Statement of Qualifications (Technical Evaluation Committee Questionnaire)
Produced for Jefferson Parish
July 2024

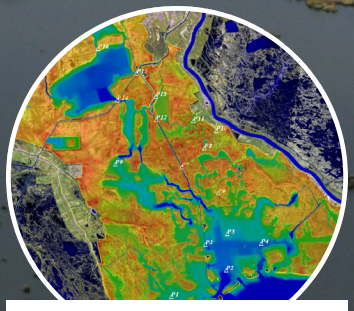
moffatt & nichol

COASTAL ENGINEERING CONSULTING SERVICES

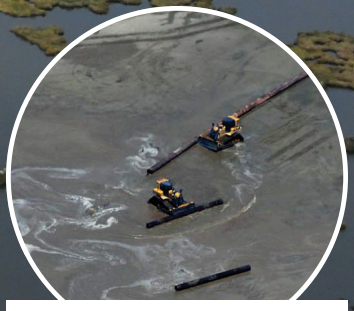
SOQ 24-020

LaBranche Shoreline Protection

Bucktown Living Shoreline Project



Barataria Basin DELFT 3D Modeling



Mississippi River LDSP

Main photograph courtesy Patrick M. Quigley

moffatt & nichol

601 Poydras Street, Suite 1860
New Orleans, LA 70130
Tel: (504) 648-3560
moffattnichol.com

July 16, 2024

Jefferson Parish Purchasing Department
General Government Building
200 Derbigny Street, Suite 4400
Gretna, LA 70053

RE: STATEMENT OF QUALIFICATIONS (TECHNICAL EVALUATION COMMITTEE QUESTIONNAIRE) FOR COASTAL ENGINEERING CONSULTING SERVICES AS-NEEDED PARISH WIDE SOQ 24-020 (RESOLUTION NO. 144205)

Dear Selection Committee Members,

From Lake Pontchartrain to the waterways that channel through the parish, to the beach at Grande Isle, Jefferson Parish is home to some of Louisiana's most critical wetlands, wildlife habitats, commercial and recreational fishing, and vulnerable communities. The area's vulnerability to sea level rise, the impacts of climate change, and the risk of other natural and man-made hazards pose critical threats to the parish's unique coastal ecosystems, economic security, and safety and quality of life for residents and visitors. Jefferson Parish's Coastal Engineering and Consulting Services contract represents a critical step in continuing to protect, enhance, and restore the community's invaluable natural resources. Having partnered with Jefferson Parish on the current Coastal Engineering and Consulting Service contract, Moffatt & Nichol (M&N) marries local understanding of the parish's Coastal Master Plan intent, the dynamic ecosystems within the parish with international coastal engineering and restoration leadership to deliver innovative and context sensitive solutions. By selecting M&N to continue to serve on this contract, the parish will receive:

» CONTEXT-SENSITIVE, IMPLEMENTABLE SOLUTIONS TO THE CHALLENGES FACING THE PARISH'S THREE UNIQUE WATERFRONTS

M&N has been providing coastal engineering and protection, numerical modeling, and analysis services in or for Jefferson Parish and its project partners for more than 20 years, and projects have ranged from program management, coastal restoration, and living shorelines, to shoreline protection and dredging engineering. We will leverage our unmatched institutional knowledge to fast-track context-sensitive, implementable restoration, protection, and engineering solutions to sea level rise, increased extreme rainfall, increased flooding, and coastal land loss. **Our intimate familiarity with your program translates to time and cost efficiencies and minimal oversight from your team.**

» INTEGRATED "SOUP-TO-NUTS" RESILIENCE PLAN & ADAPTION DESIGN

Building our capacity to deliver holistic solutions where land meets water, M&N recently expanded its capabilities with the acquisition of Waggonner & Ball. They are internationally renowned leaders in resilience planning, design, and implementation. Constantly refining Dutch Dialogues® and Living With Water® as processes to work with nature and affect positive change, this strategic partnership combines the Waggonner & Ball resiliency planning with M&N's modeling, stormwater, coastal engineering, and ecosystem restoration strengths. **This provides Jefferson Parish with a combined extensive experience developing resilient solutions for flood-prone communities, from coastal protection and resilience projects to long-term infrastructure planning using an optimal blend of Nature-based Solutions (NbS) with conventional gray infrastructure.**

» LIVING WITH WATER® WORKSHOP MODEL TOWARDS CONSENSUS DEVELOPMENT

Waggonner & Ball has developed a workshop model that brings together local, national, and international experts representing multiple disciplines to solve site-specific water and resilience challenges alongside local governments, state and federal agencies, and community stakeholders. Living With Water® is informed by key principles that embrace water as an asset and highlight safety to people, respect for natural systems, and risk reduction to people, places, and capital through multipurpose design and infrastructure. Pioneered by Waggonner & Ball during the post-Katrina Dutch Dialogues collaborative workshops, this approach is grounded in science and **prioritizes nature-based strategies and has transformed how communities adapt to their relationship with water, a critical feature given Jefferson Parish's multiple "coastlines".**

» MAXIMIZED FUNDING OPPORTUNITIES

Our team understands how critical identifying and securing grant funding is to supplement the community's funding mechanisms, especially considering the rise in inflation and the COVID-19 induced recession. Since 2018, M&N has successfully partnered with Jefferson Parish to develop a framework that leverages alternative funding sources. **Our project manager Mindy Joiner has helped the parish secure almost $3 million in grant funding—a 10:1 return on investment for the Parish's grant funding application effort.**

» INNOVATIVE PUBLIC OUTREACH

Additionally, M&N has developed a highly-innovative online/virtual public outreach campaign platform for stakeholder engagement. The M&N licensed PublicInput platform can be used to complement in-person events and enables online virtual public meetings in a manner that is secure, yet accessible to the public. During the COVID 19 Pandemic, we actually found that we were getting greater public participation in the outreach engagement process, versus in person meetings. M&N has now developed a hybrid Stakeholder Engagement platform that blends in person participation with on-line engagement. M&N has had impressive success with this tool and has exclusive licensing privileges that will save clients expensive subscription fees.

» IN-HOUSE ADVANCED PROJECT MARKETING AND MEDIA CAMPAIGNS

Moffatt & Nichol's Waggonner & Ball Design Studio can provide in-house hard copy and digital campaigns, incorporating a full array of visualization techniques, renderings, 3-D models, including logo and brand identity development, website and eCommerce, social media, campaign strategy, creative and design, digital marketing, and video production. We developed the Community Engagement and Communication Plan for NOAA's NRDA funded Large Scale Marsh Restoration Project: Upper Barataria Bay component. Located in Jefferson Parish, this was NOAA's largest restoration project to date.

» CONSTRUCTIBLE, IMPLEMENTABLE DESIGNS AND RESTORATION PLANS

M&N brings the expertise required to develop implementable, design-focused solutions to coastal engineering challenges that combine coastal restoration and protection. Since we last proposed on this contract, we've increased our dredging, cost estimating, and marsh creation expertise with the addition of Seann Perez and Mike Huebsch, coming straight to us after more than 20 years in the marine construction industry. With their own hands-on experience combined with their active contacts in the dredging industry, **Mike and Seann help confirm that designs are constructible during engineering and design rather than during construction, preventing costly field change orders. When design issues are identified, we come to you armed with solutions, not requests, for construction funds.**

» INCREASED CONSENSUS AND STAKEHOLDER BUY-IN

The diverse backgrounds of our team members and their long-standing relationships with the local governments, councils, and organizations; industry partners; and permitting agencies facilitate our ability to build consensus around potential restoration and protection solutions. We have a detailed understanding and in-depth familiarity with the major stakeholder partners of Jefferson Parish which can only be earned by living and working within southeast Louisiana. **This sensitivity to the nuances of the key stakeholders, permitting agencies, and project partners enables our team to rapidly build the essential consensus required to facilitate project implementation.**

» NO DUPLICATION OF EFFORTS

M&N began serving the coastal restoration and protection needs of local, state, and federal agencies in Louisiana more than 20 years ago. We've provided state-of-the-art hydrodynamic, morphological, and storm surge modeling across the entire Louisiana coastline and Jefferson Parish and have conducted hundreds of numerical model studies on coastal hydrodynamics, coastal structure hydraulics, sediment transport, and morphology in Louisiana. **By leveraging our comprehensive, multi-dimensional hydrodynamic, wave propagation, and morphological modeling coverage of Jefferson Parish, M&N's does not re-invent the wheel when collaborating with the work of others and serves as a foundation to fast-track delivery** of the next phase of the parish's multi-disciplinary, technically complex, and environmentally sensitive coastal engineering, restoration, and coastal protection projects that are consistent with the State of Louisiana Coastal Master Plan.

Our team is rounded out by expert subcontractors with whom we have effective working relationships and trust:

- **Fugro USA Land, Inc.** Topographic and Bathymetric Survey; Geotechnical Investigation
- **ELOS Environmental, LLC** Biological and Environmental Assessments; Permitting
- **Southern Shores Engineering, LLC** Coastal Engineering and Design; Construction Administration
- **Coastal Environments, Inc.** Biological and Environmental Assessments; Permitting
- **Adaptive Management and Engineering, LLC** Coastal Engineering & Design; Dredging / Beneficial Use

Together, this team:

- Knows your program and intent—preventing Parish goals from being lost in translation
- Has one of the deepest pools of dedicated coastal engineer resources that Jefferson Parish already knows and trusts
- Can move your visions to a sustainable reality quickly and within budget

In addition to the TEC questionnaire, we have expanded upon Section N and included additional information immediately following the questionnaire. We've also included detailed professional experience and supporting project examples in Appendices A and B, respectively. Throughout the submittal we've included live hyperlinks to additional project websites or documents as well as referenced proposal sections denoted with a red underline—please click on these links for additional information. We appreciate the opportunity to submit the enclosed proposal and look forward to continuing to serve the parish. We look forward to the next steps in your selection process.

Respectfully,

MOFFATT & NICHOL

Jonathan Hird, PE
Vice President
(225) 610-1930; (225) 773-8019
jhird@moffattnichol.com

moffatt & nichol

MOFFATT & NICHOL (PRIME) TECHNICAL EVALUATION COMMITTEE QUESTIONNAIRE

Technical Evaluation Committee (TEC) Questionnaire Instructions

- The Technical Evaluation Committee (TEC) Questionnaire shall be used for professional services related to architecture, engineering, or survey projects.
- **The TEC Questionnaire should be completely filled out. Complete and attach ALL sections. Insert "N/A" or "None" if a section does not apply or if there is no information to provide.**
- Questionnaire must be signed by an authorized representative of the Firm. Failure to sign the questionnaire shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- All subcontractors must be listed in the appropriate section of the Questionnaire. Each subcontractor must provide a complete copy of the TEC Questionnaire, applicable licenses, and any other information required by the advertisement. Failure to provide the subcontractors' complete questionnaire(s), applicable licenses, and any other information required by the advertisement shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- If additional pages are needed, attach them to the questionnaire and include all applicable information that is required by the questionnaire.

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:

Statement of Qualifications (Technical Evaluation Committee Questionnaire) for Coastal Engineering Consulting Services As-Needed Parish Wide SOQ 24-020 (Resolution No. 144205)

B. Firm Name & Address:

Moffatt & Nichol, Inc.
601 Poydras Street, Suite 1860
New Orleans, LA 70130

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:

Jonathan Hird, PE
Vice President
(225) 610-1930; (225) 773-8019
jhird@moffattnichol.com

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.

Jonathan Hird, PE
Vice President
(225) 610-1930; (225) 773-8019
jhird@moffattnichol.com

E. Please provide the number of employees whose primary function corresponds with each category:

160 Administrative	11 Estimators	0 Specification Writers
10 Architects (Licensed)	0 Geologists	233 Structural Engineers
0 Chemical Engineers	9 Geotechnical Engineers	0 Graduate Engineers
114 Civil Engineers	0 Interior Designers	42 Project Managers
20 Construction Inspectors	8 Landscape Architects	132 Clerical
0 Ecologists	0 Land Surveyor	0 Grant/Funding Specialist
32 Electrical Engineers	13 Mechanical Engineers	0 Sanitary Engineers
0 Engineer Intern	20 Environmental Engineers	
0 Professional Land Surveyors		804 **TOTAL**

F. Is this submittal by a JOINT-VENTURE? Please check: YES ○ NO ◉

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1.
N/A

2.
N/A

H. Has this JOINT-VENTURE previously worked together? Please check:
YES ◯ **NO** ◉

I. List all subcontractors anticipated for this Project. Please note that all subcontractors must submit a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. ELOS Environmental, LLC 607 W. Morris Street Hammond, LA 70403	Biological and Environmental Assessments; Permitting	Yes
2. Fugro 4233 Rhoda Drive Baton Rouge, LA 70816	Topographic and Bathymetric Survey; Geotechnical Investigation	Yes
3. Southern Shores Engineering, LLC 2251 Drusilla Lane, Suite D, Baton Rouge, LA 70809	Coastal Engineering and Design Construction Administration	Yes

J. Please specify the total number of support personnel that may assist in the completion of this Project:

70

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1.
N/A

2.
N/A

H. Has this JOINT-VENTURE previously worked together? Please check:
YES ◯ **NO** ◉

I. List all subcontractors anticipated for this Project. Please note that <u>all subcontractors must submit a fully completed copy of this questionnaire</u>, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
4. Coastal Environments, Inc. 1260 Main Street Baton Rouge, LA 70809	Biological and Environmental Assessments; Permitting	Yes
5. Adaptive Management and Engineering, LLC 12232 Industriplex Boulevard Suite 6B Baton Rouge, LA 70809	Coastal Engineering and Design; Dredging / Beneficial Use	Yes
6.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:

70

TEC Professional Services Questionnaire

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Jonathan Hird, PE
Vice President

Project Assignment:

Principal-in-Charge

Name of Firm with which associated:

Moffatt & Nichol, Inc.

Years' experience with this Firm:

17

Education: Degree(s)/Year/Specialization:

MS, 2001, Civil and Environmental Engineering
BS, 1993, Environmental Science

Active registration: Year first registered/discipline:

2006, Civil Engineering, Louisiana, PE0032299

Other experience and qualifications relevant to the proposed Project:

Jonathan Hird has 23 years of experience in multidisciplinary projects across southern Louisiana, including projects for Jefferson Parish. He has served as a project engineer, project manager, and principal-in-charge for a diverse range of coastal engineering and ecosystem restoration projects, including watershed master planning, applying multi-dimensional numerical models to project concept development, assessing project feasibility and project performance evaluations, as well as sediment management and programmatic approaches to marsh creation and restoration. His experience also includes the development of living shorelines, sediment management strategies (on local and regional scales), the beneficial use of dredged material, and the application of long distance pipeline technology for marsh creation and restoration for some of the largest marsh creation projects on the Gulf Coast, involving tens of millions of cubic yards and thousands of acres of marsh.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Jeffrey Shelden, PE Senior Coastal Engineer
Project Assignment:
QA/QC
Name of Firm with which associated:
Moffatt & Nichol, Inc.
Years' experience with this Firm:
38
Education: Degree(s)/Year/Specialization:
MS, 1985, Civil Engineering BS, 1984, Civil Engineering
Active registration: Year first registered/discipline:
2001, Civil Engineering, Louisiana, PE0029426
Other experience and qualifications relevant to the proposed Project:
As a professional engineer with 39 years of experience, Jeff Sheldon regularly leads multidisciplinary teams in completing complex projects. He is one of the firm's thought leaders in riverine, estuarine, and coastal hydraulics and processes, as well as the application of various numerical models used for those analyses. His numerical modeling experience includes detailed familiarity with the MIKE suite, RMA, Delft 3D, and GENESIS models in 1-,2-, or 3D applications to determine sediment and pollutant transport, tidal hydraulics, salinity intrusion, and hydraulic and storm surge effects on coastal structures. Jeff is experienced in navigating political landscapes with diverse stakeholders and is well versed in working with local, state, and federal regulatory agencies to obtain environmental documents and necessary permits.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Mindy Joiner, MS Coastal Scientist
Project Assignment:
Project Manager / Biological & Environmental Assessment / Grant Writing / Permitting / Outreach Education & Marketing Materials
Name of Firm with which associated:
Moffatt & Nichol, Inc.
Years' experience with this Firm:
6
Education: Degree(s)/Year/Specialization:
MS, 2010, Ecology BS, 2007, Organismal and Integrative Biology
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
Mindy Joiner has 16 years of environmental project management, research, and outreach and coordination experience. She has served as task manager/project manager for multiple Jefferson Parish projects and has managed several engineering, science, and grant writing projects and environmental assessments. As a coastal scientist, she has participated in wetland delineations, contributed species habitat requirements to project design, developed pre- and post- construction monitoring plans, secured federal and state permits, and performed Oil Pollution Act (OPA) and National Environmental Policy Act (NEPA) analyses on a suite of projects for the federal government as part of the RESTORE Act. She is experienced in public outreach as well as organizing and facilitating public meetings.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:

Name & Title:

Kevin Hanegan, PhD, PE
Coastal Engineer

Project Assignment:

Engineering Manager & Technical Lead / H&H Modeling

Name of Firm with which associated:

Moffatt & Nichol, Inc.

Years' experience with this Firm:

12

Education: Degree(s)/Year/Specialization:

PhD, 2019, Coastal Hydrodynamics and Morphology
MS, 2011, Coastal and Marine Engineering and Management
BS, 2009, Civil Engineering

Active registration: Year first registered/discipline:

2017, Civil Engineering, Louisiana, PE0041433

Other experience and qualifications relevant to the proposed Project:

Kevin Hanegan has 12 years of coastal engineering and project management experience, including analyzing coastal and riverine processes to support a range of coastal protection, restoration, and infrastructure projects. He specializes in the development and application of advanced hydrodynamic, sediment transport, and morphologic models to support project analysis and design, as well as the design of shoreline protection, marsh restoration, living shoreline, and other coastal ecologic restoration projects. He is skilled in computer applications including the MIKE21-FlexibleMesh modeling suite for hydrodynamics, waves, and salinity dynamics; the Delft3D modeling suite for hydrodynamics, sediment, transport, and morphology; the SWAN wave model; the USACE's ADDAMS suite for assessing dredging impacts; HEC-RAS and HEC-GeoRAS for riverine and storm-water flow modeling; ArcGIS for project mapping and spatial data analysis; and MATLAB for program development, model pre- and post-processing, and visualization

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Chris Williams, PE Senior Coastal Engineer
Project Assignment:
Coastal Engineering & Design / Permitting
Name of Firm with which associated:
Moffatt & Nichol, Inc.
Years' experience with this Firm:
10
Education: Degree(s)/Year/Specialization:
MS, 1996, Civil Engineering BS, 1993, Civil Engineering
Active registration: Year first registered/discipline:
1999, Civil Engineering, Louisiana, PE0028579
Other experience and qualifications relevant to the proposed Project:
Chris Williams has 28 years of civil engineering experience with an emphasis on coastal engineering and environmental restoration projects. Before joining M&N, Chris previously served as the Administrator of the Project Management Branch for the CPRA of Louisiana. In this capacity, he oversaw 15 project managers responsible for implementing more than 400 individual coastal restoration and flood protection projects throughout coastal Louisiana. He also served as the program manager for the State of Louisiana's CIAP program. Chris also worked as a project manager for the State of Louisiana where he oversaw the design and construction of more than 100 coastal restoration projects.

