDM Smith provided design and onsite construction services for storm waterway improvements at Northern Illinois University. The project included improvement and expansion of two detention lagoons, construction of a new weir structure, new pedestrian bridges, channel improvements, and numerous utility relocations. Mr. Oleson assisted in the design of grading plans, channel enhancements, and utility relocations for the project.

Technical Reviewer, Six Mile Creek Drainage Improvement SA-43A, CCR3 and CCR4, San Antonio, Texas. CDM Smith provided design services for drainage improvements for over 1.7 miles concrete lined channel with limited site access. Mr. Oleson served as a member of the technical review committee (TRC) for civil related aspects.


Project Engineer, WE Energies Outlet Weir Protection, Port Washington, Wisconsin. Mr. Oleson led the design of a vegetated revetment with riprap toe protection to stabilize a channel embankment in front of an overflow weir. This project was designed on an emergency basis for the client after concerns were raised by the Wisconsin Department of Natural Resources (WDNR) review of the previous design alternative

by another consultant. The design was able to incorporate the required armament to stabilize the area while also providing a "green" solution that did not negatively impact the existing creek.

Project Manager, Dubuque Stormwater Utility, Dubuque, Iowa. Mr. Oleson served as project manager on the analysis and implementation of a stormwater utility in the City of Dubuque to pay for the costs of the city's stormwater management program. The program enables the city to finance flood control projects and comply with stringent surface water quality regulations imposed by the federal government by equitably allocating the costs of these programs to residents and businesses based upon the quantity and quality of stormwater runoff generated by a parcel of land. A major component of this project was monthly meetings conducted with a Citizen Advisory Committee, which guided the development of the utility.

Project Manager, Town of Brookfield Stormwater Utility, Town of Brookfield, Wisconsin. Mr. Oleson served as project manager on this two phase project of analyzing and implementing a stormwater utility for the town. The need for the utility was the result of a previously identified capital improvements plan and the need for a more comprehensive stormwater management program to meet the requirements of the NPDES and state NR216 stormwater rules. A major focus of the study was developing public support for the utility concept through a series of interactive meetings. Mr. Oleson assisted the town with creating a Storm Water Utility Action Committee (SWUAC) which met seven times over the course of a 9-month period. At the end of the feasibility study the SWUAC presented a set of "consensus" recommendations to the Town Board in support of the stormwater utility. Mr. Oleson then worked with the town in the setup and implementation of the stormwater billing system for the town.

Project Manager, City of Beloit Stormwater Utility, Beloit, Wisconsin. Mr. Oleson is currently serving as project manager on the analysis of a stormwater utility in the City of Beloit. The city is reviewing a utility as an alternative funding source to finance current stormwater management operations and maintenance to comply with stringent surface water quality regulations imposed by the federal government. The formation of a stormwater utility will provide a method in which the city can equitably allocate the costs of these operations to residents and businesses based upon the quantity and quality of stormwater runoff generated by a parcel of land. A major component of this project is monthly meetings conducted with a Storm Water Advisory Committee, which guided the development of the utility.



Peter M. Chenevey, P.E. Civil Engineering

Education

M.S. - Engineering, Virginia Polytechnic Institute and State University, 1994

B.S. - Civil Engineering,
The University of Akron, 1993

Registration

Professional Engineer: North Carolina, Florida

Years of Experience

With CDM Smith: 9
Total Years: 21

Mr. Chenevey is a civil engineer and project manager with more than 18 years of experience in the areas of civil engineering, solid waste management services, stormwater services, and geotechnical engineering. His areas of expertise include: project management; civil/site design; earthen dam design, evaluation, and inspections; slope seepage and stability analyses; landfill design and permitting; solid waste operational management planning; geosynthetics; construction management (CM) and quality assurance (CQA); erosion and sediment control plans; and coordination and evaluation of field exploration and laboratory testing programs.

Technical Reviewer, Blind River Project Feasibility Report, Mississippi Louisiana. For the U.S. Army Corps of Engineers and Louisiana Department of Natural Resources, Coastal Restoration Division, Mr. Chenevey served as technical reviewer and advisor, and performed independent reviews of the civil and hydraulic conveyance design. The project involved planning and developing

preliminary concepts for a freshwater diversion into the Blind River from the Mississippi River in St. Johns Parish. A Feasibility Study and an EIS were developed. The EIS include all components of a large and complex NEPA study including environmental, engineering, public involvement and agency coordination.

Project Engineer, SFWMD LOFT Basis of Design Report, Martin County, Florida. Mr. Chenevey assisted in the preparation of the Basis of Design Report for the SFWMD LOFT Project in Okeechobee and Martin counties, Florida. Mr. Chenevey served as the civil/site design engineer for the Taylor Creek Reservoir component of the project, which consists of a 1,600-acre above-ground earthen embankment reservoir. As part of the project, he prepared conceptual layouts of the reservoir, including associated canals and site access routes, developed representative cross sections of alternative embankment designs, performed quantity estimates for costing purposes, and prepared written narratives.

Project Engineer, SFWMD LOFT Taylor Creek Reservoir - Temporary Test Cell Program, Okeechobee County, Florida. Mr. Chenevey served as the civil/site design engineer and engineer-of-record for the Temporary Test Cell Program being conducted as part of the SFWMD LOFT Taylor Creek Reservoir Project in Okeechobee County, Florida. The Test Cell Program will consist of a 20-million gallon test cell reservoir and 500-foot long embankment test strip that will be used to evaluate the constructability and performance of alternative embankment seepage control measures to be potentially used in the design of the 1,600-acre full-scale reservoir design. The primary aspects of the project included the design of the test cell, embankment test strip, borrow areas, stormwater management systems, geotechnical instrumentation and monitoring systems, site access roads, pumping, and electrical. Mr. Chenevey was responsible for the design of the civil/site components and general coordination with other disciplines as part of the overall preparation of construction drawings, specifications, and design report.

Project Engineer, SFWMD LRSTA Design, Martin County, Florida. Mr. Chenevey was the task manager for the Design of the Lakeside Ranch Stormwater Treatment Area (STA) for the South Florida Water Management District (SFWMD), Lake Okeechobee Fast Track (LOFT) Project in Martin County, Florida. Mr. Chenevey was the civil/site design engineer and engineer-of-record for the STA component of the project, which consists of eight containment cells covering 2,400 acres, and includes more than 20 miles of earthen embankments. Mr. Chenevey was responsible for the design of the civil/site components and general coordination with other disciplines as part of the overall preparation of construction drawings, specifications, and design report.

Project Engineer, SFWMD Lemkin Creek Urban Stormwater Storage and Treatment Facility Evaluation, Okeechobee County, Florida. Mr. Chenevey served as the civil/site engineer for the Lemkin Creek Urban Stormwater Storage and Treatment Facility Evaluations for the SFWMD

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in Okeechobee County, Florida. The project included two low-hazard above-ground storage reservoirs encompassing approximately 105 acres. Mr. Chenevey was responsible for the design of the civil/site components and general coordination with other disciplines as part of the overall preparation of construction drawings, specifications, and design report.

Project Manager, Streambank Stabilization, Charlotte, North Carolina. Mr. Chenevey was responsible for design and preparation of construction drawings for a 60-foot long streambank stabilization utilizing a gabion wall system in Charlotte, North Carolina. The design process involved performing field visits to assess site conditions and develop and design a gabion wall system that stabilizes erosion conditions and blends into the surrounding irregular site topography.

Project Manager, Modifications to Eleven Earthen Dams, Lancaster County, South Carolina. Mr. Chenevey assisted in preparation of permit applications, construction drawings and specifications, and calculations for modification of eleven dams as part of a 1,200-acre residential development in Lancaster County, South Carolina. Key aspects involved performing seepage and stability analyses to evaluate proposed dam modifications and design internal cut-off trenches and seepage control drains such that the dams met or exceeded dam safety requirements.

Project Engineer, Phosphatic Clay Settling Area Dams, White Springs, Florida. Mr. Chenevey assisted in the evaluation and design of earthen dams for two waste phosphatic clay storage impoundments in White Springs, Florida. The impoundments consisted of more than 20,000 feet of embankment and encompassed a surface area of more than 2,400 acres. Responsibilities included the preparation of construction recommendations, specifications, and narratives. Engineering evaluations included seepage and stability analyses, embankment layout, and monitoring of piezometric pressures during filling operations. He coordinated and evaluated field exploration and laboratory testing programs, and third party CQA inspection and testing. In addition to these tasks, Mr. Chenevey also performed quarterly inspections of the active clay settling areas and process water pond containment dikes at the facility.

Project Engineer, Soil Bentonite Cut-off Walls, Florida.

Mr. Chenevey designed over 300,000 square feet of soil bentonite cut-off walls in South Pierce and Plant City, Florida. Responsibilities included preparation of construction drawings, specifications, and narratives for slurry walls constructed to control off-site seepage from unlined phosphogypsum disposal facilities (gypsum stacks). He

coordinated and evaluated field exploration and laboratory testing programs, and third party CQA inspection and testing. Project Engineer, Seepage Interceptor Drain, Plant City, Florida. Mr. Chenevey was responsible for reparation of construction drawings, specifications, and narratives for a 5,000-foot long interceptor drain to control seepage from an unlined process water cooling pond in Plant City, Florida. He also coordinated and reviewed third party CQA inspection and testing.

Jeffrey L. Morris, P.E., P.L.S., P.P. Civil Engineering

Education

B.S. - Civil Engineering, Lehigh University

Registration

Professional Engineer: New Jersey

Professional Land Surveyor: New Jersey

Professional Planner: New Jersey

Certified Municipal Engineer: New Jersey

Years of Experience

With Boswell: 35

Total Years: 35

Mr. Morris has over 35-years of experience in civil and municipal engineering, land development and planning and construction oversight. He presently heads the firm's Land Development Division and is actively involved with all the aspects of site design and civil engineering involving residential, commercial, office complexes, institutional and educational facility projects. He has been accepted as an expert in the fields of engineering, land surveying and planning by Land Use Boards across the state as well as New Jersey Superior Court and Federal Tax Court. In addition, he is involved with all phases of municipal engineering. Mr. Morris has contributed his many talents to the design and construction of numerous public works projects, including roadways, drainage facilities, sanitary sewer systems, water distribution systems and recreation facilities.

NJ Transit \$400 Million Southern New Jersey Light Rail Transit System between Trenton and Camden, NJ. Mr. Morris' responsibilities included the park 'n ride site plan design. He was further responsible for survey activities,

preparation of all parcel maps for property acquisition, oversight of environmental permit compliance and public relations.

Northern Highlands Regional High School, Allendale, NJ. This project included site engineering associated with the construction of the science, cafeteria and locker room building additions. The project includes the expansion and construction of the east and wide sides parking area and driveways. He also designed the reconstruction of the existing football/soccer field within the campus.

Pascack Valley Board of Education, Pascack Hills High School, Montvale, NJ. This project consists of the construction of approximately 16,000 square feet of building addition in the back of the existing gym of the Pascack Valley High School and a 44-stall parking lot in front of the existing school building along Grand Avenue West. The project included a site plan, boundary and topographic survey, drainage system, retaining walls and off-site road and intersection improvements. Additionally, he designed and reconstructed the athletic field and track, including new artificial turf.

Fairleigh Dickinson University, New Resident Hall and Pedestrian Bridge, Teaneck/Hackensack Campus, Hackensack, NJ. Site engineering for a new residence hall on the Hackensack portion of its Teaneck/Hackensack Campus. This project consists of a 320-bed structure approximately 77,000 sq. ft. with a 28,000 to 30,000 sq. ft. footprint. The project included the reconfiguration of the remaining parking and utilities in the building's vicinity and the relocation of the Kotte Place cul-de-sac. This project further included the design of a 420-foot long pedestrian bridge over the Hackensack River.

Stevens Institute of Technology, Castle Point Parking Facility, Hoboken, NJ. This project consists of an approximately four level, 725 parking space garage. This project included a site plan, boundary and topographic survey, road realignment, traffic study and mechanical and electrical design for the parking facility.

Closter Downtown Renaissance, Closter, NJ. Design of the reconstruction of the downtown area including sidewalks, curbs, lighting, traffic flow, parking and drainage funded by ISTEA Grant through the New Jersey Department of Transportation (NJDOT).

Wyckoff Community Park, Wyckoff, NJ. Design, preparation of contract documents, permit acquisition and construction supervision for an athletic facility which includes four (4) baseball fields, a soccer field, picnic area, refreshment stand and associated parking.

Cambridge Heights, Nutley, NJ. Design and permit acquisition for a 603-unit planned residential development including the design of roadways, stormwater management systems, sanitary sewer collection and pumping facilities, landscaping and grading.

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Mediplex, Oradell, NJ. Design, permit acquisition and construction coordination for a 150-bed assisted care facility which included the design of a sanitary metering facility and utility crossing under New Jersey Transit rail facilities.

Bergen County Administration Building, Hackensack, NJ.

This project consists of the development of a new 5-story County office building (approximately 263,500 SF) and a new 5-story parking structure (approximately 410,000 SF). The work involved site design, permit acquisition and construction coordination of this 6-acre site.

Wyckoff Family YMCA, Wyckoff, NJ. This project includes the design and construction administration of a 42,000-square-foot recreation and day-care facility and a 52,000-square-foot addition to the building. The final facility will contain a full size gymnasium and assembly room, two (2) regulation swimming pools as well as exercise rooms, day care and outdoor recreation and swimming areas.

Colonial Road School, Franklin Lakes, NJ. This project included the design permit acquisition and construction supervision for a 40,000-square-foot addition to an elementary school. The design included an on-site sewage disposal system, recreation fields, grading and parking areas.

Hackensack University Medical Center, Hackensack, NJ.

Design of the 190,000-square-foot woman and children's pavilion including three (3) stories of parking, stormwater management, sanitary sewer, water and traffic designs.

Clifton Stadium, Clifton, NJ. Design of the reconstruction of the Clifton High School Athletic Stadium including new lights, eight lane track, artificial turf field, retaining walls and event areas.

Foley Field, Bloomfield, NJ. Design of a new athletic facility including the demolition of the entire existing stadium and the construction of a new artificial turf field, eight lane track, retaining walls, lights, scoreboard and pedestrian areas.

Robert Thiel, P.E.

Transportation Engineering

Education

M.S. - Construction Management, Stevens Institute of Technology, 1998

B.E. - Civil Engineering, Stevens Institute of Technology, 1996

Registration

Professional Engineer: New Jersey; New York; Florida; North Carolina; Pennsylvania; Michigan; Washington, DC; Maryland; Virginia; Texas; Delaware; Nebraska; Kansas

Years of Experience

With Louis Berger: 17

Total Years: 20

Mr. Thiel has 20 years of experience in Alternative Project Delivery and civil engineering design including roadway alignment, preparation of construction contract documents for public bidding, including design of construction staging and traffic control plans. He has designed and /or served as project manager for the design of major transportation projects, such as the Interchange 7A and I-195 Interchange reconstruction (Interchange 7A of the NJ Turnpike), an interchange between I-95 and I-195, as a part of the Interchange 6 to 9 Widening Program for NJ Turnpike and for the Port Authority of NY and NJ's study of the expansion of the PATH system to Newark Airport. Mr. Thiel is thoroughly knowledgeable in the use of Virtual Design and Construction applications. He has represented Louis Berger at Stanford's Center for Integrated Facilities Engineering Program (CIFE) since 2013. He has led the development and implementation of multiple research projects related to VDC for Louis Berger in conjunction with this program. Mr. Thiel has also served the professional community in numerous roles. He served as the President of the NJ Society of Professional Engineers (NJSPE) from 2012 to 2014, as a legislative committee member for the National Society of Professional Engineers (NSPE) and

as the committee chair for the Alternative Delivery Methods committee for the ACEC-NJ. He was a recipient of the "Outstanding Young Engineer Award" from NJSPE in 2006, and listed in the ENR-NY Top 20 Under 40 in 2011.

Program Manager, Port Authority of New York and New Jersey, PATH, Interim Program Management for PATH Sandy Recovery. For program management services, including scheduling, document control, and supplemental staff for PATH's Hurricane Sandy recovery program. Support PATH in management of FTA grant program and applications, including development of FTA compliant Program Management Plan (PMP) and associated supporting documents and schedules.

Engineering Design Task Leader, New Jersey Turnpike Authority, Interchange 6 to 9 Widening, Preliminary Engineering and Environmental Services, Mercer County, New Jersey. Responsible for the Preliminary Engineering and Environmental Services for 35-mile study to widen the Turnpike from six (6) to twelve (12) lanes between Pearl Harbor Memorial Turnpike Extension and Interchange 8A and from ten (10) to twelve (12) lanes between Interchanges 8A and 9. Responsible for coordination of multiple project engineers and sub-consultants in development of conceptual design and preliminary engineering with an aggressive schedule, as well as personally leading the design efforts for the Interchange 7A (Section 4), Interchange 6 and Merge (Section 1) Design Elements. Liaison with environmental, traffic engineering and public involvement tasks. Assisted the Authority in development of program approach, preliminary cost estimate and program standards.

Deputy Project Manager (08/07-1/10), Project Manager (1/10-Present), New Jersey Turnpike Authority, Interchange 6 to 9 Widening, Section No. 4 Final Design, Interchange 7A, Mercer County, New Jersey. For the 2.3-mile segment of the Widening Program that reconfigures Interchange 7A. This section includes all ramp connections and mainline widening for connections with Interchange 7A and Route I-195 including expansion of the existing toll plaza from 10 to 13 lanes. Section No. 4 also includes the construction and/or replacement of 13 bridge structures, retaining walls, sign structures and noise barriers. Mr. Thiel recently ascended to Project Manager for this project in January 2010.

Project Engineer, New Jersey Turnpike Authority, Secaucus Interchange, Final Design Documents for Section 3, Phase B/C/D, Secaucus, Hudson County, New Jersey. For the new interchange near the Secaucus Transfer Station in the Meadowlands. The critical issues associated with this section are: the structural design of the various structures; coordination with NJ Transit and Seaview Drive (being designed by others); identification of site access for construction; and establishing a design that is compatible with future transportation improvements under consideration by the NJDOT for the connection to the Bergen Arches, Tonnelle Avenue and/or other roadways.

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Project Engineer, New Jersey Turnpike Authority, Interchange 1 Barrier Plaza Relocation, Carney's Point Township, New Jersey. Responsible for horizontal and vertical alignment, utility relocations, lighting design and construction staging for final design of new toll plaza facility to replace the existing mainline barrier toll plaza at the southern terminus of the Turnpike. The new facility has a split plaza configuration with the utility building separating the northbound and southbound roadways, and includes two (2)-lane high speed electronic toll collection bypass roadways.

Project Engineer, New Jersey Turnpike Authority, Feasibility Study for a Turnpike-Route 42 Interchange, Counties of Camden and Gloucester, New Jersey. For a feasibility study for a new interchange between the New Jersey Turnpike (Turnpike) and Route 42 in the Boroughs of Bellmawr and Runnemede in Camden County, and Township of Deptford in Gloucester County. The feasibility study identified suitable alternative locations for the proposed interchange, and determines impacts that may constrain each alternative. Considerations included wetlands, existing roadways, existing water courses, existing landfills and proposed projects in the area. The study developed conceptual horizontal and vertical alignments for two alternatives, as well as conception cost estimates for evaluation of the alternatives.

Senior Engineer, New Jersey Turnpike Authority, Garden State Parkway (GSP) Interchange 77, Final Design, Berkeley, New Jersey. Responsible for preparation final plans along an accelerated schedule for the construction of four entrance/exit ramps along the GSP, and the construction of associated improvements, including a 250 space parking lot and two toll plazas.

Project Manager, County of Union, Four Intersection Improvements, Cranford, New Jersey. For the analysis, design and construction inspection of 4 new traffic signals with modified turning movements in the central business district. Parking restrictions, bus stop relocations and community involvement were included. Signals were interconnected with spread spectrum radio including sidewalk ramp modifications and pedestrian signals. Provided Resident Engineering services for construction inspection.

Project Manager, County of Passaic, Reconstruction of Paterson Hamburg Turnpike and Jackson Avenue Intersection, Township of Wayne, New Jersey. For the Rehabilitation and widening of Paterson Hamburg Turnpike, the elimination of substandard sight distance at the Jackson Road and Squad Place Intersections and the introduction of a jughandle turn and new signalized intersection and Paterson Hamburg Turnpike and Jackson Avenue intersection.

Senior Engineer, County of Bergen, Kinderkamack Road and New Milford Avenue Intersection Improvements, Bergen County, New Jersey. Designed and prepared contract documents for the widening and realignment of Kinderkamack Road and New Milford Avenue in Oradell. Coordinated design of streetscape with landscape architect. Redesigned drainage facilities to avoid costly utility relocations during construction.

Engineer, County of Bergen, River Road, Phase II Widening, Bergen County, New Jersey. Designed and prepared contract documents for all aspects of thirty foot widening of River Road for Bergen County. Prepared Water Front Development permit application for the associated relocation of the Municipal Parking lot in Edgewater. Redesigned grading at intersections during construction due to differing site conditions. 1997

Project Engineer, New Jersey Department of Transportation, US Route 9, Section 1M, Edison Bridge Rehabilitation, Middlesex County, New Jersey. For final scope development, initial and final design and construction support to reconstruct the historic Edison Bridge over the Raritan River. This high level fixed structure consists of 29-spans with total length of 4280 feet. The facility will be the new northbound roadway for Route 9. Effort included seismic and scour design, geotechnical design, complete superstructure, replacement, pier cutting to lower the maximum clearance from 130' to 110'; pier and fender design. Marine construction techniques were contemplated. Extensive staging and coordination was required on each side of the bridge. This \$43 million construction project resulted in a client commendation letter for a quality of service and acceleration of schedule.

Kirit Mevawala, P.E.

Transportation Engineering

Education

B.S. - Civil Engineering

Registration

Professional Engineer: New York, Pennsylvania

Years of Experience

With Louis Berger: 2+

Total Years: 34

Mr. Mevawala has more than 34 years of experience in overseeing civil engineering projects from their conceptual stages to their completion. Expertise includes managing construction of underground tunnels; concrete & steel structures; Mechanical, Electrical, and Power (MEP) work; Utilities; Track; Signal; and Communication contracts. Possess extensive knowledge in administering federal grants, overseeing quality control/assurance program, safety program, risk management, contract procurement & management; heavily involved in interacting with city, state, federal, and community agencies; and highly skilled in resolving claims and disputes before they become change orders and his contributions have resulted in saving of millions for federally funded projects for the Metropolitan Transportation Authority (MTA). As the director of rail and transit

at Louis Berger group Inc., Mr. Mevawala oversees the engineering and project management task with respect to feasibility study contract of the high speed rail system design development in the United States and program management and worked on Federal Transit Administration (FTA) required documents as a part of Port Authority of Trans Hudson (PATH) ongoing grant program for Sandy recovery.

Port Authority of New York and New Jersey (PANYNJ): Interim Project Management Support for Project Related to Super Storm Sandy, On site Task Order Manager responsible for assisting the Port Authority of Trans Hudson (PATH) in the development of documents needed to meet Federal Transit Administration (FTA) funding requirements for both permanent repair and resiliency projects to protect the system from future storm. Developed Project Management Plan, Quality Assurance Plan, Fleet Management Plan and Document control procedure for the Super Storm Sandy related projects. Professional Services: 2014-2015

The Northeast Maglev, Baltimore-Washington SCMAGLEV Project Advisory Services Contract 2013-14, Washington, DC, Project Manager: Oversee engineering and project management tasks with respect to the feasibility study and contract of high speed rail system preliminary design developments study for the Washington - Baltimore segment of the Northeast Corridor SCMAGLEV Project in the United States. Perform feasibility studies of tunnels and elevated structures. Also developed basic capital cost, operation cost, and maintenance cost, based on a corridor evaluation of the field. Professional Services: 2013. PRIOR TO JOINING LOUIS BERGER

Metropolitan Transportation Authority Capital Construction (MTACC), Second Avenue Subway C-26009: Track, Signal, Traction Power, and Communications Systems / C-26006: 63rd Street/Lexington Avenue Station Rehabilitation, New York, New York. Program manager. Managed the engineering and project management with respect to design development, contract procurement and on-site construction management. Specifically focuses on federal grants administration and make sure that the project stays on schedule to save federal money. Managed low vibration track design and installation; traction power; station lighting; signal modernization; state-of-the-art communication systems; and system integration. Managed the engineering and project management with respect to on-site construction management. Performed enhancements to the existing 63rd Street Station with the addition of elevators and escalators; modifying the current steel structures, including evaluation of loading criteria, design of connections and stiffeners for bolted steel structures; review the contractor's means & method for Underpinning and Support of Excavation (SOE); geotechnical instrumentation; chemical grouting for water remedy; review safe work plan & quality work plan; evaluation of the design criteria and installation of various fan plants, cooling towers, chillers, pump rooms and electrical distribution rooms; coordination of asbestos and lead abatement; and enforcing environmental compliance. Interacted with various New York City Transit operating departments and outside agencies. Particularly involved in coordination with third party stakeholders, utility companies, and Mayoral Agencies. Professional Services: (10/2011 – 01/2013).

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Metropolitan Transportation Authority, Second Avenue Subway Project Contract C-26002 - Route 132 A Tunnels from 92nd to 63rd Streets, New York, New York, Construction Manager. Served as construction manager for the construction of the Tunnel Boring Machine (TBM) launch box involving slurry wall and secant wall construction, ground freezing, utility relocations, building remediation, twin TBM-driven tunnels from East 96th Street to East 63rd Street in Manhattan. Managed cost and schedule tracking with respect to both contract and project schedules; reviewed and approved monthly progress payments to the contractor, and was heavily involved in the negotiation and implementation of change orders. Responsible for contract administration; constructability reviews; enforcement of contract specifications/drawings; maintenance and protection of traffic flows; environmental investigations and enforcement; geotechnical instrumentation; coordination of efforts between design professionals; interaction with third party stakeholders, utility companies, and Mayoral Agencies. Involved in the review of future construction contract documents with respect to current as-built conditions and constructability. Professional Services: (3/2007 – 9/2011).