TEC Professional Services Questionnaire

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 1

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Large Scale Barataria Marsh Creation: Upper Barataria Component (BA207) Jefferson and Plaquemines Parish, Louisiana NOAA Restoration Center- Jason Manthey 601 East 12th Street, Rm 1702 Kansas City, MO 64106 (816)-426-7841 jason.l.manthey@noaa.gov	M&N served as the Engineer of Record for this $150M Deepwater Horizon NRDA-funded project. Utilizing the Mississippi River Borrow sites previously permitted as part of the BA43-EB Mississippi River Long Distance Sediment Pipeline Project (MRLDSP) project, the project will dredge an estimated 15 mcyds of Mississippi Rier sediment, to restore approximately 1,600-acres of critically degraded Barataria Land Bridge marsh habitat. along the as identified in the LA TIG Draft Restoration plan. The Large Scale Barataria Marsh Creation: Upper Barataria Component Project (BA207) is the logical next phase of the Barataria Land Bridge restoration and intends to fully leverage the MRLDSP approach to deliver this project. M&N provided full restoration planning services for the BA207 project. Construction of the project was completed in May 2024, nine months ahead of schedule.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2019	$3,900,000 (E&D)	$2,900,000 (E&D)

PROJECT NO. 2

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Grant Support for Jefferson Parish, LA Jefferson Parish Michelle Gonzales, Director, Ecosystem and Coastal Management Department 504-736-6653 mgonzales@jeffparish.net	M&N assisted Jefferson Parish in completing grant proposals for the Bucktown Living Shoreline and Bucktown Harbor Marina projects. M&N: -Researched and drafted the proposal narratives, tracking metrics, and monitoring plan for both grant proposals -Determined the project budget, and provided preliminary drawings and location map -Successfully secured two grants from NFWF totaling $2,750,000 -Procured a US Fish and Wildlife Service Boating Infrastructure Grant Tier One grant in the amount of $200,000 -Established a grant funding application effort ROI of 10:1 for the Parish	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2021	$30,000	$30,000

TEC Professional Services Questionnaire

PROJECT NO. 3		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility**	
Barataria Preserve Future Conditions Modeling, Jean Lafitte National Park – Barataria Preserve, Jefferson Parish, LA National Parks Service Julie Whitbeck, PhD, Ecologist (504)717-9811 Julie_whitbeck@nps.gov	The National Parks Service seeks a sound scientific understanding of key factors influencing the Barataria Preserve landscape, its natural, cultural, and historical resources, and park facilities (buildings, trails, road/boat access), over the next 25 to 50 years. M&N: - Is providing rigorous projections of key coastal environmental conditions across the Barataria Preserve - Is "downscaling" the State of Louisiana's 2023 Coastal Master Plan Integrated Compartment hydrodynamic and ecosystem for the Barataria Basin to simulate water levels, salinities, vegetation cover, and landscape evolution under multiple future climatic and restoration project scenarios - Developed a complementary Mike21-FM hydrodynamic and salinity model of Barataria Basin to simulate water levels, flows, and salinities at very high spatial resolution across the Barataria Preserve Landscape for specific points (10-year intervals) during the 50-year planning horizon - Is estimating urban freshwater runoff volumes - Developed an automated nesting scheme to update the detailed model bathymetry, wetland vegetation type, hydrodynamic roughness, and boundary conditions based on ICM simulation inputs and results and provide the park with valuable information to make resource management decisions in the face of uncertain future conditions and impacts.	
Completion Date (Actual or estimated)	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2022	$141,727	$141,727

PROJECT NO. 4		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Bucktown Living Shoreline Feasibility, Engineering and Design, and Construction Administration, Jefferson Parish, LA Jefferson Parish Michelle Gonzales, Director, Ecosystem and Coastal Management Department 504-736-6653 mgonzales@jeffparish.net	The Jefferson Parish Ecosystem and Coastal Management Department retained M&N to perform a feasibility study, engineering and design, and construction administration for an integrated approach to: - Enhance shoreline protection and reduce erosion - Rebuild the previously existing riparian habitat as the natural first line of defense against wave activity and rising sea levels - Improve the resilience of the Jefferson Parish Lake Pontchartrain and Vicinity (LPV) Hurricane Storm Damage and Risk Reduction System (HSDRRS) M&N performed a feasibility study on approximately 7,800 LF of the south shoreline of Lake Pontchartrain, of which 4,500 linear feet were moved to engineering and design. M&N characterized the site wave climate using a regional spectral wave model capable of simulating the wind generation, offshore propagation, and nearshore transformation of waves. M&N completed full engineering, design, permitting (including Section 408) and is currently providing Construction Supervision and Inspection. The Project is anticipated to be complete in August 2024.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
February 2020 (Feasibility) March 2022 (E&D) August 2024 (Construction Administration - Estimated)	$149,768 (Feasibility) $290,400 (E&D) $492,500 (Construction Administration)	$149,768 (Feasibility) $290,400 (E&D) $448,000 (Construction Administration)

TEC Professional Services Questionnaire

PROJECT NO. 5		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Dauphin Island Causeway Shoreline Restoration Mobile County, AL Mobile County Tina Sanchez Environmental Services Director Mobile County Commission 205 Government Street 7th Floor, South Tower (251) 574-3229	M&N was retained by Mobile County to perform an Independent Technical Review (I TR) of all design efforts performed to-date on the project. Phase I recommend a path forward, with a commensurate design, and schedule necessary to issue the project for bid with all supporting design, construction and permitting documents in alignment with Federal cost-share partners procurement schedules. Phase I also included a review of all documents developed to date. M&N's responsibilities included: - Hydrodynamic and wave modeling - Further required field data investigations - Coordination with the permitting and regulatory agencies for issuance of permit. - Full engineering, design, plans, specifications, engineers estimate, bid support, and construction administration - The agency technical review package for the beneficial use of ~ 1-mycds of dredged material; and - Coordination with the USACE Mobile District throughout design Construction of the segmented breakwaters (Phase I, funded by the local cost share partner) was completed in June 2024. Phase II (marsh creation, funded by the Federal Cost Share Partner) is anticipated to be completed in late 2024.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2025 (Estimated)	$466,500 (E&D) $30,000,000 (Construction)	$466,500 (E&D)

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Graveline Bay Marsh Creation Project, Dauphin Island, AL Town of Dauphin Island Mayor Jeff Collier Town of Dauphin Island (251) 861-5525	This first-of-its-kind "marsh mound" project in Alabama restored 60 acres of lost back-barrier marsh habitat on the north side of Dauphin Island, enhancing edge habitat and bird nesting habitat. M&N provided engineering and design services, secured a Nationwide-26 permit, oversaw the contractor procurement process, and provided construction administration and inspection services. The project goals were to enhance the existing marsh ecosystem of Graveline Bay while increasing the resilience of Dauphin Island to storm events. With habitat goals in mind, the project objectives were defined to maximize and linear feet of fringe (edge) habitat and area of sub-aerial marsh habitat. These objectives were accomplished by constructing 55 total intertidal marsh mounds (10 large and 45 small) to attenuate wave activity and create critical marsh edge habitat over the 20-year project life span. M&N continues to monitor the project for structural and biological criteria. Construction of the project was completed October 2023.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2023	$420,000 (E&D) $5,430,000 (Construction)	$420,000 (E&D)

TEC Professional Services Questionnaire

PROJECT NO. 7		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
St. Charles Parish Hurricane Protection Levee Shoreline Protection & Enhancement Project, St. Charles Parish, LA Pontchartrain Levee District Steve Wilson, President (225) 869-9721	The Pontchartrain Levee District (PLD) retained M&N on a task order-based contract to develop and implement an integrated approach to the protection and enhancement of St Charles Parish Hurricane Protection Levee at the Lake Pontchartrain shoreline, combined with the restoration of the interior LaBranche Wetlands. -M&N performed a feasibility-level study to determine the preferred project alternatives and develop an approach to integrate the proposed features with the existing shoreline protection measures into a single unified strategy for the shoreline. M&N subsequently completed engineering, design, and construction oversight of the stabilization, protection of the St. Charles Parish CIAP funded 1,200 LF LaBranche West (PO42) and 3,400 LF LaBranche East (PO43) enhancement projects. -M&N developed a fully calibrated 2-D hydrodynamic (RMA2) and salinity (RMA4) model of the entire 16,000-acre wetlands. -M&N, in partnership with the USACE and PLD under a PAS agreement, developed a planning level master plan that integrated the shoreline protection measures, with interior marsh restoration & hydrologic restoration into a comprehensive restoration master plan for the LaBranche Wetlands as part of a multiple lines of defense strategy. M&N provided engineering, design, permitting, and Construction Supervision & Inspection for the remaining unprotected 18,000-LF of shoreline.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2015	$963,986 (Fee) $6,200,000 (Construction)	$963,986 (Fee)

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Lightning Point Shoreline Restoration and Long-Term Site Sustainability Plan, Bayou La Batre, AL The Nature Conservancy Judy Haner, Program Manager (251) 433-1150 jhaner@tnc.org	M&N developed a living shoreline approach to address critical levels of storm-induced erosion at the ecologically important shoreline in Bayou La Batre. M&N: - Developed a multifaceted and innovative living shoreline design incorporating lessons learned from previous living shoreline efforts in the region - Included 1.5 miles of segmented containment (51,000 tons of rock), 40 acres of marsh and scrub-shrub habitat (240,000 CY of beneficial use dredged material), and 10,000 LF of the tidal creek into the design - Leveraged advanced spectral and Boussinesq wave modeling to determine design criteria and configure the breakwaters' geometry - Employed a state-of-the-art hydrodynamic modeling approach to configuring the tidal creeks to provide required flushing times to promote ecological benefits - Used ecological guiding principles of order to design the tidal creeks to mimic natural tidal creek systems - M&N also developed Long-Term Site Sustainability Plans that mapped the volumes and schedule of availability for beneficial use of routine maintenance dredged material for placement at the project site	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2020	$1,933,000 (Fee) $14,000,000 (Construction Est.)	$1,933,000 (Fee)

TEC Professional Services Questionnaire

PROJECT NO. 9		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Upper Mobile Bay Beneficial Use Wetland Creation Project, Mobile Bay, AL Alabama State Port Authority Bob Harris, Vice President, Technical Services (251) 441-7082 bharris@asdd.com	M&N is currently performing detailed engineering, design, and permitting for the creation of ~40-acres of intertidal habitat marsh creation areas and shoreline protection in Upper Mobile Bay, from the beneficial use of routine maintenance dredged material. Initial project scope calls for the implementation of the first ~100-acres as well as a permit for the total 1,200-acre project anticipated over the project life. M&N is: - Leveraging dredged materials/sediments to create wetlands/habitats, helping to restore coastal wetland habitats, improve water quality, and improve dredging practices to support navigation-related commerce and the region's economy; working with the USACE and the Alabama State Port Authority to identify renewable resources from required maintenance dredge material for wetland creation - Applying Engineering with Nature approaches will be applied to design wetland habitat and sediment containment options that create multiple aquatic habitats to enhance Alabama's estuarine ecosystems - Developing a Long-Term Sustainability Plan to provide a playbook for future wetland creation, schedule, and containment types, guiding flexibility in beneficial use applications accounting for differing material properties - Conducted an EA including a thorough discussion of the affected environment for the physical, biological, and human use and socioeconomic resources; conducted an environmental consequences analysis for each resource for all project activities over the 20-year lifespan of the project to support NEPA determinations with their federal agency partners	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2022	$2,500,000	$2,500,000

PROJECT NO. 10		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Pontchartrain-Maurepas Surge Consortium Modeling, Lake Pontchartrain Basin, LA University of New Orleans Ioannis Georgiou, PhD, PG, Director of Coastal and Deltaic Systems Modeling (while previously employed at UNO) (504) 931-5178 igeorgiou@thewaterinstitute.org	The Pontchartrain-Maurepas Surge Consortium's efforts culminated in a series of reports investigating both the nature of hurricane surge hazards and lines of defenses in the Pontchartrain-Maurepas region. The Surge Modeling project included an initial, feasibility-level test of the effectiveness of four proposed projects in reducing storm surge. M&N: - Developed a comprehensive surge modeling tool (DHI's MIKE 21 FM) for the Pontchartrain basin, helping to determine which proposed projects were most impactful for reducing risk and increasing understanding of basin surge dynamics - Used the model to test the effectiveness of the proposed projects in reducing storm surge - Evaluated the full reforestation of the Maurepas Land Bridge as well as a series of jetty-type marsh creation features along the hardened New Orleans East shoreline for their impacts on surge - Analyzed the results by comparing both the surge propagation around the basin and the spatially varying maximum surge levels with the evaluated project for the base case of current conditions	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2019	$53,000	$53,000

TEC Professional Services Questionnaire

M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	**Defendant:**	
1. N/A	N/A	N/A - There is no past or ongoing litigation between Moffatt & Nichol and Jefferson Parish.
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

As one of the leading practitioners of coastal engineering in the marketplace today, M&N provides Jefferson Parish with a unique combination of capabilities and expertise to resolve the Parish's most complex coastal engineering and planning challenges. In addition to the information provided within this standard form, we have provided additional supporting documentation to further demonstrate the expertise and resources M&N brings to bear on this contract. The strategic acquisition of Waggonner & Ball provides Jefferson Parish with a combined expertise of the Waggonner & Ball resiliency planning with M&N's modeling, stormwater, coastal engineering, and ecosystem restoration strengths. With a locally-based core group of technical experts with decades of experience in implementing coastal engineering and ecosystem restoration projects across southeastern Louisiana including for Jefferson Parish, we have included additional exhibits that detail this experience and qualifications immediately following the TEC questionnaire. We have included in-depth resumes of key individuals assigned to this contract (Appendix A) and detailed project descriptions (Appendix B), providing the review committee with additional substantiating documentation of M&N's capability and experience in meeting the technical and resource demands of this project.

To provide full turn-key services in support of this contract we have included five subconsultants with trusted track records with Jefferson Parish: Fugro (Topographic and Bathymetric Survey/Geotechnical Investigation), ELOS Environmental, LLC (Biological and Environmental Assessments/Permitting), Southern Shores Engineering, LLC (Coastal Engineering and Design and Construction Administration), Coastal Environments, Inc. (Biological and Environmental Assessments/Permitting), and Adaptive Management and Engineering, LLC (Coastal Engineering and Design; Dredging/Beneficial Use).

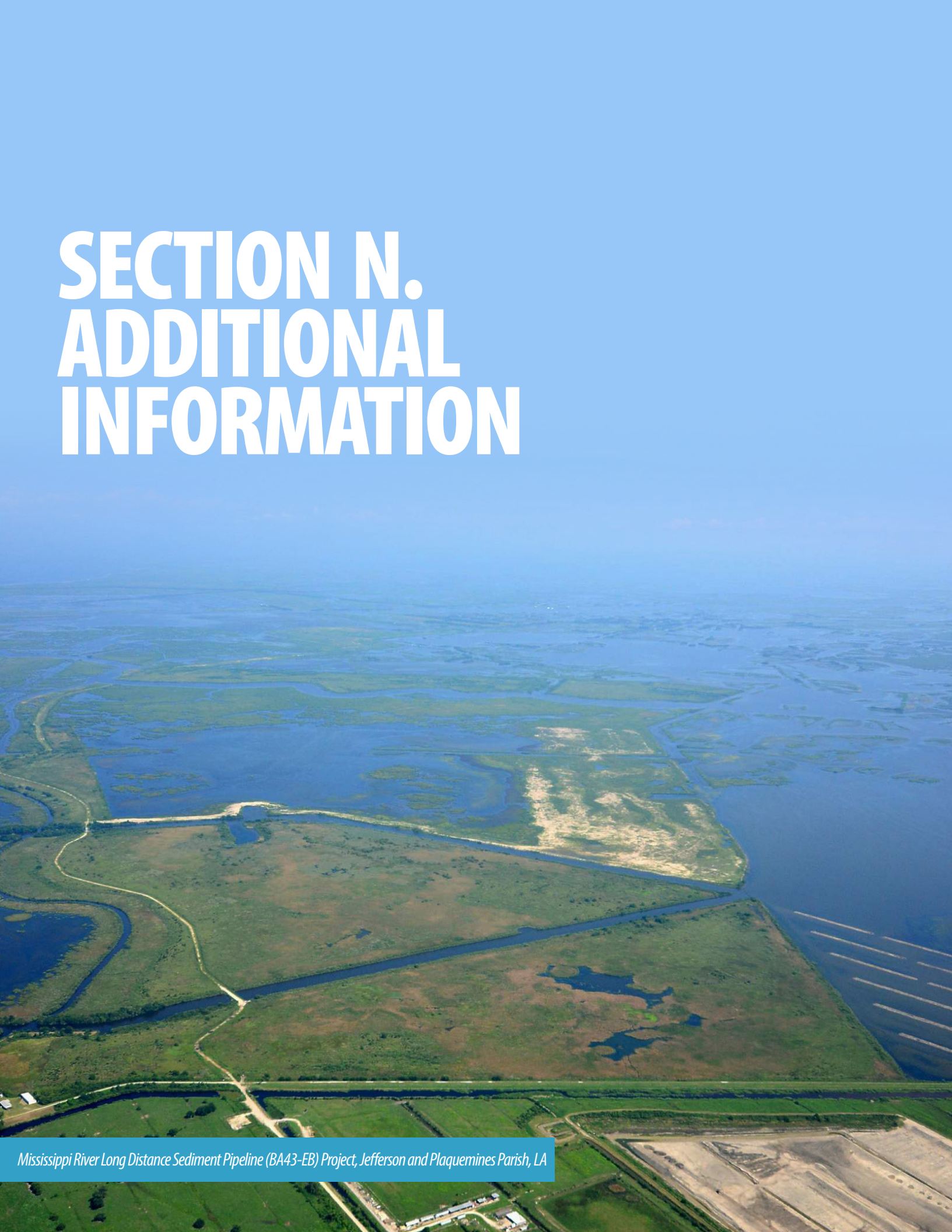
We are confident that the additional information provided within substantiates our claim that M&N's comprehensive coastal engineering, ecosystem restoration, and advanced numerical modeling experience is without equal, irrespective of firm size. Furthermore, this expertise is located on your doorstep.