New York City Transit, Second Avenue Subway Project, New York, New York, Design manager. Served as the design manager for preliminary and final design of the Second Avenue Subway Project, which constitutes the design and construction of an 8.5 mile-long, two-track subway with 16 new stations in Manhattan. Responsibilities included oversight of a wide range of engineering and project management areas, pertaining to civil, geotechnical investigation, utility relocation, environmental investigation, and coordination with various agencies and support for Environmental Impact Statement (EIS). Instrumental in coordinating federal grants for the new start grants. Through a Technical Advisory Committee platform, the development of specific design elements from concept to final approved documents between the design engineers, NYCT user groups, and outside utility companies. Professional Services: (2/2001 – 2/2007).

New York City Transit, 63rd Street Line Connection (Contract C-33207), New York, New York, Project engineer. Responsible for coordinating the subway tunnel construction pertaining to track and contact rail, special work portion, structural steel repairs, chemical grouting for water remedy, and signal and traction power. Prepared monthly construction reports, monitored project schedule, processed monthly contractor payments, and participated in claims resolution and negotiated change orders. Monitored progress of individual projects using Project Management Procedure and Project

Management Guidelines; coordinated activities to assure strict adherence to time and schedule. Assisted the project manager with initiative and decision-making. Maintained a management information system to provide essential data to the schedule and control for projects. Developed scope of work. Negotiated and processed change orders. Professional Services: (04/1983 – 01/2001).

Alicia Meyers, P.E., PTOE

Transportation Engineering

Education

B.S. - Civil Engineering

Registration

Professional Engineer: New Jersey, Florida

Professional Traffic Operations Engineer

Years of Experience

With Louis Berger: 8

Total Years: 12

Ms. Meyers is a transportation engineer with more than 12 years of experience in traffic and transportation engineering. Her experience includes the preparation and review of traffic impact analyses, corridor studies, the design of temporary and permanent traffic signal systems, signing and striping design, maintenance and protection of traffic plans, pedestrian and bicycle facility planning, review and design, ADA compliance reviews, crash and safety analyses, speed studies, parking demand/feasibility studies, origin & destination surveys, queue & gap studies, site trip generation, data collection and reduction for miscellaneous traffic counts, public involvement and community outreach, and the development of technical materials including memos, presentations, surveys, and graphics. She has a thorough knowledge of traffic analysis and modeling software including Highway Capacity Software (HCS) and Synchro & SimTraffic.

New Jersey Turnpike Authority, Interchange 8A Improvements, Monroe and South Brunswick Townships, New Jersey, Traffic Engineering Task Leader. This project includes improvements to the 1.18-mile long NJ Route 32 corridor between Interchange 8A and US 130, including improvements to the Interchange 8A connections to the local roadway network and improvements to US 130 at its intersection with NJ Route 32. Responsible for the development of the traffic signal designs for four (4) traffic signals within the project limits.. Prepared a traffic analysis report addendum for the roadway network to determine intersection capacity/ level of service (LOS) at the subject intersections. Traffic signal plans, electrical plans, construction plans, signal timing directives, cost estimates and contract specifications are being prepared for the proposed traffic signals in accordance with MUTCD and NJDOT standards. Additionally, Ms. Meyers was responsible for the preparation of a technical memorandum to address capacity deficiencies at the intersection of NJ 32 and Cranbury South River Road. As part of the overall Interchange 8A project, these capacity deficiencies will be addressed; however, the time frame to complete such improvements is several years away. Several improvement alternatives were reviewed and analyzed to determine if interim improvements could be made to the intersection to improve traffic operations until the full interchange improvements can be completed. An alternative was selected, and modifications to the existing traffic signal plan and signal timing directive were prepared in accordance with NJDOT and MUTCD standards.

New Jersey Turnpike Authority, Garden State Parkway Interchange 9, 10 and 11 Improvements, Middle Township, New Jersey, Traffic Project Engineer. This project includes the design of three grade separated interchanges and ramps at existing signalized local road crossings of the Parkway in Cape May County. Responsible for the development of the traffic signal designs for five (5) proposed traffic signals as part of the new ramps. Conducted a traffic analysis of the local roadway network in the vicinity of the new ramps, and performed a signal optimization and progression analysis to determine the best signal timing and coordination at the proposed traffic signals. Traffic signal and electrical plans, as well as specification and cost estimates were developed for the new and temporary traffic signals. Assisted with the proposed signing and striping along the Parkway mainline and local roadways within the project limits and the review and approval of shop drawings during construction.

South Jersey Transportation Authority, Atlantic City Expressway-Atlantic City International Airport Direct Connector, Egg Harbor, New Jersey, Traffic Engineering Task Leader. Prepared a traffic analysis report as part of the preliminary design process for the proposed project. The project will consist of the construction of a new roadway connecting the Atlantic City Expressway to the Atlantic City International Airport in Egg Harbor Township to provide a direct roadway connection between the Expressway and the Airport. As part of the data collection efforts, Manual Traffic Counts and ATR counts were performed at 17 locations and a License Plate Origin and Destination Study was conducted. A traffic analysis of the roadway

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network was analyzed for future conditions using Synchro software, and an alternatives analysis was conducted based on a comparison of Level of Service and Delay results.

New Jersey Turnpike Authority, On-Call Security Design Services, Traffic Task Leader Prepared contract documents to implement perimeter security and access restriction improvements. Responsible for the design of the maintenance and protection of traffic during the construction of the improvements in accordance with NJTA, NJDOT, PennDOT and MUTCD standards.

County of Passaic, Reconstruction of Paterson-Hamburg Turnpike and Alps Road, Wayne, New Jersey, Deputy Project Manager. Prepared a traffic analysis and traffic signal warrant analysis for the reconstruction of the intersection of Paterson-Hamburg Turnpike and Alps Road in the Township of Wayne. Performed a field visit, collected and summarized traffic volumes and crash data in the vicinity of the intersection, and conducted a traffic analysis of the network using Synchro. Based on the initial findings, a traffic signal warrant analysis was prepared for three unsignalized intersections in the vicinity of subject intersection. Based on the traffic analysis, the traffic signal warrant analysis, and the field reconnaissance, intersection improvements were recommended to the County to begin the preliminary redesign of the intersection. Project includes two new jughandles, three new traffic signals, and the replacement of an existing traffic signal.

County of Union, Broad Street, Springfield Avenue and Clark Street Intersection Improvements, Summit, New Jersey, Deputy Project Manager. Responsible for the traffic analysis, traffic signal design, and construction inspection for the intersection of Broad Street, Springfield Avenue, and Clark Street. Due to safety concerns and poor operations at the existing unsignalized intersection, the County engaged Louis Berger to develop traffic signal plans that would improve both safety and capacity operations at the intersection. Performed a field visit, collected and summarized traffic volumes at the intersection, and prepared a traffic signal warrant analysis and traffic analysis report for the intersection. Based on the findings from these analyses, construction, signing and striping, and electrical plans, as well as project specifications and cost estimate were developed for the new traffic signal at the subject intersection. Reviewed and approved shop drawings and performed construction inspection services at the intersection during the construction of the new traffic signal.

New Jersey Department of Transportation, Traffic Monitoring Systems Data Collection, 2010-2012 Cycle,

Northern Region, New Jersey, Project Traffic Engineer.

Assisted with the traffic data monitoring systems for highways contract for the Bureau of Traffic Data Development for the Northern Region. Assisted the Field Supervisor with project coordination for the data collection and reduction tasks for miscellaneous sites in the heavily traveled northern region in New Jersey, including Automatic Traffic Recorder (ATR), Average Vehicular Classification (AVC), and Manual Turning Movement counts at over 350 regular sites and 400 special sites annually. Performed a quality review for classification factors, seasonal adjustment factors, axle correction factors, and balancing of traffic flow between two or more consecutive intersections in a roadway network.

South Jersey Transportation Authority, Atlantic City Expressway All Electronic Tolling, Atlantic City, New Jersey, Deputy Project Manager. SJTA engaged Louis Berger to prepare plans and marketing material to transition the Atlantic City Expressway (ACE) to an All Electronic Tolling (AET) system or "cashless tolling," which when built will encompass as many as 13 toll zones. The proposed AET system can be constructed as an independent system from existing Expressway tolling system. Each toll zone was designed to have a set of gantries to accommodate both EB and WB travel along the ACE and Brigantine Connector. Toll zones were located to capture major vehicle movements and adequate toll costs proportionate to distance traveled.

County of Union, Intersection Improvements Project, Central Avenue Corridor, Westfield, New Jersey, Project Traffic Engineer. Analyzed the Central Avenue corridor for operational deficiencies and safety conditions. Collected traffic volumes and crash data, and obtained physical inventories of the six (6) study intersections in order to perform a capacity analysis using Synchro software. Performed a signal optimization and corridor progression analysis along the corridor to determine the best signal timing and coordination to improve operations and documented safety issues. Assisted with the development of traffic signal designs for modifying the existing traffic signals and unsignalized intersections. Improvements to the intersections within the corridor included installing pedestrian countdown signal heads at the traffic signals, retiming the traffic signals to allow pedestrians to cross safely, restriping crosswalks with high visibility markings, and updating curb cuts and installing detectable warning devices in accordance with ADA guidelines. Additionally, a new mid-block pedestrian signal was designed to serve as a school crossing. Construction plans, signing and striping plans, and electrical plans were prepared.

Hong Sun, P.E.

Transportation Engineering

Education

M.S. - Civil Engineering

B.S. - Civil Engineering

Registration

Professional Engineer: New Jersey, New York, Ohio

Years of Experience

With Louis Berger: 14

Total Years: 28

As Louis Berger's director of highway design, Mr. Sun has more than 28 years of civil engineering experience in areas such as feasibility studies, preliminary and final designs, and construction engineering services for numerous public and private clients. These clients include the New Jersey Department of Transportation (NJDOT), New Jersey Turnpike Authority (NJTA), South Jersey Transportation Authority (SJTA), the Port Authority of New York and New Jersey (PANYNJ), Delaware River Joint Toll Bridge Commission (DRJTBC), Pennsylvania Turnpike Commission (PTC), Pennsylvania Department of Transportation (PennDOT), Delaware River Port Authority (DRPA), Ohio Department of Transportation (Ohio DOT), and various other agencies. He had led routine and complex assignments that include major interchange design, corridor widening, intersection reconstruction, bridge reconstruction and rehabilitation, drainage improvements and streetscape improvements. He has successfully delivered many projects on an

accelerated schedule, such as the Doremus Avenue project, a high profile project of NJDOT, which received a commendation letter from the NJDOT and won the ACEC 2005 Engineering Excellence Award; the NJDOT Route 1 and 9 and North Avenue project which won the ACEC 2007 Engineering Excellence Award, and the DRJTBC Trenton-Morrisville Toll Bridge (US 1 over the Delaware River) Rehabilitation and One Auxiliary Northbound Lane project which won the ACEC PA 2010 Diamond Award and the ASHE NJ Project of The Year Award. More recently, Mr. Sun served as project manager for the NJDOT Route 33 Bridge Over Rocky Brook repair project after Hurricane Irene. This project received numerous awards in 2013 including ACEC New Jersey's Distinguished Award and the Project of the Year Award from the New Jersey chapter of the American Society of Highway Engineers (ASHE).

NJDOT, Design Services and Project Management Three-Year Term Agreements - 2010PM783C, New Jersey Statewide.

Contract manager/project manager. Mr. Hong served as project manager responsible for this three-year design services and project management agreement with NJDOT to assist with day-to-day operations of NJDOT's Division of Design Services, Roadway/Bridge Design, and the Division of Project Management. NJDOT assigned 12 projects/task orders to Louis Berger under this agreement, including Route 22 westbound and Vauxhall Road Interchange improvements, Route 35 northbound and southbound resurfacing, Route 33 Bridge Over Rocky Brook, Route 18 northbound and southbound resurfacing, and Route 7/Passaic River projects. As project manager, Mr. Hong was responsible for: Final study, reports, design and the final contract documents preparation; Overall performance and delivery of the project including staff assignments, work coordination, budgets, schedules, and scope; and Quality management. Completed required FHWA's NEPA processes for these projects and conducted extensive public outreach that involved public meetings and coordination with stakeholders. Projects included highway design, geometric design, drainage design, ITS, pavement design, MPT, ROW engineering, access design, and utility relocation. The structural design included bridge rehabilitation, deck/ superstructure replacements, retaining wall design, sign structures, culvert designs, geotechnical and foundation design. Construction engineering services included reviews of shop drawings and construction schedules, preparation of change of plans and as-built plans and other construction engineering support. The projects were delivered as per NJDOT Capital Project Delivery Process and as per NJDOT/AASHTO Roadway Design Manual. The projects were completed within an accelerated schedule and within budget.

NJDOT Design Services and Project Management Three-Year Term Agreements - 2008PM682B,

New Jersey Statewide. Contract manager/project manager. This three-year design services and project management agreement with NJDOT involved assisting with day-to-day operations of NJDOT's Division of Design Services, Roadway/Bridge Design, and the Division of Project Management. NJDOT assigned 20 projects / task orders to Louis Berger under this agreement, including: Main Street over Route 206 Bridge Deck Replacement, Route 31 roadway embankment

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stabilization, Route 22 EB Vaux Haul Road safety improvements, rehabilitation of Hillsboro and Homestead Roads over Trenton Line railroad, Route 1 Southbound drainage improvements, etc. As project manager, Mr. Hong was responsible for: Overall performance and delivery of the project including staff assignments, work coordination, budgets, schedules, and scope; Final study, reports, design and the final contract documents preparation; and quality management. Completed required FHWA's NEPA processes for these projects and conducted extensive public outreach that involved public meetings and coordination with stakeholders. The projects included highway design, geometric design, drainage design, ITS, pavement design, MPT, ROW engineering, access design, and utility relocation. Structural design included bridge rehabilitation, deck / superstructure replacements, retaining wall design, sign structures, culvert designs, geotechnical and foundation design. Construction engineering services included reviews of shop drawings, and construction schedules, preparation of change of plans and as-built plans and other construction engineering support. The projects were delivered as per NJDOT Capital Project Delivery Process and as per NJDOT/AASHTO Roadway Design Manual. The projects were completed within an accelerated schedule and within budget.

NJDOT, Concept Development, Route 80 WB (MP 56 to MP 65) City of Paterson and Woodland Park, Elmwood Park, Saddle Brook, Lodi, and Hackensack Townships, Passaic and Bergen Counties, New Jersey. Project manager. Responsible for concept development studies for rehabilitation of 11 miles of westbound Interstate I-80 from the Passaic River to Route 17. There are six interchanges within the project limits and one mile of service roads. Key project issues included maintenance and protection of a congested freeway, public outreach including public information sessions, stakeholder coordination, obtaining resolution of support from the city, data collection including environmental screening, site deficiencies evaluation, and purpose and need statement preparation, alternative analysis including selection of the initial preferred alternative, and the preparation of conceptual plans. Other key project issues include presence of low level radioactive material from an adjacent superfund site and drainage problems such that it is ranked as the sixth ranked drainage problem area in New Jersey. Professional Services: 2013; Construction: 2017; Size: 11 miles; Cost: \$35M

NJDOT, I-76/I-676 Bridge Deck Replacement, Gloucester City, Camden County, New Jersey. Project manager. This project involves the replacement of the deck and rehabilitation of Interstate 76 over the South Branch of Newton Creek,

Klemm Avenue and Conrail, and Interstate 676 over Newton Creek.

New Jersey Department of Technology, Route 18 Reconstruction CD, Old Bridge, East Brunswick and Marlboro, New Jersey. Project manager. The purpose of the proposed project is to improve the deteriorated pavements, upgrade signalized intersections, improve roadside safety, and correct deficiencies warranted by the American Disabilities Act.

New Jersey Department of Technology, Route 38 Intersection Improvements, Moorestown, New Jersey. Project manager. The existing Route 38 Intersection operates at a poor level of service which causes congestion and accidents. Berger completed a CD level design to reconfigure the intersection and analyze the associated impacts. The intersection was widened to conform to NJDOT requirements. The existing box culvert of Strawbridge Lake will be replaced with a bridge in accordance with box culvert that provides the width required along South Church Street.

New Jersey Department of Technology, Route 47/130 Drainage Improvements, Westville and Brooklawn Borough, New Jersey. Project manager. The purpose of the Route 47/130 Drainage Improvement project is to improve the existing drainage along Route 130 and Route 47 in the vicinity of Tidal Big Timber Creek. NJDOT wanted to reduce the instances of roadway closures along Route 130 and Route 47 as they currently serve as the major Route 295 detour south of I-76 and I-676.

NJDOT, Route 47 Bridge over Big Timber Creek South Branch, Westville and Brooklawn Borough, New Jersey. Project manager. The existing Route 47 bridge over Big Timber Creek is currently functionally deficient. The purpose of the proposed project is to reconstruct the existing bridge with a bridge in accordance with current NJDOT bridge standards.

NJDOT, Route 130 , Plant Street to High Hill Road, Gloucester County, New Jersey. Project manager. Responsible for this \$7.1 million project that consists of preliminary and final design for the improvements of approximately 10.7 miles of roadway. The purpose of this project is to address pavement, guide rail, pedestrian curb ramp, and geometric deficiencies on US Route 130 from Plant Street to High Hill Road (MP 0.3 to MP 10.98). The pavement will be milled and overlaid for the majority of the project with small sections of full-depth pavement box replacement in two sections.

Steven M. Fusco, RLA, LEED® AP

Site Planning

Education

B.S. - Landscape Architecture, University of Massachusetts Amherst

Registration

Registered Landscape Architect, Massachusetts, Connecticut

LEED® Accredited Professional in Neighborhood Development

Years of Experience

With CDM Smith: 1

Total Years: 10

Mr. Fusco is a landscape architect with 10 years of experience planning and designing projects in the public and private sector. His experience includes both passive and active park landscape design, playground design; woodland, shoreline, and wetland restoration, and campus master planning. He specializes in large scale park planning and development.

Landscape Architect, Millennium Park Phase II, West Roxbury Educational Complex, West Roxbury, Massachusetts. Mr. Fusco is currently working on the West Roxbury Educational Complex athletic fields, access drives and parking areas. The project is part of the phase II of the Gardner Street Landfill Closure, now Millennium Park.

PRIOR TO JOINING CDM SMITH

Landscape Architect, the Reconstruction of Ancient Playground and West 100th St. Playground, Central Park, New York, New York. Mr. Fusco designed and oversaw the reconstruction of the Ancient Playground and West 100th Street

Playgrounds. These two "Adventure Style" playgrounds were originally designed in the 1970's by Richard Datner, the architect who's work in Central Park began the Adventure Playground Movement. In the redesign of these two playgrounds, Mr. Fusco garnered not only public involvement and buy-in through presentations and meetings, but also the buy-in of Mr. Datner himself. The two playgrounds were re-designed to meet the most stringent ASTM and CPSC playground safety standards and also be completely handicapped accessible, yet still in the image of the original iconic playgrounds.

Landscape Architect, the Reconstruction of East 110th St. Playground, Central Park, New York, New York. Mr. Fusco was responsible for the design and implementation of the 3 phase project along the northern boundary of Central Park, which included the re-envisioning of East 110th St Playground and its surrounding landscape into Central Park's first integrated "Nature Playground". This playground had its typical perimeter fencing stretched and expanded to encompass plant communities and created natural play areas within the safety of the playground. It also featured all natural materials such as a boardwalk, granite block walls, and timber play structures which were custom designed by Mr. Fusco in collaboration with a manufacturer.

Landscape Architect, the Renovation of James Edgar Playground, Brockton, Massachusetts. Mr. Fusco master planned and saw the renovation of James Edgar Playground through construction. Located across the street from the former home of Rocky Marciano, the heavily used, active recreation playground is a staple of the community. However as the community changed, the desired use of the park changed and an updated master plan was needed. With feedback from multiple community input meetings the site was re-configured and redesigned. The abandoned shuffleboard courts were replaced with a regulation Futsal Court, and two volley ball courts. Two playgrounds were consolidated and integrated with a splash pad water play area. A skate park was installed with the space gained from the playground consolidation, and the bleachers, backstop, and outfield fencing were all repaired and/or replaced. The Baseball field, which is very heavily used, was re-graded and had drainage improvements put in place. The infield was re-done and irrigation was also installed.

Landscape Architect, University and Elm Park Site Improvements, Worcester, Massachusetts. Mr. Fusco assisted the city of Worcester in the renovation of two of its most important and historic parks. The projects included the realignment and reconstruction of the pathway systems, bringing the parks up to compliance with the latest ADA accessibility standards. At Elm Park, the playground was completely re-designed and re-built, while University Park featured the repair of the tennis and basketball courts, as well as the installation of new volleyball courts.

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Landscape Architect, the Reconstruction of the East

Meadow, Central Park, New York, New York. Mr. Fusco was responsible for the redesign of the East Meadow. Once a lush green open space, the East Meadow fell into disrepair due to overuse and poor drainage. Restoring the lawn to its original state included rethinking the pathway system layout and bringing it up to compliance with ADA accessibility standards. To accommodate the informal active recreation uses of today, the site was re-graded to more of a rolling landscape and the soil was amended to improve infiltration.

Landscape Architect, The Reconstruction of the Ramble

Central Park, New York, New York. Mr. Fusco assisted in the design of a new circulation system layout and the ecological restoration of the 36 acre woodland area known as the Ramble. The project included the re-establishment of native vegetative communities through the removal of invasive species and replanting. The project corrected many drainage and erosion issues through infrastructure improvements, and also alleviated the concern of crime by installing lighting along the new pathway system.

Landscape Architect, The Reconstruction of the Bank Rock

Bay, New York, New York. Mr. Fusco assisted in restoring the narrow inlet, called Bank Rock Bay, as part of a larger effort to secure the Lake's eroding shoreline. Through the removal of sediment, the reconstruction of the shoreline, and thousands of new plantings, the water body once again became a healthy habitat for the flora and fauna of the park.

R. Geoffrey Roesch, RLA, ASLA, AIA, LEED® AP

Site Planning

Education

M.L.A. - Master of Landscape Architecture,
University of Pennsylvania Master of
Architecture, Columbia University

B.B.A. - Bachelor of Business Administration,
Marketing, Case-Western Reserve University

Registration

Registered Landscape Architect: New Jersey,
New York, Connecticut

LEED® Accredited Professional in Neighborhood
Development

Years of Experience

With Perkins Eastman: 20

Total Years: 20

Mr. Roesch is a Landscape Architect and Architect with more than 25 years of experience in the master planning and design of buildings and grounds for cultural institutions, urban public open spaces, parks and recreational facilities, commercial developments, and residential projects. Prior experience includes nine years as Managing Principal of the New York office of Coe Lee Robinson Roesch, Inc. Mr. Roesch is an instructor in the Master of Landscape Design program at Columbia University. He has been a lecturer and/or studio critic at Princeton University, Woodrow Wilson School; Columbia University, Graduate School of Architecture and Planning; City University of New York, Graduate School of Urban Design; City College of New York; Robert Wagner School at New York University; and Pratt Institute.

United States Tennis Association (USTA) Indoor Venue, Queens, New York.

Redesign of the USTA's East Plaza to accommodate barrier free access to the new multi-purpose venue. Landscape reconstruction includes 70,000 square feet of new pedestrian paving, a central allee of shade trees, decorative fencing, and entry gates.

Scenic Hudson RiverWalk Park, Tarrytown, New York. Design and construction documents for a new \$5.1M waterfront park featuring a three-quarter mile esplanade and bike path. The design emphasizes sustainable design initiatives such as the use of native plants to create natural habitats and bio swales, the creation of wetlands to treat storm water runoff, and site lighting that adheres to "dark skies" standards.

Hudson River Park, New York, New York. Programming, planning, and design for a new \$350M waterfront park. Design assignments included the bulk-head and pier railing systems and the esplanade paving for the entire five-mile length of the park.

Tufu Bay Open Space, and Landscape Design Plan, China. Provided open space planning and landscape design services for the new Tufu Bay Resort development project on a 227 hectare site along the coast of China. The development program, which includes more than 400,000 square meters of floor area, features a five-star hotel, a luxury spa-hotel, marina, and an array of entertainment, retail, and cultural facilities as well as a variety of residential types from apartments, to townhouses, to villas, to luxury villas on 1000 square meter lots.

Mott Haven Campus, Bronx, New York. Landscape plan for a secondary school campus located on a 6.5-acre site. The project features rusticated seat walls, terraces, shade structures, and plantings. The landscape design includes extensive areas of paved roof decks and plazas as well as at-grade gathering areas and plantings.

Hampton Bays Hamlet Center, Southampton, New York. Concept master plan, design guide-lines, and comprehensive improvement/beautification strategy to guide current and future development in the Hamlet Center.

New York Botanical Garden, Bronx, New York. Restoration master plan for this 250-acre historic site including public gardens, a new visitor center, pedestrian circulation, special events space, environmental exhibits, children's garden, and maintenance and operations facilities.

East River State Park, Brooklyn, New York. Conceptual design and construction documents for a post-industrial site along the East River. The main objective was to develop a site restoration strategy that would make the site safe and accessible to visitors while maintaining its historic, industrial character. The plan includes areas of native grasses and wildflowers as well as open lawns for passive recreation.

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Randall's Island, New York, New York. Planning study of bike and pedestrian access alternatives from nearby New York City boroughs to the recreational resources of Randall's and Ward's Island Park. The project included the design of a new pedestrian and bicycle waterfront trail, pedestrian bridge, and boardwalk as well as interpretive signage describing the ecological restoration at Little Hellgate Cove.

Pelham Bay Salt Marsh, Bronx, New York. Salt marsh restoration plan that focused on the preservation of the existing shoreline, provision of diverse habitat for wildlife, and the establishment of self-sustaining native plant communities.

Liberty State Park, Jersey City, New Jersey. Programming and master planning for an 800-acre waterfront park. The plan comprises public event venue, visitor services, recreation facilities, and two new public parks. Key elements include natural habitat preservation and integration of native species in park restoration projects.

Westchester Community College, Valhalla, New York. Campus circulation and landscape plan that included development of a "main campus walk," a secondary network of walkways, and a series of plazas and outdoor gathering areas at key circulation nodes along the main pathway.