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature: Jonathan Hird **Print Name:** Jonathan Hird, PE

Title: Vice President **Date:** July 16, 2024

SECTION N. ADDITIONAL INFORMATION



Mississippi River Long Distance Sediment Pipeline (BA43-EB) Project, Jefferson and Plaquemines Parish, LA

SECTION ONE //

PROFESSIONAL TRAINING & EXPERIENCE

INTRODUCTION TO THE M&N TEAM

M&N is the oldest consulting engineering firm in the country to offer coastal engineering services. This excellence sets us apart from all other firms that offer professional services to the coastal engineering industry. M&N offers the world-class experience and expertise of a large firm with a local presence and personalized service that only a small firm can provide. Our unparalleled in-house capabilities in coastal science, engineering, and protection; sediment management; natural systems; ecological risk numerical modeling; and wetland and marsh restoration are the right choice for Jefferson Parish—we can provide technical and project agility to respond to the dynamics of project evolution and delivery rapidly and adaptively.

Faced with the incredible challenges of coastal land loss, sea level rise, and the impacts of climate change, Louisiana's coast is urgently vulnerable and requires great strides to be made to protect our state for future generations. M&N has been providing coastal restoration and protection support to local, state, and federal agencies in Jefferson Parish and throughout Louisiana for nearly 25 years. Having worked in all three of the parish's waterfronts of Lake Pontchartrain, the Mississippi River, and the Gulf of Mexico, M&N brings institutional knowledge of these unique, dynamic ecosystems including existing conditions, models, and studies; upcoming and anticipated projects; and context-sensitive solutions.

10,000-LF (1.9 MILES) Earthen Terrace
600 acres of BARRIER Island
61,500LF (11.6 miles) Shoreline Protection
37.5 MYCDS Dredged
12,500LF (2.4 miles) RIDGE Restoration
4,540 acres Marsh CREATION
30 MILES Sediment Pipeline
7,600LF (1.4 MILES) Living Shoreline
4.6 MCYDS Beneficial Use of Dredged Material
3,600 Acres Hydrologically RESTORED
Section 2 13 Basin Wide
408 Permits NUMERICAL Models
$300M Construction VALUE Permitted
$280M CONSTRUCTION Value S&I

M&N recently expanded its capabilities with the acquisition of Waggonner & Ball. They are internationally renowned leaders in resilience planning, design, and implementation. Constantly refining Dutch Dialogues® and Living With Water® as processes to work with nature and affect positive change, this strategic partnership combines the Waggonner & Ball resiliency planning with M&N's modeling, stormwater, coastal engineering, and ecosystem restoration strengths. This provides Jefferson Parish with a combined extensive experience developing resilient solutions for flood-prone communities, from coastal protection and resilience projects to long-term infrastructure planning using an optimal blend of Nature-based Solutions (NbS) with conventional gray infrastructure.

Our team's institutional knowledge of existing conditions, goals, and challenges across Louisiana is unmatched. Our team will leverage our experience and insight to develop constructible solutions to coastal engineering challenges that combine restoration and protection.

20+ YEARS
of experience supporting projects that protect & restore Louisiana's coastline

200m+ DOLLARS
of planning, environmental science, design, & permitting fees in the Gulf Coast in the past 10 years

10s OF THOUSANDS
of acres of wetlands, marshes, & barrier islands created & restored

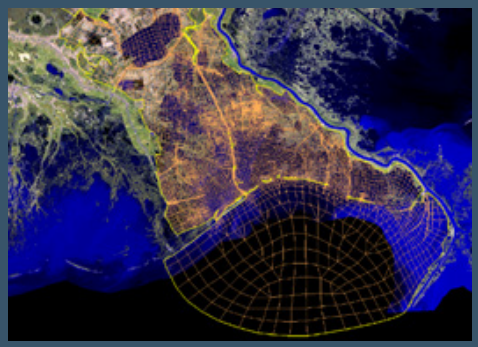
20+ MILLION CUBIC YARDS (MCYDS)
of the Mississippi River permitted for borrow sediment for habitat restoration

65,000+ LINEAR FEET
of shoreline protected & enhanced

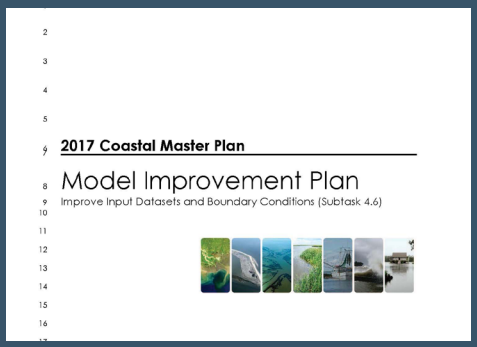
3,500+ ACRES
of Louisiana marsh creation & barrier island restoration

100s
of numerical & physical model studies

Developed basinwide restoration plans across the Louisiana coastal zone including the LaBranche Watershed adjacent to Jefferson Parish



State-of-the-art advanced multi-dimensional models across the Gulf Coast , including 20+ years in the Barataria Basin



Project Delivery Team core members of the State's 2012, 2017, 2023, and 2029 Master Plan updates

As an industry-leading practitioner in coastal engineering, many projects undertaken by M&N have required the incorporation of the planning and designing coastal *and* flood protection structures. Noteworthy is the fact that:

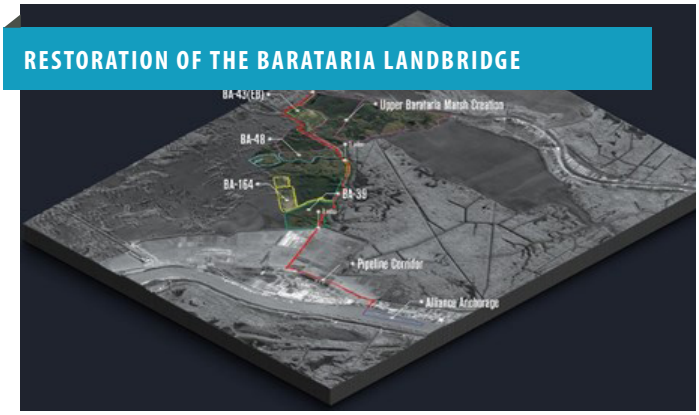
- M&N developed the first engineered detached breakwater system to be used for shore protection and beach stabilization in the late 1970s. The methodology that M&N developed for these structures became the standard that the U.S. Army Corps of Engineers (USACE) followed thereafter until the advent of more powerful numerical modeling systems appeared in the early 1990s.
- M&N developed Repair, Evaluation, Maintenance, and Rehabilitation (REMR) structural rating procedures for breakwaters and jetties for the USACE Construction Engineering Research Laboratory.
- M&N updated the U.S. Navy Design Manual "DM 26.2, Coastal Protection," presenting design guidance for coastal structures.
- M&N also participated in the USACE's Low-Cost Shore Protection Program.
- M&N has pioneered the "Living With Water®" as processes to an optimal blend of Nature-based Solutions (NbS) with conventional gray infrastructure.

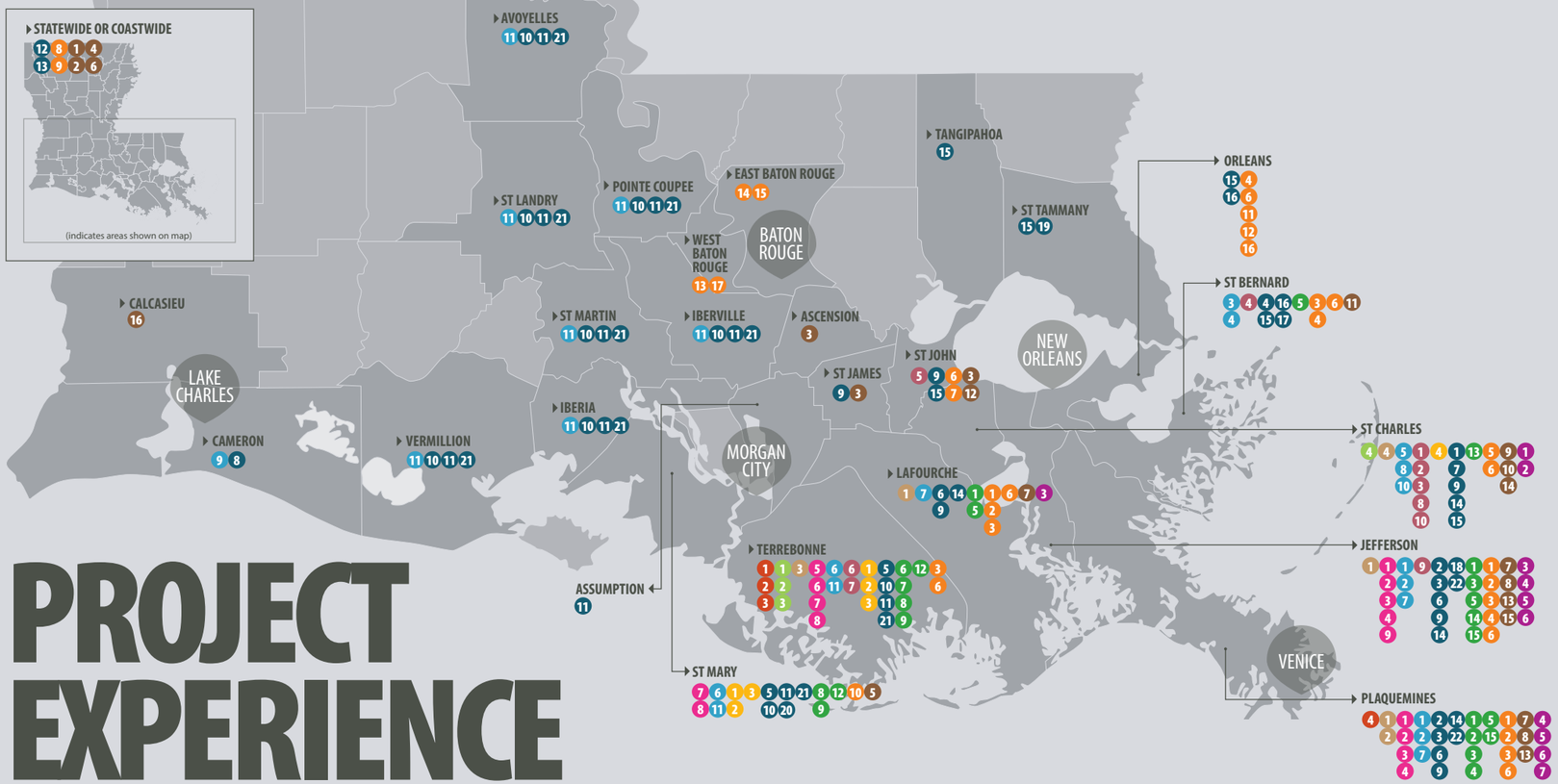
FIGURE 1, provided on page 3, showcases our team's local, comprehensive experience in the disciplines listed in the RFQ and demonstrates our ability to meet Jefferson Parish's unique coastal engineering needs. The Parish will benefit from our specialized knowledge and decades of experience in the following disciplines:

- Coastal engineering, ecosystem restoration, planning engineering, design, and permitting
- Coastal structure and flood protection engineering, design, and construction
- State-of-the-art hydrodynamic, morphological, and storm surge modeling expertise across the entire Louisiana coastline with in-depth experience throughout Jefferson Parish
- Managing multidisciplinary, technically complex, and environmentally sensitive coastal engineering, restoration, and coastal protection projects
- Integrated resilience planning and coastal adaptation design

YOUR PARTNER IN KEY INITIATIVES

As an incumbent on the existing Coastal Engineering and Consulting Services contract, Jefferson Parish has benefited from M&N's nearly 80 years at the forefront of the coastal engineering marketplace. Our team brings a strong history in the tasks anticipated under this contract, enabling successful delivery of any assigned task order to advance key initiatives in the Jefferson Parish Coastal Master Plan.





PROJECT EXPERIENCE

A BARRIER ISLAND RESTORATION

1. **TE-68 Point Au Fer Island Shoreline Stabilization** Terrebonne (CPRA/LCA/WRDA 07)
2. **TE-47 Whiskey Island West Flank & Ship Shoal Evaluation** Terrebonne (CPRA/CWPPRA)
3. **TE-50 Whiskey Island Back Barrier Marsh Restoration** Terrebonne (CPRA/CWPPRA)*
4. **BA-76 Chenier Ronquille Island Restoration Vegetative Planting Project Project** Plaquemines (NOAA/CWPPRA)*

B INLET STABILITY

1. **TE-68 Point Au Fer Island Shoreline Stabilization** Terrebonne (CPRA/LCA/WRDA 07)
2. **TE-47 Whiskey Island West Flank & Ship Shoal Evaluation** Terrebonne (CPRA/CWPPRA)
3. **TE-50 Whiskey Island Back Barrier Marsh Restoration** Terrebonne (CPRA/CWPPRA)*
4. **I-10 Canal/Parish Line Canal Salinity Intrusion Barrier** St Charles (PLD)

C RIDGE RESTORATION

1. **BA-43 EB Mississippi River LDSP Project** Jefferson, Lafourche, Plaquemines (CPRA/CIAP)*
2. **BA-48 Bayou Dupont II Marsh Creation & Ridge Restoration** Plaquemines (CPRA/CWPPRA)*
3. **TE-67 Caillou Landbridge Maintenance** Terrebonne (CPRA/LCA/WRDA 07)
4. **I-10 Canal/Parish Line Canal Salinity Intrusion Barrier** St Charles (PLD)

D MARSH CREATION

1. **BA-43 EB Mississippi River LDSP Project** Jefferson, Plaquemines (CPRA/CIAP)*
2. **BA-48 Bayou Dupont II Marsh Creation & Ridge Restoration Project** Jefferson, Plaquemines (CPRA/CRPA)*
3. **BA-164 Bayou Dupont III Marsh Restoration & Terracing Project** Jefferson, Plaquemines (CPRA)*
4. **BA-207 Large Scale Barataria Marsh Creation: Upper Barataria Component** Jefferson, Plaquemines (NOAA)
5. **TE-50 Whiskey Island Back Barrier Marsh Restoration** Terrebonne (CPRA/CWPPRA)*
6. **TE-67 Caillou Landbridge Maintenance** Terrebonne (CPRA/LCA/WRDA 07)
7. **TE-110 Increase Atchafalaya Flow to Terrebonne Marsh Creation Component** St Mary, Terrebonne (CPRA)
8. **Atchafalaya River LDSP Feasibility Study** St Mary, Terrebonne (TPCG/CIAP)
9. **Bucktown Living Shoreline** Jefferson (Jefferson Parish)

E HYDROLOGIC & HYDRAULIC RESTORATION

1. **BA-33 Medium Diversion at Myrtle Grove** Jefferson, Plaquemines (CPRA/CWPPRA)
2. **BA-71 Myrtle Grove Delta Building Diversion** Jefferson, Plaquemines (CPRA/LCA/WRDA 07)
3. **PO-35-EB Violet Freshwater Diversion** St Bernard (CPRA/CIAP/WRDA 07)
4. **PO-66 MRGO Environmental Restoration/Violet FWD ITR** St Bernard (CPRA/WRDA 07)
5. **Opportunistic Use of the Bonnet Carré Spillway for Wetland Restoration** St Charles (USACE/PLD PAS)
6. **TE-110 Increase Atchafalaya Flow to Terrebonne** St Mary, Terrebonne (CPRA)
7. **BA-153 Mid Barataria Sediment Diversion** Jefferson, Lafourche, Plaquemines (CPRA)
8. **BI-10 Canal/Parish Line Canal Salinity Control Structure** St Charles (CRCL)
9. **CS-27 Black Bayou Hydrologic Restoration** Cameron (CPRA/CWPPRA)*
10. **LaBranche Wetlands Environmental Restoration** St Charles (PLD)
11. **Atchafalaya Basin Sustainable Rivers Program** Avoyelles, Iberia, Iberville, Point Coupee, St Landry, St Martin, St Mary, Terrebonne, Vermillion (TNC)

F SHORELINE PROTECTION

1. **St Charles Hurricane Protection Levee Shoreline Protection & Enhancement Feasibility Study** St Charles (PLD/CIAP)
2. **PO-42 LaBranche West Shoreline Protection Project** St Charles (St Charles Parish CIAP/PLD)*
3. **PO-43 LaBranche East Shoreline Protection Project** St Charles (St Charles Parish CIAP/PLD)*
4. **PO-34 Alligator Bend Shoreline Protection & Enhancement** St Bernard (NRCS/CWPPRA)*
5. **PO-90 West Lac Des Allemands Shoreline Protection** St John the Baptist (St John the Baptist Parish/CIAP)*
6. **TE-68 Point Au Fer Island Shoreline Stabilization** Terrebonne (CPRA/LCA/WRDA 07)
7. **TE-47 Whiskey Island West Flank & Ship Shoal Evaluation** Terrebonne (CPRA/CWPPRA)
8. **I-10 Canal/Parish Line Canal Salinity Intrusion Barrier** St Charles (CRCL)
9. **Bucktown Living Shoreline** Jefferson (Jefferson Parish)
10. **PO-194 LaBranche Shoreline Protection Project** St Charles (CRPA)

G BENEFICIAL USE OF DREDGED MATERIAL

1. **TE-110 Increase Atchafalaya Flow to Terrebonne Marsh Creation Component** St Mary, Terrebonne (CPRA)
2. **Atchafalaya River LDSP Feasibility Study** St Mary, Terrebonne (TPCG/CIAP)
3. **Atchafalaya River Beneficial Use of Dredged Material Program** St Mary, Terrebonne (Port of Morgan City/USACE/TPCG)
4. **PO194 LaBranche Shoreline Protection Project** St Charles (CRPA)