Shelburne Museum, Museum Campus Master Plan, Shelburne, Vermont. The Plan relocated the main entrance road, identified new exhibits, and proposed new landscape elements to provide a more picturesque and gracious entry to the grounds.

Somers Realty Open Space and Landscape Plan Somers, New York. Open space and landscape plan including the central Village Green, streetscape, pedestrian trails, parking lot medians, greenways, and natural areas as well as site lighting and directional signage.

New Canaan Nature Center New Canaan, Connecticut. Master plan to guide the renovation and future development of this environmental education center. The plan included a new visitor center and administrative offices, expanded parking areas, renovated education and exhibit spaces, and new site circulation and signage elements.

Sid Burke, RLA Site Planning

Education

M.L.A. - Master of Landscape Architecture,
SUNY College of Environmental Science and
Forestry at Syracuse University

B.A. - History, Cornell University

Registration

Registered Landscape Architect: New York

Years of Experience

With Perkins Eastman: 19

Total Years: 19

Mr. Burke manages and designs a range of landscape projects including streetscape, urban parks, school grounds, recreation paths, and ecological restoration. Prior to joining Perkins Eastman, he worked as a City Planner for the Office of the Brooklyn Borough President, and a Landscape Designer and Construction Supervisor for the Prospect Park Alliance.

Hudson Riverwalk, New York, New York. City, State, and US environmental approval and construction documents to provide continuous access to the Hudson River Waterfront in Riverside Park including the design of a platform structure to carry bicyclists and pedestrians over the river to bypass a vehicular parkway. Environmental mitigation includes the design of a salt marsh restoration project on Randall's Island.

Hudson Riverwalk, 135th-145th Streets, New York, New York. Design of a bicycle and pedestrian path around the NYC DEP North River Water Pollution

Control Facility as part of a continuous route around the island of Manhattan with NYC Department of Parks & Recreation as the client. Coordinated with NYC DEP, NYC DOT and Amtrak to secure an easement for the route and was granted a SPDES permit from NYS DEC by designing a system that handles all runoff from the site.

Liberty State Park, Jersey City, New Jersey. Programming and master planning for an 800-acre waterfront park. The plan comprises public event venues, visitor services, recreation facilities, and two new public parks. Key elements include natural habitat preservation and integration of native species in park restoration projects.

Millennium Park, Jersey City, New Jersey. Design of a ten-acre park for the Year 2000 Fourth of July celebrations in Liberty State Park. The passive recreation space features two specialty gardens.

A Grove of Remembrance, Jersey City, New Jersey. Design of an eight-acre park as Living Memorial for the 691 victims from NJ of the September 11th attack on the World Trade Center including walking paths, site lighting, and the planting of one Native New Jersey tree for each victim.

Palisades Trailway, Orange and Rockland Counties, New York. NYS DOT Expanded Project Proposal for a 20-mile shared use recreation path proposed along the route of the Palisades Interstate Parkway. Supervised a team of engineers, traffic, historic preservation, and environmental consultants to produce a comprehensive report on trailway siting, pedestrian/traffic safety, and environmental impacts including cost estimating.

Scenic Hudson RiverWalk Park Tarrytown-on-Hudson, New York. Design of a new park on a waterfront site near the Metro North railroad station. The park will provide a continuous waterfront esplanade for pedestrians, a separate path for cyclists and roller-bladers, a variety of spaces for outdoor recreation, and a unique "eco-corridor" traversing the length of the park from north to south, eventually connecting with the restored natural landscape along Andre Brook.

Hudson River Park, New York, New York. Programming, planning, and design for a new \$350M waterfront park. Design assignments included the bulk-head and pier railing systems and the esplanade paving for the entire park's length.

Crossway Fields, Scarsdale, New York. Redesign of an area around an existing compost transfer station to accommodate two soccer fields and additional parking while maintaining the functionality of the transfer facility.

Library Pond Park, Village of Scarsdale, New York. Trail and planting plans for a two-acre park, which includes a pond and natural stream.

Pelham Bay Salt Marsh Restoration, Pelham Bay Park, NY. Salt marsh restoration plan that removed four acres of invasive plants, restored the tidal cycle, and established self-sustaining native plant communities on former landfill adjacent to Orchard Beach in the Bronx. The project included

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interpretive signs designed in collaboration with The Natural Resources Group of NYC Parks & Recreation.

Marie Curie Playground, Queens, New York. Reconstruction of a tot playground on parkland adjacent to a NYC middle school with a math and science focus. Improvements included new play equipment, swings, adult exercise equipment, a community garden, and landscaping. Design of the painted games, spray showers, and weather vane were inspired by science and the achievements of Marie Curie.

Baisley Pond Park, Queens, New York. Construction of a new playground including play equipment, swings, spray showers, and adult exercise equipment in an underutilized area of Baisley Pond Park. The project included site lighting and the detention of stormwater on-site.

Lincoln Hospital, Bronx, New York. Design of an exterior circulation system for vehicular and pedestrian access to a new emergency room addition. New pedestrian walkways and plantings accompany the new addition.

Glenville Elementary School, Greenwich, Connecticut.

Planning Board approval and construction documents for the building of a new K-5 elementary school on an existing school site in Greenwich, CT. The design included a new play yard, site lighting and the incorporation of courtyards as outdoor learning environments adjacent to art, music and library classrooms.

Stannards Brook Park, Port Washington, New York

Construction Documents for the Restoration of a

Streamside Park, Port Washington, Long Island, NY. Plan includes the control of invasive species, native plantings and the creation of streamside pools to enhance wildlife habitat and to serve as learning environments for programs sponsored by the Friends of Stannards Brook Park. An amphitheatre and council ring are planned to accommodate environmental education groups.

Tanya Barth, RA

Site Planning

Education

B.A. - Architectura, Auburn University

B.S. - Environmental Design, Auburn University

Registration

Registered Architect: Connecticut

National Council of Architectural Registration
Boards (NCARB)

Years of Experience

With Perkins Eastman: 25

Total Years: 28

Ms. Barth is a Principal Architect with 23 years of experience in the design of buildings for cultural institutions, urban public open spaces, parks and recreational facilities, commercial developments, and residential projects. Additionally, she serves as a Studio Critic for the New York School of Interior Design.

New York State Office of Parks, Recreation and Historic Preservation Term Contract, New York State. Contract involving architecture, engineering and landscape architecture services for projects located at various New York State Parks in the region. The projects typically include a range of services from programming and schematic design through construction observation.

NYC Parks & Recreation Hudson Riverwalk, New York, New York. Feasibility studies, schematic designs, and construction documents for sections of waterfront parkland. The project includes development of a pedestrian and bike path, and feasibility study for a pedestrian bridge.

NYC Parks & Recreation Foley Square Reconstruction New York, New York. Design and preparation of construction documents and construction observation for a \$15M reconstruction of a seven-acre public park and plaza, featuring a 45-foot black granite sculpture in the plaza's center.

Hudson River Park Trust Hudson River Park, New York, New York. Programming, planning, and design of portions of a five-mile waterfront park along Manhattan's west side with a focus on providing the widest array of community recreational facilities and generating revenue.

NYS Department of Transportation Palisades Trailway, Orange / Rockland Counties, New York. Expanded Project Proposal (EPP) for a 20-mile shared-use recreation path proposed along the route of the Palisades Interstate Parkway.

Randall's Island, New York, New York. Planning study of bike and pedestrian access alternatives from nearby New York City boroughs to the recreational resources of Randall's and Ward's Island Park. Services include the design of a new pedestrian and bicycle water-front trail, pedestrian bridge, and boardwalk, including interpretive signage describing the ecological restoration of Little Hellgate Cove.

New York Botanical Gardens, Bronx, New York. Restoration master plan for this 250-acre historic site, featuring a new visitor center, improved pedestrian circulation, a special events space, environmental exhibits, a children's garden, and maintenance and operations facilities.

Yonkers Affordable Housing Department, Yonkers Small Sites In-fill Investigation Yonkers, New York. Schematic design plans and elevations of prototypical residences for five small in-fill housing sites.

Roosevelt Hospital, Entry Court/Healing Garden, New York, New York. Design of an entry court, and "Healing Garden," that will serve as the main entry for visitors and a soothing refuge for patients and guests.

Quaker Ridge Golf Club, Scarsdale, New York. Site work improvements and a landscape restoration plan to accompany a new addition and renovations of the existing clubhouse at a Scarsdale golf club.

NYC Parks & Recreation. Shore Parkway Bicycle Path Brooklyn, New York; Sperandeo Playground, Brooklyn, New York; Alfred E. Smith Park, New York, New York; Stapleton Houses Playground, Staten Island, New York; St. James Playground, Bronx, New York; PS 21 Playground Bronx, New York; Queens Valley Playground, Queens, New York; Marie Curie Playground, Queens, New York; Jerome Playground Queens, New York; Baisley Pond Park (Two Playgrounds), Queens, New York; Trotting Horse Triangle Queens, New York; Butterfly Triangle, Queens, New York; Six Triangles, Queens, New York.

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Warren Newman, Jr., P.E.

Construction Administration

Education

B.S. – Biological & Agricultural Engineering,
Rutgers University, 1986

B.S. – Environmental Science, Rutgers
University, 1986

Registration

Professional Engineer: New Jersey

Years of Experience

With CDM Smith: 4

Total Years: 30

Mr. Newman is a New Jersey licensed Professional Engineer with 30 years of consulting and construction management experience serving industrial, commercial, state and municipal clients in the northeastern United States. He has extensive experience in field engineering, construction management and inspection, environmental health and safety planning, and in conducting Phase I/II/III site assessments, environmental audits, and hazardous waste remediation projects. His engineering duties include design, construction plan and specification preparation, remediation system construction and installation inspections, soil and groundwater investigation and characterization, remedial investigation/action report preparation, and planning and conducting hazardous site cleanup activities. Mr. Newman's work experience also includes hazardous waste management, environmental due diligence and liability assessment for real estate acquisition and disposition, environmental permit acquisition and regulatory enforcement action response, environmental litigation support, expert testimony and third-party project oversight.

Project Manager/Resident Construction Engineer, Liberty State Park, Wetland Ecosystem Restoration/Creation, Jersey City, New Jersey. Mr. Newman is the resident engineer and construction manager responsible for the design review and construction management of the Liberty State Park (LSP) ecological restoration project; one of several projects CDM Smith provided services for on New Jersey Department of Environmental Protection (NJDEP) Remedial Design Services Contract (A68678). This project helps to restore the locally endangered ecological habitat, enhances overall park connectivity for increased public use and benefit, and is an important first step of a restoration process for the Port District section of the Hudson-Raritan Estuary (HRE) ecosystem. The first-phase of the HRE ecosystem restoration implementation plan will be the creation and enhancement of 26 acres of freshwater wetland system at LSP. This \$10M construction project involves excavation and dewatering of 67,000 cubic yards of soil; restoration of existing freshwater wetlands and the construction of interior biofilter wetlands, deep emergent marsh wetland and wet meadow; placement and finish-grading of 21,000 cubic yards of clean fill and planting soil; and, planting of 11.5 acres of wetlands, including 40,500 units of wetland plants and 1.5 acres of herbaceous grass.

Lead Engineer/Construction Inspector, Residential Home Demolition for NJDEP Blue Acres Program. Under a task order design contract through NJ Department of Treasury, DPMC, and their client NJDEP, Mr. Newman serves as lead design engineer and provides construction administration and inspection services on multiple assignments, which are reimbursed by FEMA and/or HUD, and performed on a fast track basis. Project tasks include site inspections, assessment/sample collection for possible asbestos containing material, preparation of design plans and specifications, demolition cost estimating and construction administration and inspection.

Project Manager/Construction Administrator, Standard Motor Products, Long Island City, New York. Mr. Newman is project manager, project design engineer and construction administrator for the design and installation of the air sparge/ (SVE) system to treat the source of the chlorinated solvent contamination at the former SMP industrial manufacturing facility. He prepared final design plans and specifications that received NYSDEC approval, solicited competitive bids from remediation contractors for the system installation, prepared application and negotiated agreements between SMP and Amtrak/MTA/LIRR for site access permits, provided on-site construction management and engineering support during installation and performed the system start-up testing and optimization of the AS/SVE system as well as full integration with the sub-slab depressurization (SSD) system installed by CDM Smith in 2009 as an interim remedial measure. Mr. Newman continues to manage

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the project, including oversight of O&M activities on the SSDS and AS/SVE systems, ground water monitoring activities, and compliance reporting under the purview of the NYSDEC Inactive Hazardous Waste Disposal Site Program.

Project Manager/Demolition Oversight, Former Electronics Manufacturing Site, Watchung/North Plainfield, New Jersey. Mr. Newman serves as project manager/project coordinator for this confidential client's site involving chlorinated organic compound contamination (1,2-DCA, PCE and TCE) of groundwater in bedrock geology. As the Remediation Technical Operations consultant for the client, Mr. Newman oversees the activities of the performing environmental contractor, including ground water monitoring activities, vapor intrusion investigation activities, monitoring well installations, remedial process optimization of the ground water extraction system and construction and facility demolition oversight. Project tasks include evaluation and interpretation of analytical data, preparation of project planning documents, cost estimates, Scope of Work procurement documents, project scheduling, budget development, and quality assessment and review of remedial action progress reporting and SRRA regulatory compliance submissions.

Resident Environmental Engineer/Construction Manager, Soil Vapor Extraction (SVE)/Air Sparge Remediation System Installation, Great Neck, New York. Mr. Newman was responsible for the design, installation, operation and maintenance of SVE/air sparge soil and ground water remediation system installed at a former gasoline leaking underground storage tank (LUST) site situated at the Water Authority of Great Neck North public well water supply site in Long Island. His project activities included conducting soil permeability and soil vapor dispersion design testing, remediation system design, preparation of contract bid plans and specifications, construction oversight and installation inspection of mechanical equipment components and piping galleries, and monitoring well design and installation oversight. Mr. Newman was responsible for ongoing system operation and quarterly ground water monitoring conducted over an eight year time frame that led to compliance with NYSDEC clean-up standards and state approval for system and case closure.

Resident Environmental Engineer, Dundee Canal Soil and Sediment Characterization, Reuse and Disposal Project, Clifton and Passaic, New Jersey. Mr. Newman was responsible for managing the excavation, air quality monitoring and reuse activities of 21,000 cubic yards of

sediment and soil removed from the Dundee Canal and adjacent land acquired by the New Jersey Department of Transportation (NJDOT) for the 1.36 mile Route 21 Section 6L highway expansion project in the cities of Clifton and Passaic, New Jersey. As part of the remedial investigation for the project, land acquired for road right-of-way development was identified as being impacted with lead and PCBs. Mr. Newman supervised assessment, remedial excavation and waste characterization activities that resulted in the fast-track removal and disposal of 1,700 tons of RCRA-regulated DOO8 waste soil and 60 tons of TSCA-regulated PCB waste soil. Mr. Newman was responsible for preparing and implementing a site specific Health and Safety Plan, Wet Excavation Plan, Waste Transportation Plan and Remedial Action Work Plan. He also prepared hazardous waste manifests and a closeout Remedial Action Report that included a Declaration of Environmental Restriction (Deed Notice) stipulating administrative and engineering controls for twenty parcels located across two counties along the project route.

Resident Construction Manager, Municipal Library Project, Haworth, New Jersey. Mr. Newman was the on-site construction engineering manager and project coordinator responsible for the construction of the \$1 million Haworth Municipal Library in Bergen County, N.J. Administrative responsibilities included cost estimating, bonded bid preparation, building permit acquisition, sub-contracting, scheduling, purchasing of materials and conducting weekly progress meetings with municipal officials and contractors. Construction management responsibilities included site preparation and grading, septic system abandonment, and oversight and daily inspection of all phases of the 4,000 sq. foot masonry building construction and appurtenant utilities. Resident Construction Manager, FAA Control Tower Expansion Project, Fairfield, New Jersey. Mr. Newman was the on-site construction engineering manager and project coordinator responsible for the construction of a \$1 million airport control tower expansion project at the Essex County Airport in Fairfield, New Jersey. Administrative responsibilities included cost estimating, bonded bid preparation, building permit acquisition, sub-contracting, scheduling, and purchasing of materials. Construction management responsibilities included site preparation and grading, storm water drainage improvements, and oversight and daily inspection of the 3,000 sq. foot masonry building construction and appurtenant utilities installed pursuant to time-sensitive FAA specifications and protocol.

John Hasselmann P.E., CCM

Construction Administration

Education

B.S. - Civil Engineering

Registration

Professional Engineer: New Jersey, Virginia
Certified Construction Manager

Years of Experience

With Louis Berger: 9
Total Years: 25

Mr. Hasselmann has more than 25 years of experience in construction, engineering design, project resource planning, and management of engineering technical services including construction management for public buildings, civil works, parks and recreation, military, and transportation facilities. Engineering services provided by Mr. Hasselmann include conceptual planning and budgeting, site selection and infrastructure assessment, construction estimating, design, serving as resident engineer for construction, and serving as program manager for projects over a broad geographic region. Professional Engineer in New Jersey, and Certified Construction Manager as conferred by the Construction Management Association of America.

17th Street Potomac Park Levee Floodwall, Washington, D.C. Program

manager. Project management and design services and all coordination with

Federal and local agencies. Project was approximately \$6 million construction value, and consists of new earthen berm, concrete and stone walls, driven piles, and a post and panel removable floodwall system across 17th Street. Ensured all design aspects complied with the NEPA and D.C. National Mall requirements, including Mall view impacts, and archaeological considerations of a historical buried canal and pier. Supervision of Louis Berger design and subcontractors for roadway, traffic, floodwall, structures, and landscape design as well as estimating and flood program compliance documentation.

NPS, Nationwide Construction Management BPA. Program Manager for construction management services at several National Parks. Services included project oversight, daily on-site inspection, coordination of construction activities with Park operations and security, review and coordination of submittals, preparation of estimates and scopes, progress payments, and resolution of technical issues in support of owner requirements. Projects included:

NPS, Turtle Beach and Recreation Area at the Delaware Water Gap NRA. This project consists of the development of a New Jersey swim beach on a 4 acre site with grading and re-alignment of a river shoreline, new utilities, constructing and realigning existing access roads, a 125 car parking lot, picnic area with tables and shelters. It included three new buildings: a guard shelter, a comfort station, and a lifeguard house. Construction value was ~ \$3.6 million.

NPS, Ellis Island Seawall Restoration, Ellis Island. This project was 1 mile of historical stone sea wall repair and stabilization including new caisson piles, counterforts, engineered backfill with geo-textile, below low-tide structural repair with tremie concrete, and stone placement. Construction operations included maintenance of water booms, vibration monitoring, under water inspections, Construction value ~ \$ 18 million.

NPS, Castle Williams Historical Renovation and Improvements, Governor's Island. Project included 1800's era restoration of stone fortification, structural repair, hazardous material abatement, life and safety improvements, and architectural improvements for rooftop access. Value is ~ \$ 4.5 million.

PANYNJ, George Washington Bridge Bus Station Redevelopment.

Program Management Services to the PANYNJ for the Bridge Station Redevelopment. The project is a public – private funded design – build effort between PANYNJ and a private developer to modernize the Bus Station and repurpose 120,000 square feet of space to national brand name retail stores for the upper east Manhattan neighborhood. All efforts are designed to maintain the integrity of the original Pietro Nervi Architecture and continue to serve 20,000 commuters daily as a connection point for trips from New Jersey to Manhattan. Services provided included: Project progress reporting, including project issues, and community interests; Design review and coordination of review with PANYNJ Engineering and Quality Assurance divisions; Identification and resolution of design issues related to bus station operations, PANYNJ design requirements, and NYC Building code; Construction schedule analysis using P6 Primavera software, verification of critical

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path, and identification of schedule deficiencies; Monitor construction submittals, identify issues, and coordinate resolution; Review and analysis of consultant field

Armament Integration Facility, Picatinny Arsenal, NJ.

Project services included a planning charrette, development of a 15% design with site selection, basic building dimensions, and a parametric estimate used for funds programming. Once approved, responsible to advance the design to complete set of biddable documents. Design challenges included meeting industrial hygiene air standards within a high caliber range, and Explosive Safety requirements. Construction awarded and completed within 10% of the estimate. This project included site and utility improvements, a new 12,000 sqft building designed to house office space, a work shop, a military vehicle bay, and a weapons lab. This project also included an enclosed 100 meter weapons range with a heavy duty ventilation system and structural requirements. Value is ~ \$ 10 million

U.S. Army Reserve Center, Shoreham, New York. Project services included CM representation for this design- build project. Requirements included site and utility improvements, existing building improvements and re-use, roof repair, a new addition using steel frame and CMU block, and expansion of the central plant for heating and cooling. Also required the provision of temporary facilities and moving tenants and equipment. Value is ~ \$12 million.

PANYNJ, George Washington Bridge Bus Terminal

Redevelopment. Owner representation services for the redevelopment and commercial investment of the George Washington Bridge Bus Station from initial design through construction. Responsible to oversee and enforce design, code, and construction requirements as detailed in the P3 lease agreement. Requirements include selection and management of staff, coordination of design approvals with agency authorities, monitoring developer activities and enforcement of tenant-lease agreement, document control through the design and construction process, representing Owner in the resolution of technical, contractual, and agency and community coordination issues, reporting of project status and budget execution. Project consists of three phased design packages for 200,000 square feet of renovation of mixed use space for Port Authority operations and tenant commercial areas. Value is ~ \$150 million.

USACE Design for the Modified Record Fire (MRF) Range, West Point Military Academy, New York. Conducted a constructability and independent technical review (ITR) of

the 90, 95 percent and Final Construction Documents of the Modified Record Fire Range and coordinated revisions to the plans, specifications and cost estimates as well as uploading responses in web-based review system.

Also reviewed architectural and civil design analyses and incorporated improvements in the construction documents. Worked with the project manager and USACE to provide bid options to ensure base bid was within the Programmed Amount of \$4 million.

USACE, North East Regional Office (North Atlantic Division), Emergency Management, Brooklyn, New York. Program Manager.

Managed the Emergency Flood Control Program for the North East, as well as the on-going relationship with the Federal Emergency Management Agency, under which several million dollars are assigned for recovery efforts including emergency temporary housing, power, and other utility connections. Ensured that the Regional Office was prepared to manage responses to Hurricanes, local floods, river ice jams, oil spills, and national security events. Advised the Division Commander (General Officer) on rehabilitation efforts, and emergency de-watering of reservoirs. During emergency response operations, negotiated new work with FEMA, and worked closely with USACE headquarters to allocate national resources. Advised and directed subordinate offices on emergency re-construction of Flood Control Structures.

USACE NAD Hurricane Operation Plan. Wrote the plan in coordination with regional operating Districts and in coordination with the National Response Plan. It included incident command organization for Hurricane landfall in the North East, situation report procedures, funds management responsibilities, and coordinating instruction within USACE operating Districts, and with FEMA and other Army elements.

Sachin Apte, P.E.

Construction Administration

Education

M.S. - Civil Engineering, New Jersey Institute of Technology, 2000

B.C.E. - Civil Engineering, University of Pune, Maharashtra, India, 1998

Registration

Professional Engineer: New Jersey, New Hampshire

Years of Experience

With Louis Berger: 10

Total Years: 14

Mr. Sachin Apte has extensive experience in planning, design, survey, construction and task management of major civil and environmental engineering projects. Mr. Apte has been a senior engineer working on project proposals, planning, design and plan production, quantity estimation, permitting and construction oversight management of transmission line projects, airports, building and sport facilities, wetland mitigation and ecological restoration projects. Mr. Apte's previous experience also encompasses design/build construction, project management and construction inspection of highways, bridges, waterfront facilities, and buildings, parks for federal state and local governmental agencies, private clients and construction firms.

Senior Engineer and Task Manager, Higbee Beach Marsh Restoration Project for NJDEP, Cape May, NJ. Project Leader assisting the manager to oversee the engineering design of over several hundred acres of tidal marsh restoration in Cape May County, NJ. Developed and implemented baseline studies, including

bathymetric and topographic surveys, habitat mapping and wetland delineations, and hydrodynamic, hydrologic, and hydraulic modeling. The phased effort is to support the multi-phased restoration and redevelopment of the full project site, which consists of restoring estuarine intertidal emergent wetland habitat within the Pond Creek Salt Marsh, establishing native upland habitat within the majority of the former Harbison Walker magnesite plant site and creating interpretive and education opportunities, including the design and construction of an interpretive center and trail system, within the former Harbison Walker magnesite plant site.

Task Manager for Goshen Wetland Mitigation for Orange County Airport Runway 3-21 RSA Improvement Project, Orange County, Montgomery, NY. Project manager for Wetland Mitigation part of overall project providing Engineering consultant services to Orange County Airport. As the Airport's consultant, project task manager providing design services and construction management service to engineering task orders developed in the contract for wetland mitigation site reconnaissance, permitting, preliminary and final design, project plans, specifications and cost estimate for the project. Work involves routine coordination with project stakeholders, managing deadlines, schedules and deliverables and project close out.

Civil Engineer and Site Inspector, Phase II Apron Expansion Project between Taxiways M & J, Jet Aviation at Teterboro Airport Teterboro, NJ. Project involved the design of an expansion of the existing apron facility (area of 1.65 acres) at Teterboro Airport including geotechnical analysis & pavement design, adjustments to the existing drainage structures, design of new drainage/stormwater management/water quality facilities, review of previous wetland delineations, and new Freshwater Wetland design, Flood Hazard Areas, Stormwater Management, Water Quality and Soil Erosion and Sediment Control Permits, certifications and approval. Performed review of submittals to comply with standards and specifications provided by the Port Authority of New York and New Jersey (PAN&YNJ), prepared submittals logs, RFI logs, invoices, cost estimates, quantity take-offs, daily inspection reports for each site visit and close out documentation and attended site meetings. Reviewed shop drawings and rebar drawings including civil & structural drawings. Performed project inspections with client, contractor and PANY&NJ's representatives.