H HYDRAULIC, HYDRODYNAMIC & MORPHOLOGICAL MODELS

1. **LaBranche Wetlands Storm Water Drainage & Watershed Master Plan, RMA2/ RMA4** St Charles (USACE/PLD PAS)
2. **BA-33 Medium Diversion at Myrtle Grove, Jefferson, RMA2/ RMA4** Jefferson, Plaquemines (CPRA/CWPPRA)
3. **BA-71 Myrtle Grove Delta Building Diversion, DELFT3D** Jefferson, Plaquemines (CPRA/LCA/WRDA 07)
4. **PO-35-EB Violet Freshwater Diversion, DELFT3D** St Bernard (CPRA/CIAP/WRDA 07)
5. **TE-110 Increase Atchafalaya Flow to Terrebonne, MIKE21 FM** St Mary, Terrebonne (CPRA)
6. **BA-153 Mid Barataria Sediment Diversion, DELFT3D** Jefferson, Lafourche, Plaquemines (CPRA)
7. **I-10 Canal/Parish Line Canal Salinity Control Structure, RMA2/ RMA4** St Charles (CRCL)
8. **CS-27 Black Bayou Hydrologic Restoration, MIKE 11** Cameron (CPRA/CWPPRA)*
9. **Barataria Basin Hydrodynamic & WQ Model, RMA2/ RMA4** St James, St John the Baptist, St Charles, Plaquemines, Jefferson, Lafourche (CPRA/Coast 2050)
10. **Atchafalaya Basin Hydrodynamic, WQ & Sediment Model, MIKE 21 FM** Avoyelles, Iberia, Iberville, Point Coupee, St Landry, St Martin, St Mary, Terrebonne, Vermillion (National Audubon Society/ WRDA)
11. **State of Louisiana Master Plan 2012 Revision Atchafalaya Basin Eco-Hydrology Module, Berkeley Madonna Box Model** Assumption, Avoyelles, Iberia, Iberville, Point Coupee, St Landry, St Martin, St Mary, Terrebonne, Vermillion (CPRA)
12. **State of Louisiana Master Plan 2017 Coastal Master Plan Revision, ICM** Statewide (CPRA)
13. **State of Louisiana Master Plan 2023 Coastal Master Plan Revision, ICM** Statewide (CPRA)
14. **Barataria Basin Model Integration, DELFT3D** Jefferson, Lafourche, Plaquemines, St Charles (CPRA)
15. **Pontchartrain Maurepas Storm Surge Modeling, MIKE 21 FM** Orleans, St Bernard, St Tammany, Tangipahoa, St John the Baptist, St Charles (LPBF)
16. **I-10 Bridge Replacement Hurricane & Storm Surge Modeling, ADCIRC, DELFT SWAN** Orleans, St Bernard (LA DOTD)*
17. **US-90 Chef Menteur Storm Surge Modeling, ADCIRC, DELFT SWAN, MIKE21 BW** St Bernard (LA DOTD)
18. **LA-45 Goose Bayou Storm Surge Modeling, ADCIRC, DELFT SWAN, MIKE21 BW** Jefferson (LA DOTD)
19. **LA-433 Storm Surge Modeling, ADCIRC, DELFT SWAN** St Tammany (LA DOTD)
20. **Bayou Chene Closure Structure Hydrodynamic, Modeling MIKE 21FM** St Mary (CPRA)*
21. **Atchafalaya Basin Sustainable Rivers Program** Avoyelles, Iberia, Iberville, Point Coupee, St Landry, St Martin, St Mary, Terrebonne, Vermillion (TNC)
22. **Jean Lafitte National Historical Park & Preserve Barataria Preserve Future Conditions Modeling, Mike 21 FM** Jefferson, Plaquemines (National Park Service)

I DREDGE ENGINEERING & DREDGED MATERIAL MANAGEMENT

1. **BA-43 EB Mississippi River LDSP Project** Jefferson, Lafourche, Plaquemines (CPRA/CIAP/EB)*
2. **BA-48 Bayou Dupont II Marsh Creation & Ridge Restoration** Plaquemines (CPRA/CRPA)*
3. **BA 164 Bayou Dupont III Marsh Creation & Terrace Project** Jefferson, Plaquemines (CPRA/CWPPRA)*
4. **Mississippi River Programmatic Borrow Site Analysis** Plaquemines (CPRA)
5. **Mississippi River Sediment Delivery System ITR** Jefferson, Lafourche, Plaquemines, St Bernard (CPRA)
6. **TE-47 Whiskey Island West Flank & Ship Shoal Evaluation** Terrebonne (CPRA/CWPPRA)
7. **TE-50 Whiskey Island Back Barrier Marsh Restoration** Terrebonne (CPRA/CWPPRA)*
8. **Atchafalaya River LDSP Feasibility Study** St Mary, Terrebonne (TPCG/CIAP)
9. **Atchafalaya Bar Channel Fluid Mud Management Program** St Mary, Terrebonne (Port of Morgan City)
10. **Lake Providence Bar Channel Sediment Management Program** East Carroll (Lake Providence Port Authority)
11. **Maddison Port Sediment Management Program** Maddison (Maddison Port Authority)
12. **TE-110 Increase Atchafalaya Flow to Terrebonne** St Mary, Terrebonne (CPRA)
13. **PO-194 LaBranche Shoreline Beneficial Use Project** St Charles (CPRA)
14. **Bucktown Living Shoreline Project Marsh Creation Component** Jefferson (Jefferson Parish)
15. **BA-207 Large Scale Barataria Marsh Creation: Upper Barataria Component** Jefferson, Plaquemines (NOAA)*

J GENERAL ENGINEERING

1. **BA-153 Mid Barataria Sediment Diversion Owner's Engineer Design Review Team** Jefferson, Lafourche, Plaquemines (CPRA)
2. **BS-0030 Mid Breton Sediment Diversion Owner's Engineer Design Review Team** Jefferson, Lafourche, Plaquemines (CPRA)
3. **Changing Course Design Competition** Jefferson, Lafourche, Plaquemines, St Bernard, Terrebonne (EDF)
4. **SLFPA-E HSDRRS Complex Structures Asset Management** Jefferson, Orleans, St Bernard (SLFPA-E)
5. **Cross Bayou Pump Station Upgrade Assessment** St Charles (Shell Motiva/PLD)
6. **Louisiana DFIRM Flood Map Revisions** Jefferson, Lafourche, Orleans, Plaquemines, St Bernard, St Charles, St John the Baptist, Terrebonne (FEMA)
7. **I-10 Reserve Relief Canal – I-55 NB Ramp H&H Storm Surge Analysis** St John the Baptist (LA DOTD)
8. **Statewide Underwater Bridge Inspection Program** Statewide (LA DOTD)
9. **Statewide Ancillary Structures Inspection Program** Statewide (LA DOTD)
10. **Morgan City Front Street Wharf, Inspection, Rehabilitation & Reconstruction** St Mary (City of Morgan City)*
11. **USCG Integrated Support Command Waterfront Improvements** Orleans (USCG Integrated Support Command)*
12. **Structural Inspection & Evaluation of Waterfront Facilities at USCG Integrated Support Command** Orleans (USCG)*
13. **Port of Greater Baton Rouge Bulkhead I&R Review** West Baton Rouge (Port of Baton Rouge)
14. **Pinnacle Entertainment Casino Marine Structural Concept Development** East Baton Rouge (Pinnacle Entertainment)*
15. **Baton Rouge City Dock Expansion Project** East Baton Rouge (City of Baton Rouge/Downtown Development District)
16. **Municipal Yacht Harbor Rehabilitation** Orleans (City of New Orleans)
17. **Port of Baton Rouge Flood Risk Assessment** West Baton Rouge (Confidential)

K ENVIRONMENTAL & PERMITTING SERVICES

1. **Deepwater Horizon PEIS** Gulfwide (NOAA)
2. **Open Ocean TIG Restoration Plan & Environmental Assessment** Gulfwide (NOAA)
3. **Reintroduction into Maurepas Swamp Environmental Assessment** St John, St James, Ascension (CPRA)
4. **Louisiana TIG RP EA#8** Statewide (CPRA)
5. **Avoca Island Mitigation Bank** St Mary (Heritage Land Management, LLC)
6. **Statewide TMDL Assessment** Statewide (USAF ACC)
7. **BA-43 EB LDSP/BA48 Mississippi River Joint Permit** Jefferson, Lafourche, Plaquemines (CPRA/CIAP/EB)*
8. **BA-164 Bayou Dupont III Marsh Restoration & Terracing Project Permit** Jefferson, Plaquemines (CPRA)*
9. **PO-42 LaBranche West Shoreline Protection Project Permit** St Charles (St Charles Parish CIAP/PLD)*
10. **PO-43 LaBranche East Shoreline Protection Project Permit** St Charles (St Charles Parish CIAP/PLD)*
11. **PO-34 Alligator Bend Shoreline Protection & Enhancement Permit** St Bernard (NRCS/CWPPRA)*
12. **PO-90 West Lac Des Allemands Shoreline Protection Permit** St John the Baptist (St John the Baptist /CIAP)*
13. **BA-207 Large Scale Barataria Marsh Creation: Upper Barataria Component Permit** Jefferson, Plaquemines (NOAA)*/**
14. **PO194 LaBranche Shoreline Beneficial Use Project Permit** St Charles (CPRA)
15. **Bucktown Living Shoreline Project Permit** Jefferson (Jefferson Parish) **
16. **Phillips 66 Westlake Refinery Maintenance Dredging Permit Application** Calcasieu (Phillips 66)

L CONSTRUCTION ADMINISTRATION & INSPECTION

1. **PO-42 LaBranche West Shoreline Protection Project** St Charles (St Charles Parish CIAP/PLD)*
2. **PO-43 LaBranche East Shoreline Protection Project** St Charles (St Charles Parish CIAP/PLD)*
3. **BA-43 EB Mississippi River Long Distance Sediment Pipeline Project** Jefferson, Lafourche (CPRA/CIAP/EB)*
4. **BA-48 Bayou Dupont Marsh Creation II & Ridge Restoration** Jefferson, Plaquemines (CPRA/CRPA)*
5. **BA-164 Bayou Dupont III Marsh Restoration & Terracing Project** Jefferson, Plaquemines (CPRA)*
6. **BA-207 Large Scale Barataria Marsh Creation: Upper Barataria Component Permit** Jefferson, Plaquemines (NOAA)*
7. **BA-76 Chenier Ronquille Island Restoration Vegetative Planting Project Project** Plaquemines (NOAA/CWPPRA)*

*Note: *Constructed; **Section 408 Permit Required*

M&N has conducted hundreds of numerical model studies on coastal hydrodynamics, coastal structure hydraulics, sediment transport, and morphology, many in Louisiana. We have been using these innovative modeling tools to simulate complex coastal systems in Louisiana for years. We are a long-standing leader in hydrodynamic, surge, wave propagation, and morphological modeling. **FIGURE 2,** provided on the following page demonstrates comprehensive coverage of Louisiana coastline in advanced, multi-dimensional hydrodynamic, wave propagation, and morphological models.

THE MOST EFFICIENT MODELING AVAILABLE

With the largest capacity High-Performance Cluster Supercomputer existing in the private sector today, with more than 2,000 cores of computing capacity, M&N provides multi-parameter, higher resolution, larger domain, and decadal simulations not possible on conventional modeling hardware. More importantly, many simulations can be run in parallel, minimizing model run times, decreasing uncertainty, and allowing for the most efficient analysis of restoration alternatives.

The M&N team is fully confident that we have the full complement of expertise required to provide and implement successful design-focused solutions to coastal engineering challenges that combines coastal restoration *and* protection. The entire M&N team has long-established working relationships with local, state, and federal agencies, to deliver projects efficiently and to secure the cooperation and support needed from key stakeholders. We have a detailed understanding and in-depth familiarity with the major stakeholder partners of Jefferson Parish that can only be earned by living and working within southeast Louisiana and with the parish. This sensitivity to the nuances of the key stakeholders, permitting agencies, and project partners enable the team to rapidly build the essential consensus required to facilitate project implementation.

Grant Writing Experience

M&N has successfully partnered with our clients to develop a framework that leverages alternative funding sources to supplement the community's funding mechanisms. In addition to the federal programs, many individual states, communities, and non-profits offer funding opportunities for resource preservation, mitigation, and enhancement, economic stimulation and recovery, and education opportunities. By including potential alternative funding sources in master planning efforts, we help clients realize their vision in a purposeful and cost-conscious manner. As an example, M&N provided grant writing and technical support to Jefferson Parish for several waterfront project grants which were successful in procuring almost $3 million in grant funding. This $3 million, along with matching funds, support the Bucktown Living Shoreline project and future construction of a mixed-use day dock at the Bucktown Harbor Marina. M&N's grant writing experience has resulted in an additional grant funding of $5 for every dollar invested by Jefferson Parish.

The table at right highlights a sampling of projects for which M&N assisted clients with securing and/or implementation of federal-funding in Louisiana.

CIAP FUNDING

Project Title	Approximate Construction Value	Year Constructed
BA-0043-EB Mississippi River Long Distance Sediment Pipeline	$100 Million	2017
PO42 West LaBranche Shoreline Protection	$3.4 Million	2013
PO43 East LaBranche Shoreline Protection	$2.2 Million	2015
PO-90 West Lac Des Allemands Shoreline Protection Project	$3.4 Million	2015

CWPPRA FUNDING

Project Title	Approximate Construction Value	Year Constructed
BA-0048 Bayou Dupont Marsh and Ridge Creation	$34 Million	2015
BA-0164 Bayou Dupont Sediment Delivery - Marsh Creation #3 and Terracing	$14 Million	2017
PO-0034 Alligator Bend Marsh Restoration and Shoreline Protection	$1.36 Million	2015
Caillou Headland *	$102.5 Million	2018
TE-0050 Whiskey Island Back Barrier Marsh Creation	$23 Million	2009

DWH FUNDING

Project Title	Approximate Construction Value	Year Constructed
BA-0207 Large-Scale Barataria Marsh Creation: Upper Barataria Component	$150 Million	2022 - 2023
Bucktown Living Shoreline	$13 Million	2023 - 2024

SURPLUS FUNDING

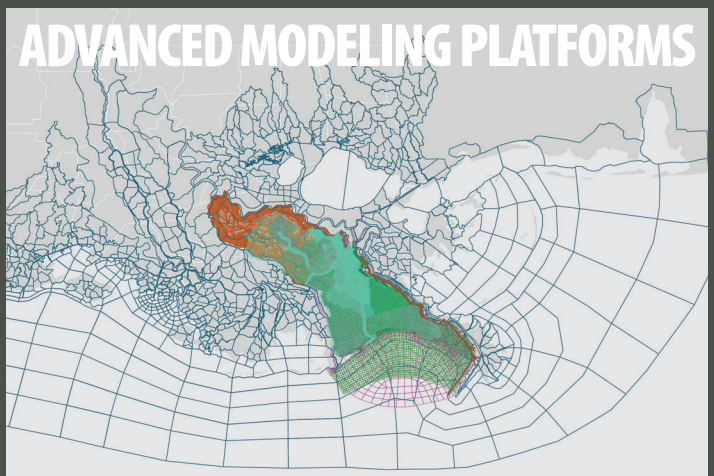
Project Title	Approximate Construction Value	Year Constructed
PO194 LaBranche Shoreline Protection Project	$23 Million	2024

FEMA / HMGP FUNDING

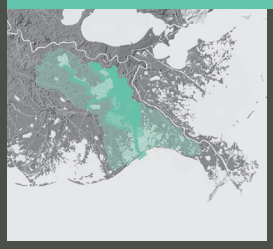
Project Title	Approximate Construction Value	Year Constructed
New Orleans Municipal Yacht Harbor	$22 Million	2019 - 2022
St Roch Drainage Upgrades and Green Infrastructure	$18 Million	2024

** Constructed as part of Caillou Headlands Project*

ADVANCED MODELING PLATFORMS



JEFFERSON PARISH, LOUISIANA



BARATARIA PRESERVE // 2D DHI MIKE 21 FLOW

CAPABILITIES: 2D hydrodynamics and salinity modeling

CLIENT: National Parks Service

HIGHLIGHTS: Developed for Jean Lafitte National Park and Preserve to provide park managers with rigorous projections of coastal environmental conditions across the Barataria Preserve landscape over the next 50 years.

Used in conjunction with a "downscaled" version of the 2023 Coastal Master Plan ICM model, this complementary 2D hydrodynamic model simulates water levels, flows, and salinities at higher spatial resolution within the preserve and across the basin at specific points in time during the 50-year planning horizon.

FUTURE POTENTIAL APPLICATIONS: Assessment of pumped urban drainage and increased precipitation on salinities and water quality in Upper Barataria • Assessment of impacts of large coastal restoration projects (including proposed diversions and marsh creation) • Advancement of Changing Course Design concept alternatives.

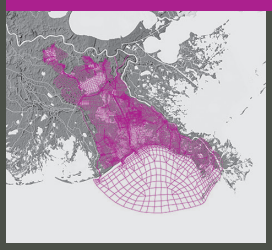
LOWER MISSISSIPPI RIVER // DELFT3D

CAPABILITIES: 3D hydrodynamics, hydraulics, sediment transport and morphology modeling

CLIENT: CPRA

HIGHLIGHTS: Created for the BA 43 Mississippi River Long Distance Sediment Transport project to model morphological response of borrow sites to establish re-fill rates, dredging scenarios and project sequencing.

FUTURE POTENTIAL APPLICATIONS: Evaluating Mississippi River and borrow site morphological response to the combined effects of the diversion program and large-scale marsh creation • Advancement of Changing Course Design concept alternatives.



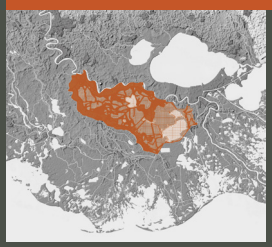
BARATARIA BASIN // RMA2 AND RMA4

CAPABILITIES: 2D hydrodynamics, water quality and salinity modeling

CLIENT: CPRA

HIGHLIGHTS: Created for the Coast 2050 Barataria Basin Model to evaluate effectiveness of diversion alternatives in meeting historic salinity regimes. Also used in conjunction with the Mississippi River Long Distance Sediment Pipeline to assess multiple marsh creation site scenarios hydro-modification impacts.

FUTURE POTENTIAL APPLICATIONS: Assessment of impacts of marsh creation placement sites on hydro-modification • Cumulative impacts with the diversion program • Advancement of Changing Course Design concept alternatives.



HUC 08 EAST CENTRAL LOUISIANA COASTAL / UPPER BARATARIA BASIN // HEC RAS

CAPABILITIES: Transition zone hydrology, hydraulics and hydrodynamics

CLIENT: LA DOTD

HIGHLIGHTS: Development of Louisiana Watershed initiative compliant numerical models within Region VI of the LWI

FUTURE POTENTIAL APPLICATIONS: Assess project and portfolio of project performance in flood risk reduction • Perform sensitively analysis of candidate project improvements.

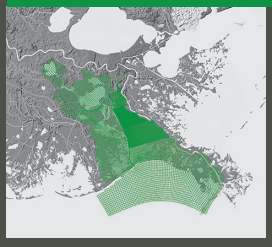
LOUISIANA COASTAL ZONE // ICM

CAPABILITIES: Hydrodynamics, water quality, sediment transport, vegetative response and wetland morphology modeling

CLIENT: CPRA

HIGHLIGHTS: Created for the 2017 Coastal Master Plan to evaluate project portfolio performance in meeting State Master Plan objectives.

FUTURE POTENTIAL APPLICATIONS: Further refinement and coding enhancements for model improvements as part of the 2023 Coastal Master Plan.



BARATARIA BASIN // DELFT3D

CAPABILITIES: 3D hydrodynamics, sediment transport and morphological modeling

CLIENT: CPRA

HIGHLIGHTS: Created for the Myrtle Grove Delta Building Sediment Diversion Project (BA-33) to determine land-building capacity of different diversion scenarios.

FUTURE POTENTIAL APPLICATIONS: Evaluation of optimal placement, sizing and sustainability assessment of large-scale marsh restoration projects • Cumulative impacts of freshwater diversion program in the region • Advancement of Changing Course Design concept alternatives.

M&N is the prime consultant and will lead the project from our local New Orleans office where we have 10 coastal engineers, numerical modelers, wetland ecologists, restoration planners, civil engineers, and construction resident inspectors. We will be responsible for project delivery, management, and quality. Supporting M&N are team member firms with whom we have collaborated on various restoration, protection, and coastal engineering efforts. Additionally, M&N recently acquired Waggonner & Ball, an Architecture and Planning studio with specialized experience in resilience and coastal community adaptation and the public engagement that surrounds this community of practice.