Senior Engineer and Senior Inspector, Environmental Mitigation at Jacks Marina for Philadelphia Regional Port Authority, Croydon, PA. Project involved Project Leader responsible for design of freshwater tidal wetland mitigation at Jack's Marina site in Croydon, PA as required in the USACE and PADEP permits. In coordination with AP Construction, assisted in project initiation, project planning, design/build phase of project along with construction project monitoring and construction phase close out of the project with various permit requirements and permit compliance. Responsibilities also included

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carrying out the design plans, specifications and cost estimates needed for project along with project monitoring and cost control during design/build phases of project.

Senior Engineer/Senior Inspector, Red Bull Training Facility, Red Bull Arena, Inc, Hanover, NJ. Senior Inspector providing contract administration and inspection services on the construction of the training facility and three soccer fields. Performing daily inspections to verify that construction is in accordance with the plans, specifications, local codes and standards. Daily progress reports to the Project Manager/ Resident Engineer. Scope of responsibilities on site included but were not limited to monitoring of all concrete work (below/above grade); structural steel erection; all MEP installations; all building envelope installations; two natural turf and one artificial turf soccer field construction including drainage and underground heating systems; site utility and drainage installation; all audio-visual, security, telecast, as well as construction oversight for architectural finishes of four multi-use buildings that holds the player locker rooms, coaches offices, weight training room and workout areas. Work also includes scheduling and management for township inspections, subcontractor inspection/laboratory team of NJ State certified DCA Special Inspectors for structural steel bolting/welding, concrete placement & testing laboratory, concrete reinforcement pre-placement inspection and soil and asphalt density testing. Total construction value for project is nearly \$6 million.

Resident Engineer/Construction Task Manager, Lincoln Park Wetland Restoration Project for NJDEP, Hudson County, NJ. Resident Engineer and Construction Task Manager for full time oversight construction oversight management working an innovative program to restore wetlands and redevelop a landfill for active recreation use as part of this \$10.6 million construction grant from the American Recovery and Reinvestment act in July of 2009. Task Manager responsibilities include client coordination and development of design plans, bid package and construction cost estimates, shop drawings review and submittals, conducting weekly site meetings, resolving site issues to excavate landfill debris from within the historical wetland area, re-establish tidal channels and salt marsh, and plant with native salt marsh vegetation to create a wetland area along the Hackensack River. This 35-acre tidal wetland will support native plant species and animals. Work also consists of assisting the agencies in finalizing the design of the 20-acre portion of land filled area which will be capped and restored. This section will then be incorporated into Jersey City's 270-acre Lincoln Park, providing additional recreation fields and park facilities. This project is being

designed in coordination with the capping of an adjacent landfill and the design of a 9 hole golf course above the landfill. Responsibilities also included for all aspects of the project from design to administration, coordination between multiple state agencies and multiple consultants and contractors. The project was awarded Coastal America Partnership Award 2011 by the Obama Administration for outstanding efforts to restore and protect the coastal environment.

Senior Engineer/ Construction Task Engineer, Restoration of Rutherford/east Rutherford Drainage Ditch System, New Jersey Meadowlands Commission, Bergen County, NJ. Civil Design Engineer for a regional flood control project for New Jersey Route 17 and its surrounding areas. Work consists of the restoration of flow conveyance to the existing ditches on either side of the New Jersey Transit Bergen County Line, including channel widening, deepening, and slope stabilization, installation of tide gates, and replacement/expansion of existing hydraulic structures. Responsibilities included preparation of several regulatory permit applications for this accelerated scheduled project. Project responsibilities also included coordination with the New Jersey Meadowlands Commission, NJ Transit and NJDOT regarding associated projects for boundary conditions and design constraints for preparation of contract plans for contractors, plans for submittals to different agencies for permits, design documentation, estimation of quantities, technical specifications, engineer's cost estimate, bid process construction management and construction scheduling, review and approval of submittals and change orders.

Senior Engineer/ Construction Oversight Engineer, Richard P. Kane Wetland Mitigation Bank, Bergen County, NJ. Construction Oversight Engineer responsible for overseeing the berm construction as a part of creating freshwater and tidal wetland mitigation bank and design and installation of bridge structures over the proposed channels along the Transco gas pipeline access roads for pipeline crossings at a site along Hackensack River. Senior Engineer responsible for design of tidal channels, grading, earthwork analysis and development of design plans, client coordination and construction oversight to see design get built as per construction plans.

Robert J. Klein, P.E.

Construction Administration

Education

B.S. - Civil Engineering, New Jersey Institute of Technology, 1996

Registration

Professional Engineer: New Jersey, New York

Years of Experience

With CDM Smith: 6

Total Years: 17

Mr. Klein has experience working on major projects. He has been involved in many levels from planning and design to field observation and construction management. He has performed field inspections. As an effective communicator, his duties have included daily client management, coordination with architects, sub-consultants, and contractors. Mr. Klein has also demonstrated his budget management abilities through construction projects for clientele and design projects for larger firms. He is experienced in establishing budgets and writing proposals.

Resident Engineer, Edenwald Houses North and South Green Infrastructure, Bronx, New York. Mr. Klein is currently service as the Resident Engineer for the Edenwald Houses North and South Green infrastructure Project. His

responsibilities include managing and overseeing the construction of a green infrastructure projects designed by CDM Smith. Mr. Klein is responsible for coordinating observation services, ensuring the project is constructed in accordance with the contract documents and required permits, and ensuring timely responses to project related inquiries to meet the project schedule.

Construction Manager, Brookfield Avenue Landfill Remediation Project, Staten Island, New York. Mr. Klein is currently serving as the Design Liaison for the Brookfield Avenue Landfill Remediation Project. His responsibilities include managing submittal reviews, providing design clarifications and coordinating design changes between the contractor, resident engineer, and the various designers involved with the project. Mr. Klein is also responsible for coordinating and preparing permit documents on behalf of the client. Overall, he is tasked with ensuring timely responses to all project related inquiries to assist in the construction's progress.

PRIOR TO CDM SMITH

Project Manager, T&M Associates, Middletown, New Jersey. Mr. Klein was a project manager for a variety of private site projects including commercial, office, industrial, warehouse, and pharmaceutical developments. He was involved in the preparation of Preliminary and Final Site plans and required permit documents for various local and state permitting agencies including Municipal, County, NJDEP, and NJDOT. His responsibilities included preparation of concept and design plans, bid and construction document preparation, and construction management. His project management expertise includes direct responsibility for a projects performance budget wise as well as ensuring client satisfaction.

Project Manager, Hatch Mott MacDonald, (formerly Killam Associates), Millburn, New Jersey. Mr. Klein performed project management for a variety of projects including landfill construction and closure; fuel storage tank projects; solid waste transfer station design and permitting; sanitary and storm sewer systems; site development for recreational facilities such as park and zoo rehabilitation, park development, and athletic facility development. He also managed projects in all stages of development including conceptual design, design, site development, permitting, bid document preparation, cost estimating, construction observation and construction management.

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EDN.2015.DPMC.28928

Yocontalie A. Jackson

Construction Administration

Education

M.S. - Community Economic Development,
Southern New Hampshire University, School of
Business, 1998

Urban Studies, Rutgers University, 1982

Years of Experience

With Jackson Associates Group: 11

Total Years: 33

As the Principal of the firm, Ms. Jackson's duties include but are not limited to: Business Development; Contract Administration; Project Management; Developed Curriculum and facilitated training for non-profit and private sector Board of Directors; oversight of team facilitators for Construction Management, Cultural diversity, Business development and other types of training of trainers sessions , development of legislative policy and procedures for non-profit and private sector organizations; Staff development; Oversight of operations; Projects: Antioch Manor, Project Size 13M; J. Proctor Development, Project Size 1.2M; Carusi Middle School, Cherry Hill, NJ, Project Size 1M; Dudley Elementary School, Project Size 34M; Cooper Pavilion, Project Size 160M; Ferry Manor, Project Size 16M; Rittenberg Senior Manor, Project Size 12M, The Meadows Hope 6, Project Size 14M

National Association of Minority Contractors, New Jersey Chapter - President, October, 2006 – 2012. Ms. Jackson served as President of the National Association of Minority Contractors., New Jersey Chapter. Complete overhaul of organization. Developed all committees; Organized and trained board of directors; Developed strategic partners for organization; fund raising; developed mentorship program and became one of the leading chapters throughout the country in training programs for contractors and holding true to the mission of the national. Served on the national board of directors during my tenure as President of the New Jersey Chapter.

ADDITIONAL EDUCATION

Gloucester County College, Sewell, New Jersey

Certification Courses, ICS (International building code), CO (Construction Code Official), January, 2003 - May, 2003

Certification courses, RCS (Residential Building Code), HHS (Hazardous & High-rise Building Code), September 2003 to December, 2003

Camden County College, Blackwood, New Jersey

Certification Course, Construction Management, January 2004 to May 2004

Omega Paralegal Institute, Cinnaminson, New Jersey

Certified Paralegal, 1991

PROFESSIONAL DEVELOPMENT

June 2012- Present OSHA 510 Certification

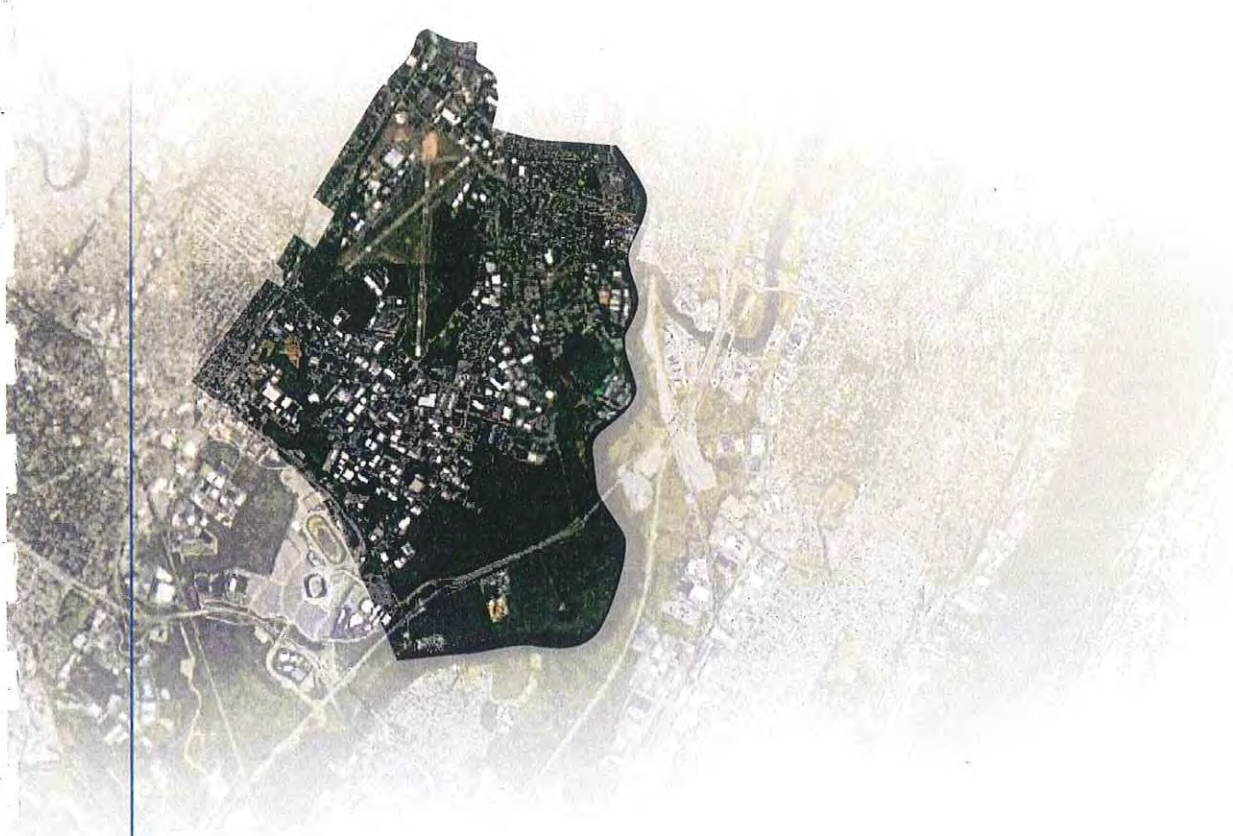
May 2009 – Present OSHA 30 Certification

Sept. 2008- Present Leadership New Jersey Fellow

Sept.2002-June 2002 Rutgers University, center for Strategic Urban Community
Leadership- Cultural Diversity, Situational Leadership,
Leadership Development, Effective inter-personal skills;
Managing organization influence & Change, Collaboration

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An aerial photograph of a residential area, showing houses and streets. A dark, irregularly shaped overlay is placed on the left side of the image, possibly indicating a specific area of interest or a map boundary.

Appendix B

Consultant Affidavit



TC - 001
REBUILD BY DESIGN TERM CONTRACT
NEW MEADOWLANDS PROJECT

Consultant AFFIDAVIT

IMPORTANT - PLEASE READ, SIGN AND PROVIDE INFORMATION REQUESTED BELOW

Affidavit: I, being duly sworn upon my oath, hereby represent and state the foregoing information contained in the Term contract Proposal and any attachments thereto the best of my knowledge are true and complete. I acknowledge that the State of New Jersey (Owner) is relying on the information contained herein and thereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the Owner, or its contractors, to notify the Owner in writing of any changes to the answers or information contained herein. I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreements(s) with the Owner and that the Owner, at its option, may declare any contract(s) or sub-contract(s) resulting from this certification void and unenforceable.