FUGRO USA LAND, INC.

Fugro has provided geotechnical and survey services across Louisiana including for Jefferson Parish, the Louisiana Department of Natural Resources, and the Coastal Protection and Restoration Authority (CPRA).

Fugro has provided subsurface explorations in support of Louisiana flood protection and coastal projects since 1946, earning a reputation for consistently delivering high-quality projects on time and within budget. Since Hurricane Katrina, the firm has expanded its experience during the development, planning, and execution of flood and coastal protection projects for local, state, and federal partners. Fugro's history with the Louisiana Department of Natural Resources and CPRA has spanned 25 years and given the firm the specialized experience needed to get Louisiana jobs done right.

ELOS ENVIRONMENTAL, LLC

ELOS has extensive experience working for and within Jefferson Parish including Bucktown Living Shoreline, Jefferson Parish Landfill Compliance Consulting, Jefferson Transit Bus Stop Improvements, Kenner Environmental Quality Inspections, LA-3234 Extension, and West Esplanade Boulevard Pump Station Permitting Services.

A certified Small and Emerging Business Enterprise (SEBD) under the Hudson Initiative (#11198), ELOS offers expertise in regulatory affairs related to environmental permitting and compliance. ELOS professionals provide support for natural resources, grant proposals, and environmental clearance and permits for a wide range of projects. In addition to natural resource impact analysis and mitigation planning, ELOS also provides support for public outreach, interagency coordination, and decision documentation. The firm has assisted several clients in drafting policy documents and resolutions related to land use, flood protection, hazard mitigation, and transportation planning.

SOUTHERN SHORES ENGINEERING, LLC

SSE's principal Whitney Thompson authored specifications for dredging the Mississippi River for coastal restoration that have been implemented on several projects in Jefferson Parish.

SSE is extremely familiar with coastal processes unique to Louisiana, local soil conditions, and the coastal Louisiana marine construction industry, providing a strong foundation to support the implementation of Louisiana's comprehensive restoration plan, including large-scale barrier island and headland restoration, marsh creation design, beneficial use of dredged material, vegetative plantings design, living shorelines, and shoreline stabilization. SSE engineers specialize in coastal design, project management, coastal zone permitting, and construction administration, and have designed restoration projects utilizing, offshore, nearshore, inland, and Mississippi River sediment for fill material to construct beach and dune, marsh, and barrier island shorelines, coordinating with navigation entities and tackling logistical challenges to successfully implement these projects.

COASTAL ENVIRONMENTS, INC.

CEI has been active in planning, basic research and applied environmental sciences in the Northern Gulf Coastal Region and Lower Mississippi Valley Region for more than 50 years.

CEI has the capability to conduct multiple, large-scale environmental and cultural resources surveys and assessments simultaneously, whether onshore in terrestrial and estuarine environments or offshore in bays, rivers, and deep water. CEI is very familiar with the environment of Jefferson Parish and has performed numerous projects in the parish including: Bayou Segnette BLH Mitigation Project (USACE), Jean Lafitte Canal Backfilling Monitoring, Damage Assessment of Entergy Transmission Line Restoration through Wisner Donation, The Nature Conservancy / NOAA Bioengineered Oyster Reef project on Grand Isle, and LaDOTD's EA for the Huey P. Long Bridge Expansion.

ADAPTIVE MANAGEMENT AND ENGINEERING, LLC

AME has developed innovative methods that have been used for upland disposal sites (UDS) and applied the lessons learned to marsh restoration and other BUDM projects.

AME is a small business and a Hudson Initiative firm providing geotechnical, instrumentation, and monitoring services. AME has extensive experience working in the soft soils of Gulf Coast and is well versed in planning and providing geotechnical recommendations for coastal protection and restoration projects, upland disposal sites, beneficial use of dredged material (BUDM), industrial, commercial, and roadway projects. AME's planning and geotechnical teams take construction means and methods and practical constraints into consideration to provide for a viable, economical, and efficient design.

INNOVATIVE CONCEPTS

STAKEHOLDER ENGAGEMENT / COMMUNITY OUTREACH

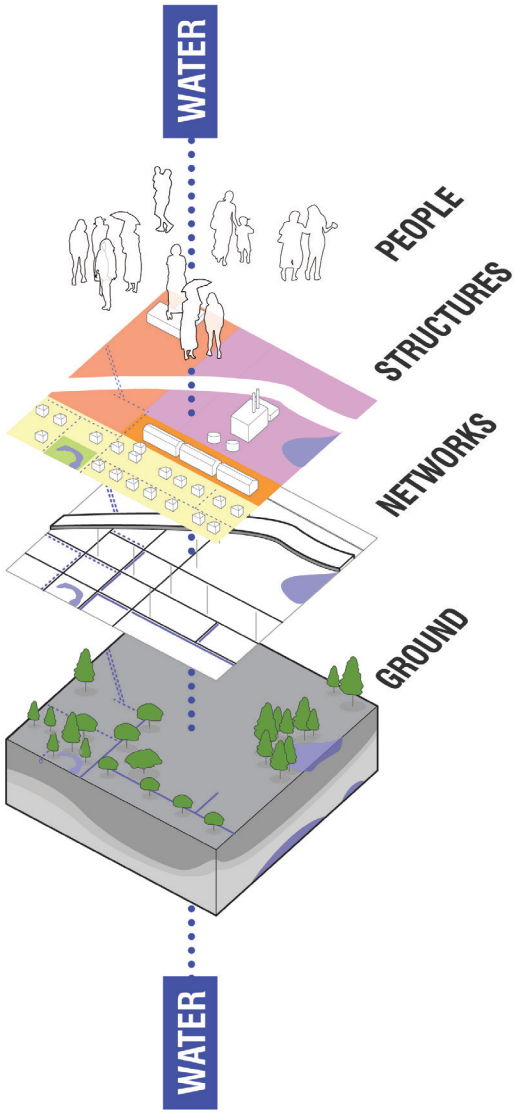
As a licensed holder for the PublicInput online platform, we provide community members with information and engagement opportunities in the comprehensive planning process. The suite of tools available in the platform includes general information posts, targeted social media posts, project timelines, map-based survey tools, question-based survey tools, discussion forums, online polls, project phone lines and hotline forwarding, offline survey-by-text message, story-telling opportunities, and videos. Additionally, the PublicInput platform can be used to complement in-person events and enables online virtual public meetings in a manner that is secure yet accessible to the public. The platform can include the ability to acquire or gather subscribers and perform email and text message communication increasing community engagement throughout the process. During the COVID 19 Pandemic, we actually found that we were getting greater public participation in the outreach engagement process, versus in person meetings. M&N has now developed a hybrid Stakeholder Engagement platform that blends in person participation with on-line engagement. M&N has had impressive success with this tool and has exclusive licensing privileges that will save clients expensive subscription fees.

Recently acquired firm Waggonner & Ball has developed a workshop model that brings together local, national, and international experts representing multiple disciplines to solve site-specific water and resilience challenges alongside local governments, state and federal agencies, and community stakeholders. Living With Water® is informed by key principles that embrace water as an asset and highlight safety to people, respect for natural systems, and risk reduction to people, places, and capital through multipurpose design and infrastructure. Pioneered by Waggonner & Ball during the post-Katrina Dutch Dialogues collaborative workshops, this approach is grounded in science and prioritizes nature-based strategies. The Living With Water® workshop model has transformed how cities approach economic (re-)development in relation to water, catalyzed water entrepreneurship and job creation through resilience building and stimulated citizens to become part of the region's systemic effort to reduce flooding. We work across disciplines together. We structure community engagement to center equity and to create grassroots political will for action after the planning is done.

COLLABORATIVE DESIGN WORKSHOPS

PUBLICINPUT PLATFORM

- PublicInput was used for the **Bucktown Master Plan Project** where we received 122,568 views, had 925 participants, 11,763 responses, 689 comments, and 231 subscribers for the Pontchartrain Lakefront Community.
- M&N has leveraged the PublicInput platform on 11 projects to date, supporting master planning and community engagement efforts for cities, waterfronts, and ports along the Southeast, Gulf, and West Coast of the U.S., as well as the Caribbean.
- PublicInput was used for the Bayou LaBatre City Docks Redevelopment Master Plan project where we received 12,548 views, had 501 participants, 17,325 responses, 1,174 comments, and 249 subscribers for a very small community.



Our layered planning approach begins with land, water, soils, and biodiversity. Underlying physical characteristics guide the development of infrastructure and inform patterns of inhabitation. Community and Stakeholder Engagement is critical to the planning process and starts early.

TRUSTED COASTAL ENGINEERING PARTNER

We are core members of the State's Project Delivery Team for the 2012, 2017, 2023, and 2029 updates to the Coastal Master Plan—a testament of the State's faith in M&N as a trusted partner in their coastal program.

"I was able to work directly with the M&N staff responsible... It is in my opinion that their performance was outstanding and exceeded expectations... They provided the necessary expertise, completed tasks in a professional timely manner, their report preparation and oral presentation were excellent and effective and were extremely responsive to client requests."

~ Jerry Carroll, Engineer Manager, CPRA

"Thanks to the Moffatt & Nichol team, two major coastal restoration projects in Mobile County are well on their way to success. The Dauphin Island Causeway project needed a highly effective group of talented professionals to complete the design in an extremely short timeframe. You delivered that design on time and used an approach that fostered confidence from our partners, the Mobile District of the USACE. The Salt Aire Shoreline Restoration project is also on track for success after Moffatt & Nichol's engineers and scientists evaluated the shortcomings in the previous design and proposed a more robust solution for the erosion problem along that stretch of shoreline. I sincerely appreciate your dedication to supporting local government efforts to utilize oil spill dollars to transform the communities of south Mobile County and improve our quality of life. Thank you for everything you do."

~ Tina Sanchez, Environmental Services Director, Mobile County Commission

SPECIALIZED EXPERIENCE

M&N provides a comprehensive range of coastal engineering, design, resilience planning and adaptation, community outreach, stakeholder outreach and public consultation, and ecosystem restoration planning services. As demonstrated in the table below, our coastal engineering and restoration science team has a wide range of professional training and experience in coastal engineering across the Gulf Coast, as well as having direct project experience with Jefferson Parish. We've included detailed team member resumes in APPENDIX A and representative projects in APPENDIX B.

	EXPERIENCE IN JEFFERSON PARISH	COASTAL PLANNING & DESIGN	PERMITTING	MARSH & RIDGE RESTORATION	SHORELINE STABILIZATION & PROTECTION	BENEFICIAL USE OF DREDGED MATERIAL	LIVING SHORELINE DESIGN	H&H MODELING	BIO./ENV. ASSESSMENT OF WETLANDS	DESIGN ANALYSIS & REPORTS	TECHNICAL EVALUATIONS	COST ESTIMATES	FIELD INVESTIGATIONS	COASTAL GRANT WRITING	OUTREACH & EDUCATION	SURVEY	GEOTECHNICAL ENGINEERING
JONATHAN HIRD, PE // PRINCIPAL-IN-CHARGE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
JEFF SHELDEN, PE // QA/QC	●	●	●	●	●	●	●	●		●	●	●	●				
DON BLANCHER, PHD, BCES // QA/QC, OUTREACH EDUCATION & MARKETING MATERIALS, BIOLOGICAL & ENVIRONMENTAL ASSESSMENT	●	●	●	●	●	●	●	●	●	●	●		●	●	●		
HUGO BERMUDEZ, PE // QA/QC	●	●	●	●	●	●	●	●		●		●	●	●	●		
MINDY JOINER, MS // PROJECT MANAGER, BIOLOGICAL & ENVIRONMENTAL ASSESSMENT, GRANT WRITING, PERMITTING, OUTREACH EDUCATION & MARKETING MATERIALS	●	●	●				●		●	●	●		●	●	●		
KEVIN HANEGAN, PHD, PE // ENGINEERING MANAGER & TECHNICAL LEAD; H&H MODELING	●	●	●	●	●	●	●	●		●	●	●	●		●		
CHRIS WILLIAMS, PE // COASTAL ENGINEERING & DESIGN, PERMITTING	●	●	●	●	●	●	●		●	●	●	●	●	●	●		●
GERALD SONGY, PE // COASTAL ENGINEERING & DESIGN, DREDGING / BENEFICIAL USE	●	●	●	●	●	●	●	●		●	●	●	●				●
NICK COX, PE // COASTAL ENGINEERING & DESIGN, DREDGING / BENEFICIAL USE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
VENU TAMMINENI, PE // COASTAL ENGINEERING & DESIGN, DREDGING / BENEFICIAL USE	●	●	●	●	●	●	●			●	●		●		●		●

	EXPERIENCE IN JEFFERSON PARISH	COASTAL PLANNING & DESIGN	PERMITTING	MARSH & RIDGE RESTORATION	SHORELINE STABILIZATION & PROTECTION	BENEFICIAL USE OF DREDGED MATERIAL	LIVING SHORELINE DESIGN	H&H MODELING	BIO./ENV. ASSESSMENT OF WETLANDS	DESIGN ANALYSIS & REPORTS	TECHNICAL EVALUATIONS	COST ESTIMATES	FIELD INVESTIGATIONS	COASTAL GRANT WRITING	OUTREACH & EDUCATION	SURVEY	GEOTECHNICAL ENGINEERING
GREGORY MATTSON, II, PE // COASTAL ENGINEERING & DESIGN, DREDGING / BENEFICIAL USE	●	●	●	●	●	●				●	●	●	●	●			●
SAMANTHA MCKISSON, EIT // COASTAL ENGINEERING & DESIGN	●	●	●	●	●	●	●		●	●		●	●		●		
PEYTON POSEY, EIT // COASTAL ENGINEERING & DESIGN	●	●	●	●	●	●	●		●	●		●	●		●		
WHITNEY THOMPSON, PE // COASTAL ENGINEERING & DESIGN	●	●	●	●	●	●	●		●	●	●	●	●		●	●	●
GEORGE RAMSEUR // DREDGING / BENEFICIAL USE	●	●	●	●		●	●		●	●	●		●		●		
SEANN PEREZ, CPE // DREDGING / BENEFICIAL USE	●	●	●	●	●	●	●		●	●	●	●	●	●			
PETE KOTULAK, PE // DREDGING / BENEFICIAL USE	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●
MIKE HUEBSCH, PE // DREDGING / BENEFICIAL USE	●	●	●	●	●	●	●		●	●		●	●		●		
CHRISTOPHER PAUL, PE // CONSTRUCTION ADMINISTRATION	●	●	●	●	●	●	●		●	●	●	●	●			●	
JOHN DARNALL, EIT // CONSTRUCTION ADMINISTRATION		●	●	●	●	●	●	●	●	●	●	●	●			●	●
MIKE HARDY // CONSTRUCTION ADMINISTRATION	●				●	●	●				●		●			●	
DAVID WARREN // CONSTRUCTION ADMINISTRATION	●				●	●	●				●		●			●	
COLIN ANDERSON, PE // H&H MODELING	●	●	●		●		●	●	●	●			●		●		
MAARTEN KLUIJVER, PE // H&H MODELING	●	●	●	●	●	●	●	●		●	●	●	●		●		
CHRIS SIVERD, PHD, PE // H&H MODELING	●	●	●		●		●	●		●	●		●				
JULIA MUDD // H&H MODELING	●	●	●				●	●		●		●	●		●		
NICK SCALFANO, EIT // H&H MODELING	●	●	●				●	●		●		●	●		●		
BROOKE MORRIS, PE, PLA // H&H MODELING	●	●	●				●	●		●		●	●		●		
TIM NELSON, PG, CFM // H&H MODELING, GRANT WRITING	●	●	●				●	●		●		●	●	●	●		
LUCAS WATKINS // BIOLOGICAL & ENVIRONMENTAL ASSESSMENT, PERMITTING	●	●	●	●	●	●	●		●	●	●	●	●				
BRIAN FORTSEN // BIOLOGICAL & ENVIRONMENTAL ASSESSMENT, PERMITTING	●	●	●	●	●	●	●		●	●	●	●	●				
CORI GAVINS // BIOLOGICAL & ENVIRONMENTAL ASSESSMENT, PERMITTING		●	●	●	●	●	●		●	●	●	●	●	●	●	●	
HUNTER GUIDRY // BIOLOGICAL & ENVIRONMENTAL ASSESSMENT, PERMITTING	●	●	●		●				●		●	●	●				
WALKER WILSON // BIOLOGICAL & ENVIRONMENTAL ASSESSMENT	●	●		●		●			●		●		●				
MEG GOECKER, MS // PERMITTING, GRANT WRITING, OUTREACH EDUCATION & MARKETING MATERIALS	●	●	●	●	●	●	●		●	●	●	●	●	●	●		
JESSICA MCINTYRE, PE // GRANT WRITING	●	●	●		●					●	●	●	●	●	●		
AMANDA ZULLO // OUTREACH EDUCATION & MARKETING MATERIALS	●				●		●			●	●				●		

	EXPERIENCE IN JEFFERSON PARISH	COASTAL PLANNING & DESIGN	PERMITTING	MARSH & RIDGE RESTORATION	SHORELINE STABILIZATION & PROTECTION	BENEFICIAL USE OF DREDGED MATERIAL	LIVING SHORELINE DESIGN	H&H MODELING	BIO./ENV. ASSESSMENT OF WETLANDS	DESIGN ANALYSIS & REPORTS	TECHNICAL EVALUATIONS	COST ESTIMATES	FIELD INVESTIGATIONS	COASTAL GRANT WRITING	OUTREACH & EDUCATION	SURVEY	GEOTECHNICAL ENGINEERING
SCOTT LAGUEUX, AICP, LEED AP, ENV SP // OUTREACH EDUCATION & MARKETING MATERIALS	●				●		●			●	●				●		
DELANEY MCGUINNESS, PLA, NGICP // OUTREACH EDUCATION & MARKETING MATERIALS	●		●				●			●		●	●		●		
ANDY STERNAD, AICP, AIA // OUTREACH EDUCATION & MARKETING MATERIALS	●		●				●			●		●	●		●		
KELLI CUNNINGHAM, AIA, ASLA, PLA // OUTREACH EDUCATION & MARKETING MATERIALS	●		●				●			●		●	●		●		
SOPHIE RIEDEL, PLA // OUTREACH EDUCATION & MARKETING MATERIALS	●		●				●			●		●	●		●		
GREG SPILLER, PE, MBA // TOPOGRAPHIC & BATHYMETRIC SURVEY	●									●			●			●	
DAVID CORMIER, PLS // TOPOGRAPHIC & BATHYMETRIC SURVEY	●									●			●			●	
ERIC MARX, PE // GEOTECHNICAL INVESTIGATION	●		●	●	●	●	●			●	●	●	●				●
SAM BRYANT, PHD, PE, PG // GEOTECHNICAL INVESTIGATION	●			●	●	●	●			●	●	●	●				●

SECTION TWO //

SIZE OF FIRM

With a robust capacity of local engineers, scientists, planners and community outreach specialists who have direct experience on your program backed by firmwide support, M&N has the resources and capacity to provide Jefferson Parish with continuous, undisrupted service while performing multiple simultaneous task orders.