Signature of the Consultant below attests that the Consultant has read, understands and agrees to all terms, conditions and specifications set forth and referenced in the TC - 001 Term Contract Request for Proposal (RFP) including the Statement of Assurances for Rebuild by Design TC - 001, Consultant Agreement & General Conditions to the Rebuild By Design Term Contract TC-001. Signature of the Consultant signifies that a contract is established immediately upon notice of award by the State of New Jersey for any or all of the items and the length of time indicated in the proposal. Failure to accept a contract award, to hold prices or to meet any other terms or conditions as defined in the Request for Proposal and subsequently the Notice of Award, during the term of the contract, shall constitute a breach of contract and may result in termination, suspension or debarment from further contractual agreements with the Owner.

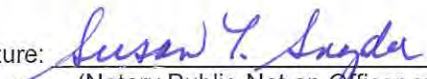
Signature and Title of Principle or Individual of the firm authorized to sign contractual documents:

Firm Name:

Signature:  Print Name: Thomas R. Schoettle, P.E., BCEE

Title: Senior Vice President Date: 8/24/15

ATTESTED: Sworn and subscribed to before me on the 24th day of August, 1998. 2015

Signature: 
(Notary Public-Not an Officer of the Firm)

SUSAN L. SNYDER
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires 1/28/2019

RETURN THIS COMPLETED DOCUMENT TO DPMC

(PAGE 1 OF 5)

Public Law 2005, Chapter 92
Formerly: Executive Order 129

SOURCE DISCLOSURE CERTIFICATION FORM

Bidder: CDM Smith Inc.

I hereby certify and say:

I have personal knowledge of the facts set forth herein and am authorized to make this Certification on behalf of the Bidder.

The Bidder submits this Certification as part of a bid proposal in response to the referenced solicitation issued by the State of New Jersey, Department of Treasury, Division of Property Management and Construction (DPMC), in accordance with the requirements of Public Law 2005, Chapter 92, (N.J.S.A. 52:34-13.2 et seq., superseding Executive Order 129 (2004)).

The following is a list of every location where services will be performed by the bidder and all subcontractors.

<u>Bidder or Subcontractor</u>	<u>Description of Services</u>	<u>Performance Location(s) by Country</u>
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See following page

Any changes to the information set forth in this Certification during the term of any contract awarded under the referenced Project Number will be immediately reported by the Bidder to the Contract Compliance Unit in the DPMC, Department of Treasury, State of New Jersey, PO Box 034, Trenton, NJ 08625.

I understand that, after award of a contract to the Bidder, it is determined that the Bidder has shifted services declared above to be provided within the United States to sources outside the United States, prior to a written determination by the Director, Division of Property Management and Construction, that extraordinary circumstances require the shift of services or that the failure to shift the services would result in economic hardship to the State of New Jersey, the Bidder shall be deemed in breach of contract, which contract will be subject to termination for cause under its contract with DPMC.

I further understand that this Certification is submitted on behalf of the Bidder in order to induce DPMC to accept a bid proposal, with knowledge that the State of New Jersey and DPMC are relying upon the truth of the statements contained herein.

I certify that, to the best of my knowledge and belief, the foregoing statements by me are true. I am aware that if any of the statements are willfully false, I am subject to punishment.

Bidder: CDM Smith Inc.

[Name of Organization or Entity]

By: 

Title: Senior Vice President

Print Name: Thomas R. Schoettle, P.E., BCEE

Date: August 24, 2015

RETURN THIS COMPLETED DOCUMENT TO DPMC
(PAGE 5 OF 5)

Bidder: CDM Smith Inc.

The following is a list of every location where services will be performed by the bidder and all subcontractors.

Bidder or Subcontractor	Description of Services	Performance Location(s) by Country
CDM Smith Inc.	Prime Bidder - Program Management, FS, Design, USACE Coordination, HUD CDBG-DR Compliance, FEMA Compliance, Regulatory Compliance, Planning, Urban Planning, Environmental Engineering, Site Investigation, Stormwater and Flood Control Engineering & Modeling, Ecological Assessments, Sediments, Green Infrastructure, Climate Change Resiliency, Geotechnical Engineering, Structural Engineering, Civil Engineering, Site Planning and Construction Administration	USA
The Louis Berger Group	Primary Subcontractor – Assistant Program Management, EIS, Regulatory Compliance, HUD CDBG-DR Compliance, Planning, Environmental Engineering, Environmental Science, Hydrology, Environmental Review, Ecosystem Restoration, Wetland Mitigation, Transportation Planning, Environmental Engineering, Environmental Science, Contaminated Sediments, Coastal Engineering and Construction Management	USA
Binera	Subcontractor - Cost-benefit Analysis	USA
BioHabitats, Inc.	Subcontractor - Ecosystem Restoration and Green Infrastructure Design	USA
Boswell Engineering	Subcontractor – Civil and Structural Engineering	USA
Fitzgerald and Halliday, Inc.	Subcontractor - Community Outreach and Stakeholder Support	USA
Jackson Associates Group, LLC	Subcontractor - Construction Administration	USA
Millennium Strategies, LLC	Subcontractor - Grant Management and Stakeholder Support	USA
Moffatt & Nichol	Subcontractor - Coast Engineering and Modeling	USA
Perkins Eastman Architects/EEK	Subcontractor - Site and Urban Planning	USA



State of New Jersey

CHRIS CHRISTIE
Governor

DEPARTMENT OF TREASURY
DIVISION OF PROPERTY MANAGEMENT & CONSTRUCTION
P O Box 034
TRENTON NJ 08625-0034

ROBERT A. ROMANO
Acting State Treasurer

KIM GUADAGNO
Lt. Governor

STEVEN SUTKIN
Director

DATE: August 13, 2015

TO: The RBA Group STV, Inc. Robinson Aerial Survey
Langan Eng. Hatch Mott MacDonald French & Parrello
Louis Berger Dewberry PS&S
AKRF, Inc. Van Note Harvey Sadat Associates
MFS Consult. Eng. Envision Consult. Urban Engineers
CDM Smith CH2M Hill Tetra Tech
HDR Eng. Schnabel Eng. BEM Systems, Inc.
CB&I Govt Sol. Greenman-Pedersen Princeton Hydro
AECOM New Meadow. Coal. Hill International
Banc3 Kleinfelder Galli Engineering
URS GEOD Corp. HR&A Advisors
Michael Baker Int. Yu & Associates New Jersey Future
New Meadow. LLC Promatech T&M Associates
GEI Consultants Elm HAKS
Matrix New World Eng.

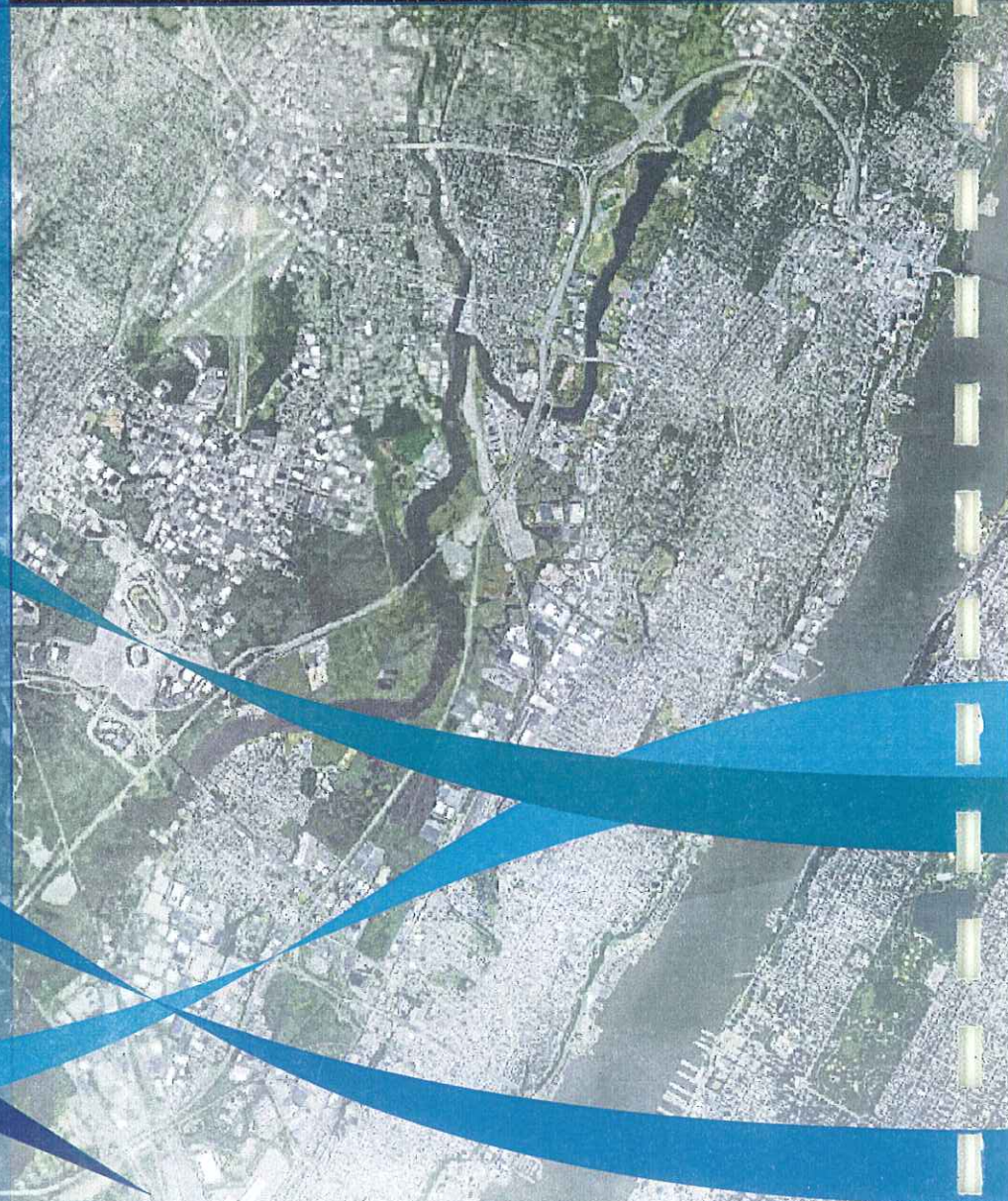
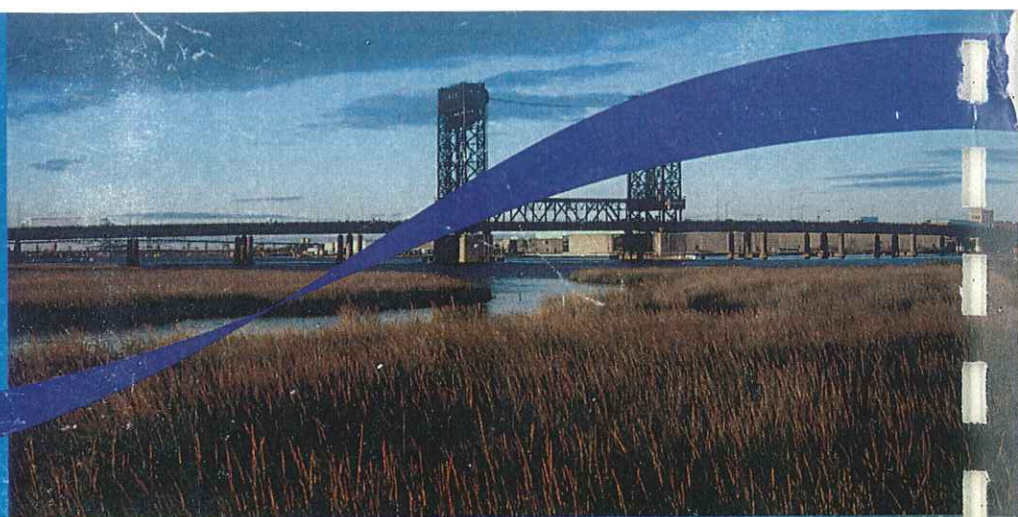
FROM: Richard M. Ferrara, Assistant Deputy Director
Contracts & Procurement Unit *RF*

SUBJECT: Addendum "A" dated August 13, 2015
Project P1131-00, New Meadowlands Rebuild By Design
Feasibility Study, EIS, Design and Construction Administration Services

Enclosed is the above referenced addendum. All competing firms shall acknowledge receipt by returning this form to:

Division of Property Management & Construction
Contracts and Procurement Unit
Attention: Catherine Douglass
P.O. Box 034, Trenton, NJ 08625-0034
Fax #: (609) 777-1970
Email: catherine.douglass@treas.state.nj.us

8/13/2015
Date Received
CDM Smith
Firm Name
110 Highland Ave Edison, NJ 08817
Address
[Signature]
Signature
Senior Vice President
Title



**CDM
Smith**[®]
cdmsmith.com