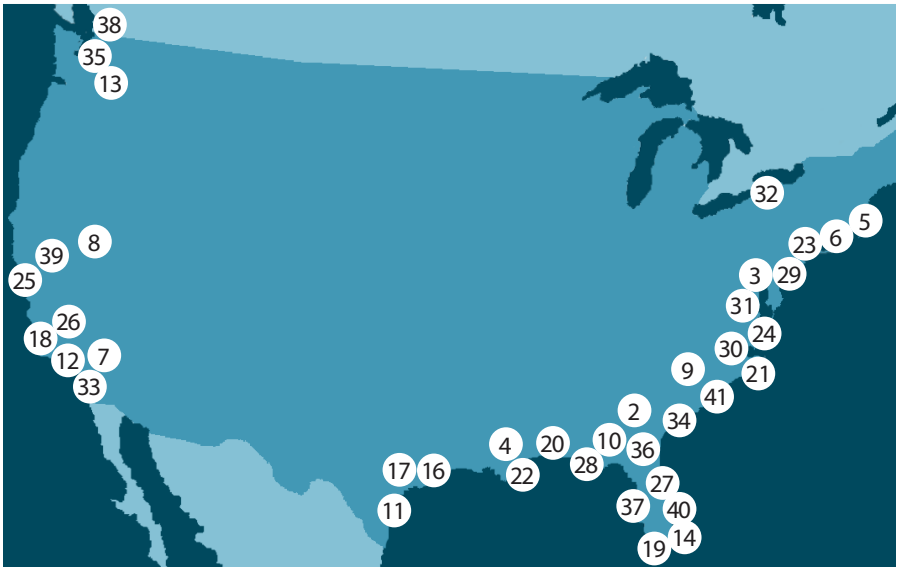
With a critical mass of experience in south Louisiana combined with international expertise in the coastal environment, we are large enough to have both depth and breadth of technical capabilities and expertise, yet small enough to retain a sharp focus on the state-of-the-art practice in coastal related challenges and complex disciplines associated with this contract. This enables us to bring unparalleled in-house capabilities in coastal engineering and protection, dredging engineering, numerical modeling, and wetland restoration. The combination of in-house expertise within a dedicated coastal engineering firm enables us to provide Jefferson Parish with the right level of technical and project agility to respond quickly and adapt to the dynamics of project evolution and delivery. The table at the right shows our local and firmwide engineering and technical support capacity.

Furthermore, the recent acquisition by M&N of Waggonner & Ball provides Jefferson Parish with a full turn-key stable of planners and engineers combined with a community of designers who create architecture and environments sensitive to context, time, and place. Their work spans a range of scales, from individual buildings to landscapes and from cities to watersheds. They provide resilient planning and design services worldwide, including here in the Greater New Orleans area and additional Gulf Coast communities. Utilizing a workshop-based design process, Waggonner & Ball's collaborative approach synthesizes knowledge and insights from diverse stakeholders. Since pioneering a collaborative approach to resilience with the Dutch Dialogues after Hurricane Katrina in 2005, Waggonner & Ball has developed a planning practice grown on a foundation of workshop-style engagements across the country and a network of partnerships. They have become national leaders in resilience planning, design, and implementation, trademarking and constantly refining Dutch Dialogues and Living With Water as processes to work with nature and affect positive change. Their work in New Orleans, Norfolk and Hampton, VA, Bridgeport, CT, Houston, TX, and Charleston, SC, has transformed those communities' approach to risk and water challenges and set them on new paths toward safe, equitable, and beautiful redevelopment.

We provide the ability to combine the in-house seamless workflow between planners, landscape architects, scientists and engineers, all under one roof. This eliminated the "lost in translation" communication issues that often exists between discrete groups of landscape architects and planners and engineers. Having these under one roof enables our group to be aligned on project vision, mission, and implementation from the design phase, rather than discovering these disconnects in the field at the significant impact to schedule and budget.

	LOUISIANA	FIRMWIDE
LICENSED COASTAL ENGINEERS	6	115
OTHER PROFESSIONAL ENGINEERS	10	540
SUPPORT PERSONNEL	14	545
TOTAL PERSONNEL	30	1,200

M&N has offices in New Orleans and Baton Rouge as well as over 40 offices in North America alone.



M&N's North American Offices

1. Anchorage, AK
2. Atlanta, GA
3. Baltimore, MD
4. Baton Rouge, LA
5. Boston, MA
6. Bridgeport, CT
7. Carlsbad, CA
8. Carson City, NV
9. Charlotte, NC
10. Chipley, FL
11. Corpus Christi, TX
12. Costa Mesa, CA
13. Federal Way, WA
14. Fort Lauderdale, FL
15. Honolulu, HI
16. Houston, TX
17. Katy, TX
18. Long Beach, CA
19. Miami, FL
20. Mobile, AL
21. Morehead City, NC
22. New Orleans, LA
23. New York, NY
24. Norfolk, VA
25. Oakland, CA
26. Ontario, CA
27. Orlando, FL
28. Pensacola, FL
29. Philadelphia, PA
30. Raleigh, NC
31. Richmond, VA
32. Rochester, NY
33. San Diego, CA
34. Savannah, GA
35. Seattle, WA
36. Tallahassee, FL
37. Tampa, FL
38. Vancouver, BC
39. Walnut Creek, CA
40. West Palm Beach, FL
41. Wilmington, NC

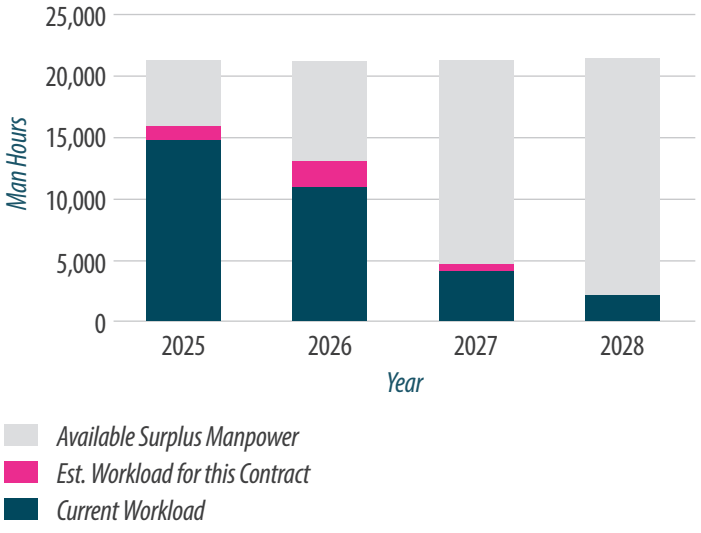
SECTION THREE //

CAPACITY FOR TIMELY COMPLETION

We offer more than 1,200 personnel in offices around the world—including more than 100 in our coastal practice and over 50 in our environmental science practice—that can be brought to bear to meet project

This contract has the potential to place significant resource demands to deliver a large amount of work that needs to be completed within a tight time frame. For this reason, Jefferson Parish needs partners with sufficient resources, and a resource management structure to manage multiple projects concurrently. One of our key advantages is the bench strength we have in coastal engineers, restoration specialists, and environmental professionals to bring projects from the concept stage, through feasibility, planning, engineering, and design to final construction. This means we can meet, expand, and contract resource commitments to meet aggressive schedules and execute multiple simultaneous task orders regardless of technical scope or geographic location. Our experience with Jefferson Parish, state agencies, and the federal government provides us with an understanding of the challenges and surge requirements associated with the IDIQ contracting structure. We apply a sound approach to project management that gives project managers the authority and tools to meet short deadlines and be responsive in all situations.

The current workload table below was generated based on the workload of M&N key employees that are shown on the organizational chart under the Coastal Engineering and Design, H&H Modeling, Dredging and Beneficial Use, and Biological & Environmental Assessment. The other categories are in support of these design categories and are not factored into the graph below. Assuming this contract would not start until 2nd quarter 2025, the values for 2025 have been prorated. The graph assumes two projects would be awarded to M&N every 12 months. The **blue** bar in the graph shows the team's existing workload, the **pink** shows the assumed work generated from this contract, and the **gray** is the anticipated additional capacity above the existing workload and anticipated work.



SECTION FOUR //

PAST PERFORMANCE

Jefferson Parish will receive reliable, efficient, and low-risk solutions by selecting M&N. Our current and past clients attest to our technical expertise, ability to successfully deliver projects on time and within budget, and our commitment to exceptional client service.

Engineering News-Record ranks M&N as a Top 100 engineering consulting firm in the United States as well as #13 for the top international design firms, marine and port facilities. A cornerstone of our reputation is a commitment to quality. The repeated selection of M&N by our clients indicates their satisfaction with the efforts of our professional staff. More than 90 percent of our project backlog comes from clients with whom M&N previously worked. This is a testament to the confidence our clients place in the quality of our work. We offer Jefferson Parish the following evidence of this commitment in the form of client testimonials.

WE HAVE RECENTLY COMPLETED:

- Constructed 1,600-acres of marsh and ridge habitat along the Barataria Landbridge, from more than 16 MCYDS of renewable Mississippi River Sediment
- Performed a surge modeling analysis in the Lake Pontchartrain Basin to establish the impact of structural and non-structural projects' individual and cumulative impacts on storm surge reduction
- Performed engineering and design services for the Bucktown Living Shoreline project, which will create approximately 30 acres of marsh, tidal creek, and nursery habitat and provides 4,500 LF of shoreline protection

"As Chairman of the Municipal Yacht Harbor Management Corporation Board, and member of the Board's FEMA Committee, I had the pleasure of working with many of the professionals on the Moffatt & Nichol team. I have only praise and high regard for each and every one of them..."

~Warner Tureaud, Former Chair of MYHMC

"Moffatt & Nichol's team is one of a kind. They are able to pull from their other offices to support the project needs and strive to be innovative as well as to fit my limited budget. They went above and beyond with the engineering and design phase of Lightning Point Restoration Project."

~Mary Kate Brown, The Nature Conservancy

"Moffatt & Nichol has provided excellent professional services for multiple shoreline restoration projects on Dauphin Island. They are a full-service engineering firm that pays attention to detail. The Town appreciates their hard work and dedication to our Island community."

~Jeff Collier, Mayor of Dauphin Island

"Their proposed approach is innovative and effective... M&N is continually looking for funding and grant opportunities... We have been impressed in their ability to combine existing efforts into an overall implementation strategy. I would not hesitate in recommending M&N."

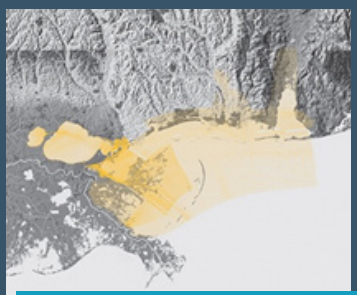
~Steve Wilson, Former President, Pontchartrain Levee District

BUCKTOWN HARBOR // JEFFERSON PARISH, LA

"M&N exceeded our expectations. Their staff felt fully invested in our project. Their experience and expertise helped guide our steering committee and public input process seamlessly. The exciting end result is a Vision Plan for Bucktown Harbor, reflective of our community, that we are eager to bring to life!"

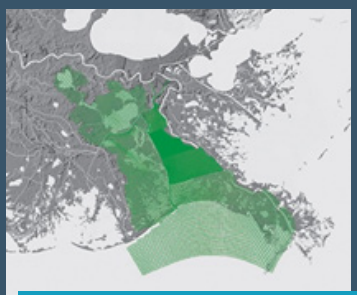
Jennifer Van Vrancken, Jefferson Parish Councilwoman

In Jefferson Parish, M&N has conducted numerous advanced multi-dimensional numerical models for the development of basin-wide restoration strategies and evaluation of individual and cumulative project performance. In the Parish alone, these tools have allowed our team to:



Plan, design, permit, and construct 1,200+ acres of marsh/ridge habitat

Restore 10,000+ LF of historic ridge habitat



Plan, design, permit, and construct 9,000+ LF of terraces

Dredge 11+ MCYDS for marsh creation over a 13.5-mile corridor

Over the past 22 years, M&N has leveraged its national and international coastal engineering design experience to develop a portfolio of coastal engineering and restoration projects for local, state, and federal agencies as well as non-governmental organizations (NGOs) that covers the breadth and the depth of the Louisiana Coastline, including the Barataria Basin, Pontchartrain Basin, and Mississippi Sound. We have leveraged this expertise to meet project objectives for a multitude of clients and projects including Jefferson Parish, as shown in **FIGURE 1**.

M&N has been involved in the various Louisiana coastal programs as sponsors of coastal protection and restoration projects, such as the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA), Coastal Impact Assistance Program (CIAP), Louisiana Coastal Area (LCA) Coast 2050, CPRA, RESTORE Act and NFWF, etc. The local team members have in-depth project experience and established working relationships with the very agencies that often serve as project partners or vested stakeholders for projects. Such significant local knowledge provides a detailed understanding of technical and stakeholder issues, facilitating our ability to build consensus. To date, M&N team project partners have included the following list shown to the right:

- Jefferson Parish
- Coastal Protection & Restoration Authority of Louisiana
- Louisiana Department of Natural Resources
- USACE, New Orleans District, Hurricane Protection Office and ERDC
- Pontchartrain Levee District
- Southeastern Flood Protection Authority-East
- Lake Pontchartrain Basin Foundation
- Pontchartrain Conservancy
- Louisiana Department of Transportation & Development
- National Oceanic and Atmospheric Administration (NOAA) / National Marine Fisheries
- Environmental Protection Agency Region VI
- FEMA Region VI
- National Audubon Society Gulf Coast Initiative
- The Nature Conservancy
- Regional Planning Commission

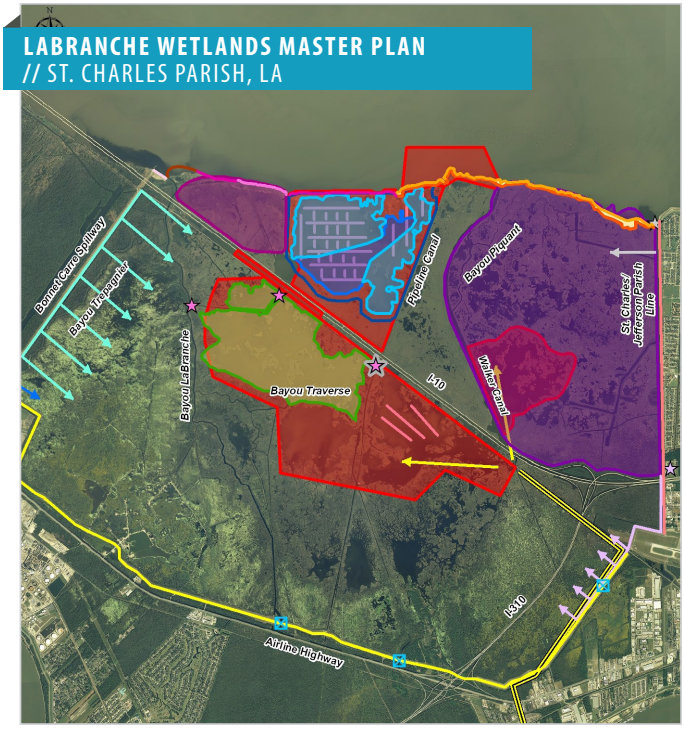
THE M&N TEAM HAS:

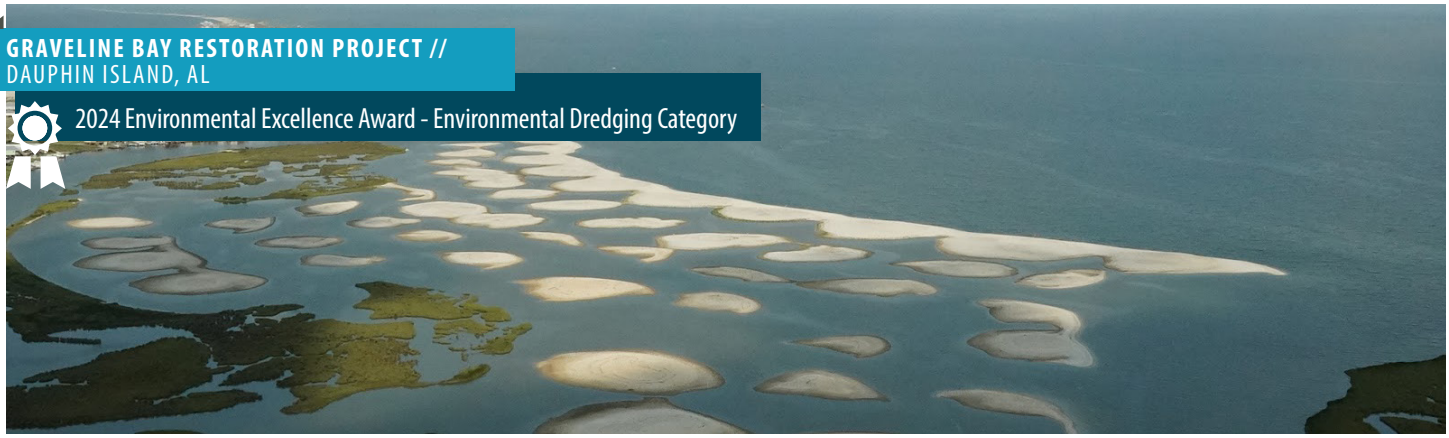
- ✓ Nationwide experience on living shoreline projects in Alabama, Louisiana, Maryland, California, Virginia, and North Carolina
- ✓ Specialized coastal engineering experience focused on coastal protection and restoration projects for more than 20 years
- ✓ State-of-the-art hydrodynamic, morphological, and storm surge modeling expertise
- ✓ Has constructed 14 miles of shoreline protection across the northern Gulf of Mexico

AWARD WINNING PROJECTS

As testimony to our quality of work, examples of awards for major projects have been included on the following page.

LABRANCHE WETLANDS MASTER PLAN
// ST. CHARLES PARISH, LA





GRAVELINE BAY RESTORATION PROJECT // DAUPHIN ISLAND, AL

2024 Environmental Excellence Award - Environmental Dredging Category

LIGHTNING POINT SHORELINE RESTORATION // BAYOU LA BATRE, AL

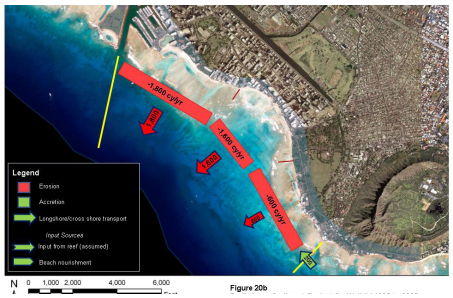
2023 Atlas Volume 3 Award – Engineering with Nature
2022 Environmental Excellence Award – WDA
2022 Best Restored Shores Award – ASBPA
2022 First Place Gulf Guardian Partnership Winner – EPA
2021 Community Partner Award, Partners for Environmental Progress
2021 Project Excellence Award – Small Project, COPRI Awards

MISSISSIPPI RIVER LONG DISTANCE SEDIMENT PIPELINE

2019 Best Restored Shores, American Shore & Beach Preservation (included in **APPENDIX B**)

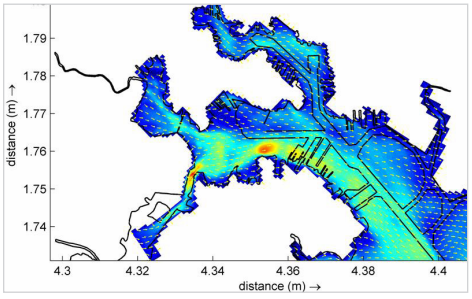
CHANGING COURSE "GIVING DELTA PROJECT"

2016 Merit Award,
American Society of Landscape Architects



DIAMOND HEAD TO PEARL HARBOR REGIONAL SEDIMENT MANAGEMENT

2010 Award of Excellence,
U.S. Army Corps of Engineers



MASONVILLE, MD DREDGE MATERIAL CONTAINMENT FACILITY

2010 Environmental Excellence Award, National,
Association of Environmental Professionals

NEAH BAY BREAKWATER U.S.C.G. STATION

2009 Design Excellence Award,
Seattle Society of American Military Engineers

BOLSA CHICA WETLAND RESTORATION

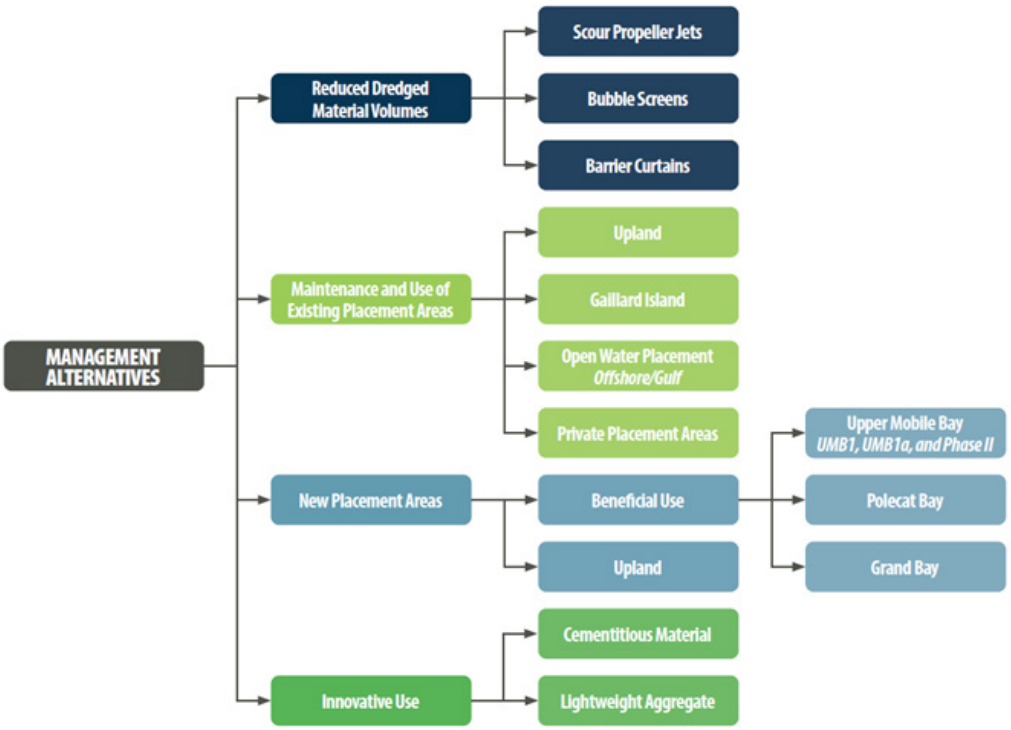
2007 Engineering Excellence Merit Award,
Consulting Engineers & Land Surveyors of California

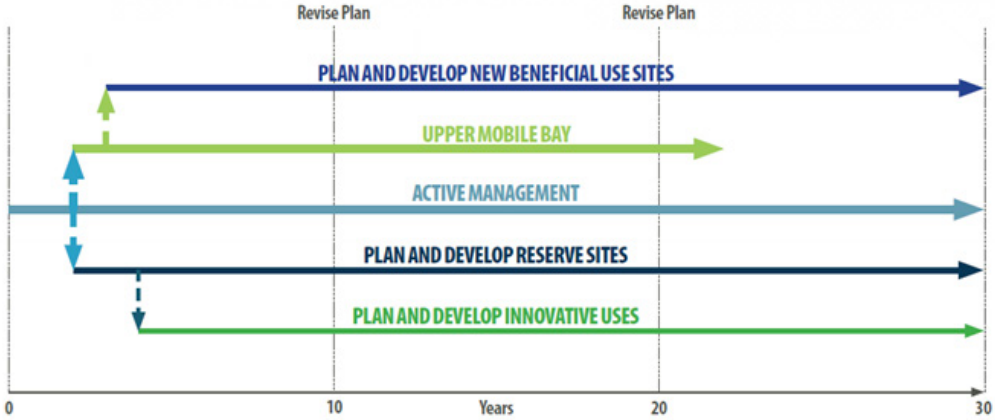
ALABAMA PORT AUTHORITY DREDGED MATERIAL MANAGEMENT PLAN

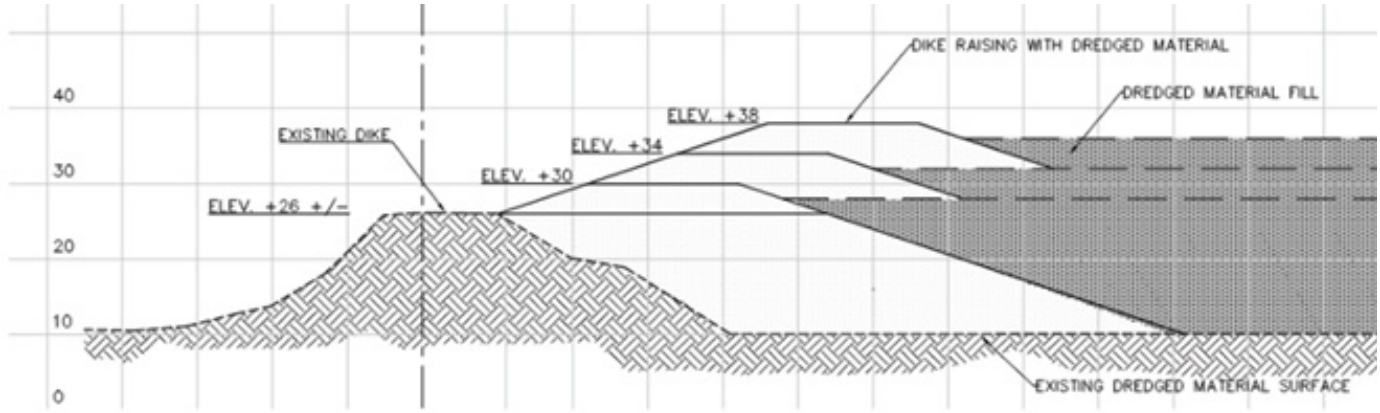
Decreasing capacity for dredged material placement in the face of increasing dredging volumes led to heightened dredging operation and maintenance costs for the Alabama Port Authority. This necessitated an urgent review of current dredged material practices and the development of a long-term sediment management strategy for the port with the intent on reducing annual dredging costs.

M&N was contracted to develop a Dredged Material Management Plan that would provide a more cost-effective and sustainable strategy to reduce these costs for the next 30 years. The goal of the Dredged Material Management Plan was to identify both near term actions to address time critical capacity limitations and long-term solutions to broaden the Port's range of available sediment management options.

The Dredged Material Management Plan was developed to maximize the port's operational flexibility and approach to the management of dredged materials, continue to bolster business operations, maintain the Port of Mobile's deep water port competitive market advantage, and provide more environmentally sustainable alternatives to current sediment management practices.







FOUR CATEGORIES OF MANAGEMENT ALTERNATIVES WERE DEVELOPED:

1) Measures to reduce the volume of dredged material that requires management,

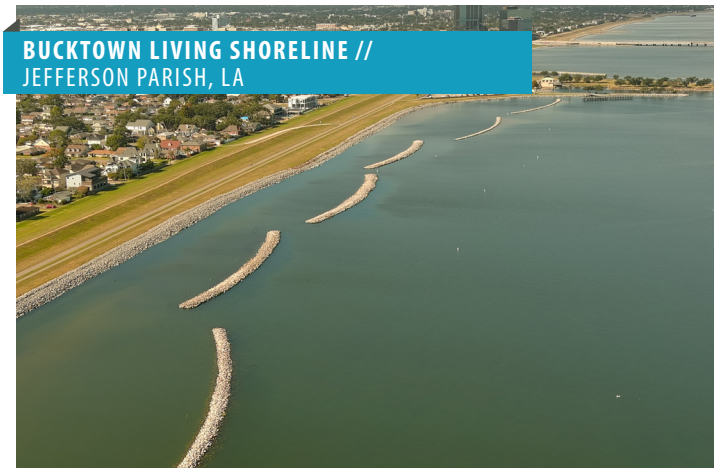
2) The maintenance and capacity optimization of existing placements areas,

3) The utilization of new placement areas, and

4) The innovative use of dredged material.

The alternatives were further organized into an implementation roadmap which included short-term, mid-range, long-term, and reserve measures. The Dredged Material Management Plan provided cost-effective alternatives that serve as a long-term, multi-dimensional approach to guide the management of dredged material for the Alabama Port Authority over the next 30+ years.

PROJECT CHALLENGES AND UNIQUE DESIGN REQUIREMENTS



BUCKTOWN LIVING SHORELINE //
JEFFERSON PARISH, LA

COMMUNITY AND OUTREACH

Challenge: The Bucktown Living Shoreline Feasibility, Engineering and Design, and Construction Administration Project is being constructed in a highly-visible, culturally-important area, adjacent to the critically important Hurricane Storm Damage Risk Reduction System (HSDRRS) levee system, green space, the historic neighborhood, and working waterfront community.

Solution: Programmatic outreach, both in-person and also using the innovative PublicInput Online platform was completed to determine the residents' and other interested stakeholders' preferred outcomes for the site. Outreach was facilitated by M&N and directed by a 19-member steering committee. Two multi-day community work sessions were held and a website was created to disseminate materials and offer feedback. The online PublicInput Virtual Public Outreach / Stakeholder Engagement platform engages project partners and community members in a comprehensive planning process, providing a platform for general information posts, social media posts, project timelines, map/question-based survey tools, discussion forums, online polls, offline survey-by-text message, and videos. During the COVID 19 Pandemic, we found that we were getting greater public participation in the outreach engagement process, versus in person meetings. As such, we developed a hybrid Stakeholder Engagement platform that blends in person participation with online engagement. PublicInput was used for the project where we received 122,568 views, 925 participants, 11,763 responses, 689 comments, and 231 subscribers for the Pontchartrain Lakefront Community. To ensure the project met community expectations, a charette was held with local experts and stakeholders to discuss alternatives. The result of the charette was a living shoreline with curvilinear breakwaters, marsh, tidal creeks, and kayak Blueway.

PROJECT DESIGN FEATURES AND FUNDING AVAILABILITY

Challenge: Construction of a living shoreline breakwater / intertidal marsh complex on the south shore of Lake Pontchartrain also provided significant challenges as desired project features exceeded construction funding.

Solution: This required a cost-risk analysis for breakwater design that optimized wave energy reduction provided against cost of construction. Containment strategies were explored for feasibility and cost. Value Engineering (VE) exercises were conducted to refine project construction costs. A series of Additive and Subtractive Bid Alternates were included in the bid options to provide the project owner (Jefferson parish) and contractor the maximum level of flexibility during the award phases.

GRANT FUNDING AVAILABILITY

Challenge: The cost of constructing projects of this magnitude often exceeds the funding capacity of the project owners.

Solution: M&N partnered with Jefferson Parish in grant funding request applications to NFWF GEBF, resulting in additional $5M grant funding for the project. Additionally, M&N provided detailed information to State Cost Share Partners in order to justify the appropriation of State Budget Surplus funds.

PERMITTING

Challenge: The project is being constructed adjacent to the federal HSDRRS Lake Pontchartrain and Vicinity (LPV) levee.

Solution: Permitting and coordination were a critically-important aspect. In addition to Section 10/404 permit, Section 408 permission was required and granted. Coordination with the South Louisiana Flood Protection Authority was required to keep the project is consistent with their system Operation and Maintenance requirements in order to obtain the necessary permits.

ENVIRONMENTAL CONDITIONS

Challenge: The engineering, design, and construction of the offshore segmented breakwaters were challenging to design due to several prevailing environmental conditions. Furthermore, the material properties of the substrate were highly-variable along the line of the breakwaters. Additionally, it was required to construct a kayak blueway within the dredged fill material. These environmental conditions have continued to be a challenge, as the in-situ and dredge fill material from which the Earthen Containment dikes (ECDs) both behaved differently post construction with different maintenance strategies developed for either construction material in day-to-day wave action and some significant storms that have impacted the ECDs. Construction in an open water environment with a prevailing wave fetch in excess of 25 miles presents challenges, as the active site remains exposed until the project is complete and vegetation succession is mature.

Solution: The geotechnical properties of the substrate material was considered to accommodate primary and secondary consolidation, so that the as-built crest elevation matched the design elevation and required differential construction elevations to pro-actively accommodate these in-situ. Additionally, containment strategies for the fill material had to be adjusted in the design, with many containment options evaluated before the final containment was selected. Adjustments to the dredged production rates have reduced the pressure on the ECDs, by promoting appropriate material dewatering and consolidation, prior to additional placement lifts in the marsh creation areas. An adaptive approach to ECD design, operation, and maintenance, including additional lifts to provide a greater level of structural integrity of these features, has been required to increase the resilience of the active construction site in the face of 25-mile wave fetch.

SECTION FIVE //

LOCATION OF THE PRINCIPAL OFFICE

Our proximity to Jefferson Parish's offices and potential project sites allows our team to respond quickly and in person to any questions, concerns, or issues the Parish may have throughout the life cycle of the contract.

The principal office where projects will be managed is in Orleans Parish. This office houses the project manager, engineering manager/technical lead, and several coastal engineers. The bulk of the technical expertise assigned to this contract is domiciled in Louisiana. Through our local office in New Orleans, we can provide Jefferson Parish with a high level of responsiveness and dedicated local capabilities.

M&N'S NEW ORLEANS OFFICE:

601 Poydras Street, Suite 1860
New Orleans, LA 70130

15 minutes from the Parish's office

M&N'S BATON ROUGE OFFICE:

301 Main Street, Suite 800
Baton Rouge, LA 70801

90 minutes from the Parish's office

LIGHTNING POINT LIVING SHORELINE // BAYOU LA BATRE, AL

SECTION SIX //

ADVERSARIAL LEGAL PROCEEDINGS

There are no previous or ongoing adversarial legal proceedings between Jefferson Parish and Moffatt & Nichol or any person performing professional services.

SECTION SEVEN //

PRIOR SUCCESSFUL COMPLETION OF PROJECTS

With a portfolio of hundreds of millions of dollars of coastal engineering, restoration, and protection projects throughout the Gulf Coast region, Jefferson Parish can trust that M&N can address any challenge that may arise with technical innovation and industry best practice while maintaining project schedules.

The bulk of the technical expertise assigned to this contract is domiciled in Louisiana. The projects provided in **APPENDIX B** demonstrate our ability to work in the complex coastal environments of the Louisiana Coastal Zone and highlight our ability to successfully deliver projects like those outlined in the Evaluation Criteria. The table below highlights the relevance of each of these projects.

	IN JEFFERSON PARISH	COASTAL PLANNING & DESIGN	PERMITTING	MARSH & RIDGE RESTORATION	SHORELINE STABILIZATION & PROTECTION	BENEFICIAL USE OF DREDGED MATERIAL	LIVING SHORELINE DESIGN	H&H MODELING	BIO./ENV. ASSESSMENT OF WETLANDS	DESIGN ANALYSIS & REPORTS	TECHNICAL EVALUATIONS	COST ESTIMATES	FIELD INVESTIGATIONS	COASTAL GRANT WRITING	OUTREACH & EDUCATION	SURVEY	GEOTECHNICAL ENGINEERING
BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING, AND DESIGN // M&N	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●
GRANT SUPPORT FOR JEFFERSON PARISH // M&N	●	●												●	●		
UPPER BARATARIA MARSH CREATION (BA-207) // M&N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
BARATARIA PRESERVE FUTURE CONDITIONS MODELING, JEAN LAFITTE NATIONAL PARK // M&N	●	●	●	●			●	●		●	●				●		
PONTCHARTRAIN-MAUREPAS SURGE CONSORTIUM MODELING // M&N	●	●		●	●		●	●		●	●	●	●		●		
GRAVELINE BAY MARSH CREATION PROJECT // M&N		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
ST. CHARLES PARISH HURRICANE PROTECTION LEVEE SHORELINE PROTECTION & ENHANCEMENT PROJECT // M&N		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
DAUPHIN ISLAND CAUSEWAY SHORELINE RESTORATION // M&N		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LIGHTNING POINT SHORELINE RESTORATION AND LONG TERM SITE SUSTAINABILITY PLAN // M&N		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
UPPER MOBILE BAY BENEFICIAL USE WETLAND CREATION PROJECT // M&N		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TANGIPAHOA PARISH RESTORE ACT BREAKWATER PROJECT // ELOS			●	●	●				●	●	●		●				
LAFITTE AREA LEVEES // ELOS	●		●						●	●	●					●	
QUICKREEF ANALYSIS AND NUMERICAL MODELING // SSE		●		●	●		●		●	●	●		●			●	
BAYOU DULARGE MARSH, RIDGE, AND HYDROLOGIC RESTORATION // SSE		●	●	●	●	●	●			●	●	●	●			●	●
THE NATURE CONSERVANCY/NOAA OYSTER REEFS FOR SHORE STABILIZATION // CEI	●	●	●		●		●					●	●				
LAKE LERY MARSH CREATION - CIAP // CEI		●	●	●		●			●				●				
USACE BAYOU SEGNETTE BLH MITIGATION MONITORING // CEI	●								●				●				
CAMINADA HEADLAND BACK BARRIER MARSH CREATION MARSH CREATION (BA-171) // AME	●					●				●		●	●				●
LAKE VILLA POND IMPROVEMENTS PROJECT // AME	●		●							●		●	●				●

WHY
MOFFATT & NICHOL?

CONTEXT-SENSITIVE, IMPLEMENTABLE SOLUTIONS

Neary 25 years of experience in Jefferson Parish translating to time and cost efficiencies and minimal oversight from your team

Jefferson Parish will receive context-sensitive, implementable restoration, protection, and engineering solutions to sea level rise, increased extreme rainfall, increased flooding, and coastal land loss. We understand your program, challenges, and solutions.

MAXIMIZED FUNDING OPPORTUNITIES— ROI OF 10:1

Proven track record helping the Parish secure almost $3 million in grant funding

Our team has developed a framework that leverages alternative funding sources; we will continue to leverage innovation in locating alternative funding sources for this contract project. For every dollar Jefferson Parish has invested in its coastal resilience, M&N has secured $5 in matching dollars ("free money" through successful grant applications).

NO DUPLICATION OF EFFORTS

State-of-the-art hydrodynamic, morphological, and storm surge modeling across the entire Louisiana coastline and Jefferson Parish

Because M&N has performed hundreds of numerical model studies on coastal hydrodynamics, coastal structure hydraulics, sediment transport, and morphology in Louisiana, we do not need to re-invent the wheel for contract.

INCREASED CONSENSUS & STAKEHOLDER BUY-IN

Long-standing relationships with stakeholders facilitate our ability to build consensus around potential restoration and protection solutions

Our innovative virtual outreach platform can expedite consensus building among stakeholders. We will promote a hybrid outreach campaign, which has fundamentally improved participation on other projects.

SEAMLESS INTEGRATION

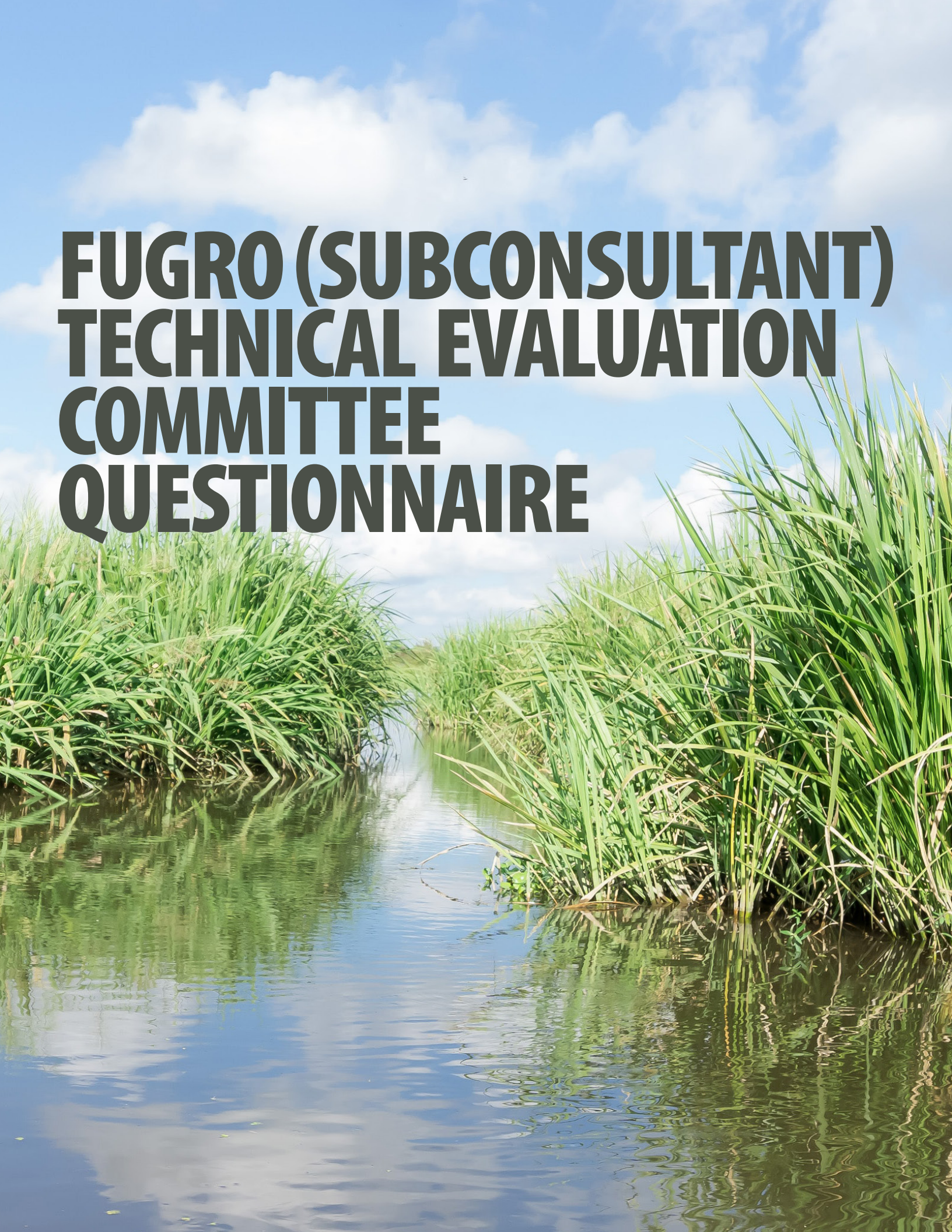
Between planning, engineering, and implementation

Combined expertise in planning and engineering can align planning vision with implementable designs, eliminating costly field change orders.

CONSTRUCTIBLE, IMPLEMENTABLE DESIGNS & PLANS

Expertise to develop implementable, design-focused solutions to challenges that prioritize restoration and protection

By leveraging our dredging experts, we can confirm designs are constructible early in the process, preventing costly or time-consuming field change orders.



FUGRO (SUBCONSULTANT) TECHNICAL EVALUATION COMMITTEE QUESTIONNAIRE

Technical Evaluation Committee (TEC) Questionnaire Instructions

- The Technical Evaluation Committee (TEC) Questionnaire shall be used for professional services related to architecture, engineering, or survey projects.
- **The TEC Questionnaire should be completely filled out. Complete and attach ALL sections. Insert "N/A" or "None" if a section does not apply or if there is no information to provide.**
- Questionnaire must be signed by an authorized representative of the Firm. Failure to sign the questionnaire shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- All subcontractors must be listed in the appropriate section of the Questionnaire. Each subcontractor must provide a complete copy of the TEC Questionnaire, applicable licenses, and any other information required by the advertisement. Failure to provide the subcontractors' complete questionnaire(s), applicable licenses, and any other information required by the advertisement shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- If additional pages are needed, attach them to the questionnaire and include all applicable information that is required by the questionnaire.

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:

Statement of Qualifications for Coastal Engineering Consulting Services as needed parish wide, SOQ 24-020 (Resolution No. 144205)

B. Firm Name & Address:

Fugro USA Land, Inc.
4233 Rhoda Drive
Baton Rouge, LA 70816

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:

Eric Marx, PE
Vice President/Principal
(225) 800-5400
emarx@fugro.com

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.

Eric Marx, PE
Vice President/Principal
(225) 800-5400
emarx@fugro.com

E. Please provide the number of employees whose primary function corresponds with each category:

3 Administrative	___ Estimators	___ Specification Writers
___ Architects (Licensed)	1 Geologists	___ Structural Engineers
___ Chemical Engineers	4 Geotechnical Engineers	2 Graduate Engineers
4 Civil Engineers	___ Interior Designers	1 Project Managers
6 Construction Inspectors	___ Landscape Architects	___ Clerical
___ Ecologists	___ Land Surveyor	___ Grant/Funding Specialist
___ Electrical Engineers	___ Mechanical Engineers	___ Sanitary Engineers
___ Engineer Intern	1 Environmental Engineers	
3 Professional Land Surveyors		21 **TOTAL**

F. Is this submittal by a JOINT-VENTURE? Please check: YES ◯ NO ◉

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1.
N/A

2.
N/A

H. Has this JOINT-VENTURE previously worked together? Please check:
YES ◯ NO ◯

I. List all subcontractors anticipated for this Project. Please note that all subcontractors must submit a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. N/A		
2.		
3.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:

_____ 8

TEC Professional Services Questionnaire

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Eric Marx, PE
Vice President/Principal

Project Assignment:

Geotechnical Investigation

Name of Firm with which associated:

Fugro USA Land, Inc.

Years' experience with this Firm:

23

Education: Degree(s)/Year/Specialization:

MS, 2001,Civil Engineering
BS, 1999, Civil Engineering

Active registration: Year first registered/discipline:

2004, Civil Engineering, Louisiana, PE0031479

Other experience and qualifications relevant to the proposed Project:

Since Joining Fugro in 2001, Mr. Marx has developed experience in supervising all phases of geotechnical investigations for a varied list of projects across the Gulf Coast region including marsh creation, flood protection structures, bridges, pipelines, tunnels, structures, and shoreline protection.

2007-2017, Indefinite Delivery Indefinite Quantity Contract for Soil Borings, Soil Testing and Geotechnical Design Support Services within the Limits of New Orleans District, New Orleans, LA - Mr. Marx served as Project Engineer for the Jefferson Lakefront Levee Enlargement, MRGO Closure Structure and facilitated the completion of geotechnical field and laboratory task orders in the amount of a pproximately $150M over the 10-year program.

2017-2019, Geotechnical Services for Coastal Protection and Restoration Authority Projects, 2503-16-27 - Mr. Marx is the Principal-in-Charge for this program which has three task orders for marsh creation projects in Louisiana. As PIC, Mr. Marx works with CPRA to develop budgets, oversee project execution, provide client updates, and guide engineering deliverables.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Sam Bryant, PhD, PE Senior Consultant
Project Assignment:
Sam Bryant, PhD, PE Senior Consultant
Name of Firm with which associated:
Fugro USA Land, Inc.
Years' experience with this Firm:
39
Education: Degree(s)/Year/Specialization:
PhD, 1983, Civil Engineering MS, 1979, Civil Engineering BS, 1978, Civil Engineering
Active registration: Year first registered/discipline:
2016, Civil Engineering, Louisiana, PE0040695
Other experience and qualifications relevant to the proposed Project:
Dr. Bryant supervises all phases of geotechnical investigations including field exploratory programs, laboratory testing programs, engineering analyses and evaluations, and report preparation. His experience includes foundations in rock, soft soils, and highly expansive soils for multi-story structures, dams, embankments, tunnels, below ground excavations and structures, pipelines, and bridges. He has extensive experience in materials testing, pavement design, and remediation of existing structures. PO-0060-Permanent Canal Closures and Pumps, Orleans and Jefferson Parish, LA. Dr. Bryant provided technical oversight and performed geotechnical design calculations for floodwalls, deep excavations, pump stations, gate structures, generator buildings, earthen embankments. BA-153 & BS-030, Mid-Barataria and Mid-Breton Sediment Diversion Oversight Review Team, Plaquemines Parish, LA. Dr. Bryant is performing geotechnical design review for the sediment diversion projects. Reviews include geotechnical field programs, design criteria and engineering for deep foundations, slope stability, settlement, and seepage. TE-0138, Bayou De Cade Marsh Creation and Ridge Restoration, Terrebonne Parish, LA. Dr. Bryant oversaw the field operations which included soil borings and Cone Penetration Test soundings on air-boat mounted equipment and conducted geotechnical engineering analyses including slope stability for marsh ridges and settlement calculations for marsh platforms.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Greg Spiller, PE, MBA Operations & Quality Manager
Project Assignment:
Topographic & Bathymetric Survey
Name of Firm with which associated:
Fugro USA Land, Inc.
Years' experience with this Firm:
12
Education: Degree(s)/Year/Specialization:
MBA, 2018, Business Administration BS, 2016, Industrial Engineering
Active registration: Year first registered/discipline:
2021, Industrial Engineering, Louisiana, PE0045834
Other experience and qualifications relevant to the proposed Project:
Mr. Spiller manages a wide variety of projects including aerial, topographic, hazard, bathymetric, geophysical, and boundary surveys. CPRA Elevation Survey Update of Coastwide Reference Monitoring Systems (CRMS), Plaquemines, Orleans, and St. Bernard Parish, LA. Mr. Spiller served as project manager in the collection of all field data, processing, analysis, and deliverables. Project specifically requires large GPS control network adjustments, ensuring accurate elevation surveys. Mr. Spiller also performed the field collection on a previous iteration of the CRMS Survey. PO-0179 CPRA St. Catherine Island Marsh Creation and Shoreline Protection. Mr. Spiller assisted in the collection of bathymetry, magnetometer, and topographic data. He managed the project including deliverables and reporting. PO-178 CPRA Bayou La Loutre Ridge and Marsh Creation Project. Mr. Spiller served as project manager in the collection of all field data, processing, analysis, and deliverables. The objective of this project is to restore/create a ridge feature along Bayou La Loutre and to create, maintain, and nourish existing deteriorating marsh.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:

Name & Title:

David Cormier, PLS
Professional Land Surveyor

Project Assignment:

Topographic & Bathymetric Survey

Name of Firm with which associated:

Fugro USA Land, Inc.

Years' experience with this Firm:

8

Education: Degree(s)/Year/Specialization:

AS, 1984, Civil Engineering Technology

Active registration: Year first registered/discipline:

1994, Professional Land Surveyor, Louisiana, PLS0004715

Other experience and qualifications relevant to the proposed Project:

Mr. Cormier manages complex database and GIS projects, coordinates field crews, and prepares permit plats.
BS-0038 CPRA Mid-Breton Land Bridge Marsh Creation and Terracing, LA. Mr. Cormier provided technical oversight over survey methods used. This survey required the integration of several elevation and geophysical datasets to ensure the site was properly characterized prior to completing the final planning and design templates.
BA-0197 CPRA West Grand Terre Beach Nourishment and Stabilization. Mr. Cormier has provided survey oversight and certification.
BA-0048 CPRA Bayou Dupont Marsh and Ridge Creation, Jefferson Parish, LA. Mr. Cormier had managed field personnel and all equipment used. Also provided professional oversight for the topographic survey.
PO-0179 CPRA St. Catherine Island Marsh Creation and Shoreline Protection. Mr. Cormier certified the survey report and drawings required for this project and provided professional oversight.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Intentionally Left Blank
Project Assignment:
Name of Firm with which associated:
Years' experience with this Firm:
Education: Degree(s)/Year/Specialization:
Active registration: Year first registered/discipline:
Other experience and qualifications relevant to the proposed Project:

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 1		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Increase Atchafalaya Flow into Terrebonne Parish Avoca Island, LA CPRA c/o Moffat & Nichol Maarten Kluijver, Project Engineer 225.336.2075 mkluijver@moffitnichol.com	Fugro performed topographic, bathymetric, and magnetometer surveys along with geotechnical investigations to assess critical subsurface considerations for the project.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
November 2024	$4.6M	$1M Geotechnical Engineering, Survey

PROJECT NO. 2		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Bucktown Living Shoreline Project Jefferson Parish, LA Jefferson Parish c/o Moffat & Nichol Mindy Joiner, Project Manager 504.862.1033	Responsibilities included review of existing geotechnical data and file for coastal use permit for field activities to include soil borings and CPTs using amphibious equipment. Exploration covered potential borrow areas and shoreline protection and marsh creation areas. Laboratory testing included soil indices and characterization, strength and density profiles. Engineering analyses and reporting for settlement, slope stability, bearing capacity, and general geotechnical design recommendations for marsh fill area and shoreline protection features. Additionally, Fugro provided topographic, hydrograic, and geophysical survey services in support of the project.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
November 2024	$1.7M	$140k Geotechnical Engineering, Survey and Geophysical

TEC Professional Services Questionnaire

PROJECT NO. 3		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility**	
Geotechnical Investigation and Design East Pass Salinity Barrier Cameron Parish, LA CPRA c/o Evans-Graves Engineers, Inc. Stephen Lundgren, PE, Project Manager 504.836.8190 Slundgren@evans-graves.com	In deeper water, a rock berm with a combination ("combi") wall using alternating pipe piles and steel sheet piles will be used. A 60-ft-wide sill will be located in the center of t he barrier to allow for fish passage. The top elevation (El) of the barrier will be set at El +5 ft. The bottom of the sill will be set at El -8 ft. Sill dolphins consisting of 18-inchdiameter steel pipe piles will be located adjacent to the sill. 30% design level completed to date, including sheetpile wall evaluations, slope stability/settlement of rock embankments, and pile capacity (axial and lateral).	
Completion Date (Actual or estimated)	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
June 2023	$260.4M	$74k Geotechnical Engineering

PROJECT NO. 4		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
St. Catherine Shoreline Protection Orleans Parish, LA CPRA Jessica Diez, Project Manager 225.342.1952 Jessica.Diez@la.gov	Fugro provided geotechnical site exploration and laboratory testing, nearshore (marsh) drilling, nearshore survey, onshore and nearshore geophysical engineering, and geotechnical engineering analysis.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
July 2021	$35.9M	$304k Geotechnical Engineering, Survey

TEC Professional Services Questionnaire

PROJECT NO. 5		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Oyster Lake Marsh Creation Cameron Parish, LA CPRA Dustin White, Project Manager 225.342.1952 Dustin.White@la.gov	Fugro provided geotechnical site exploration and laboratory testing, nearshore (marsh) drilling, nearshore survey, onshore and nearshore geophysical engineering, and geotechnical engineering analysis.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
January 2020	$38M	$329k Geotechnical Engineering, Survey

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Mid Barataria/Mid Breton Owner's Review Team (ORT) Plaquemines Parish, LA Moffatt & Nichol Chris Williams, Project Manager 225.336.2075	Reviews have been performed on geotechnical data plans, slope stability, pile capacity, and consolidation.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
June 2025	$2B	$100k Geotechnical Engineering Review

TEC Professional Services Questionnaire

PROJECT NO. 7		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Upper Barataria Marsh Creation Plaquemines Parish, LA NOAA c/o Moffatt & Nichol Chris Williams, Project Manager 504.862.1033	Fugro's scope includes geotechnical field exploration, laboratory testing, engineering evaluations, and reporting.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
October 2020	$151M	$935k Geotechnical Engineering, Survey

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Bayou de Cade Marsh Creation Terrebonne Parish, LA CPRA Travis Byland, PE, Project Manager 225.342.6750 Travis.Byland@la.gov	Fugro provided geotechnical site exploration and laboratory testing, nearshore (marsh) drilling, nearshore survey, onshore and nearshore geophysical engineering, and geotechnical engineering analysis.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
October 2018	$27.2M	$325k Geotechnical Engineering, Survey

TEC Professional Services Questionnaire

PROJECT NO. 9		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Permanent Canal Closures and Pumps (PCCP) Orleans and Jefferson Parish, LA USACE NOLA District c/o Stantec Consulting Services Jay Mazzoni, Project Manager 502.212.5007 Jay.Mazzonu@stantec.com	Fugro was the Geotechnical-Engineerof-Record. Fugro performed geotechnical investigations, geotechnical design calculations and deep foundation testing oversight in support of the design of the project.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
April 2018	$730M	$4M Geotechnical Engineering

PROJECT NO. 10		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Alabama Connecting Waters Baldwin County, AL NOAA c/o Moffatt & Nichol Don Blancher, PhD, BCES, Project Manager 251.378.9009 Dblancher@moffattnichol.com	Fugro is providing Geotechnical support of the design and development of this project.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
September 2023	$750k	$84k Geotechnical Engineering

TEC Professional Services Questionnaire

M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	**Defendant:**	
1. N/A		
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

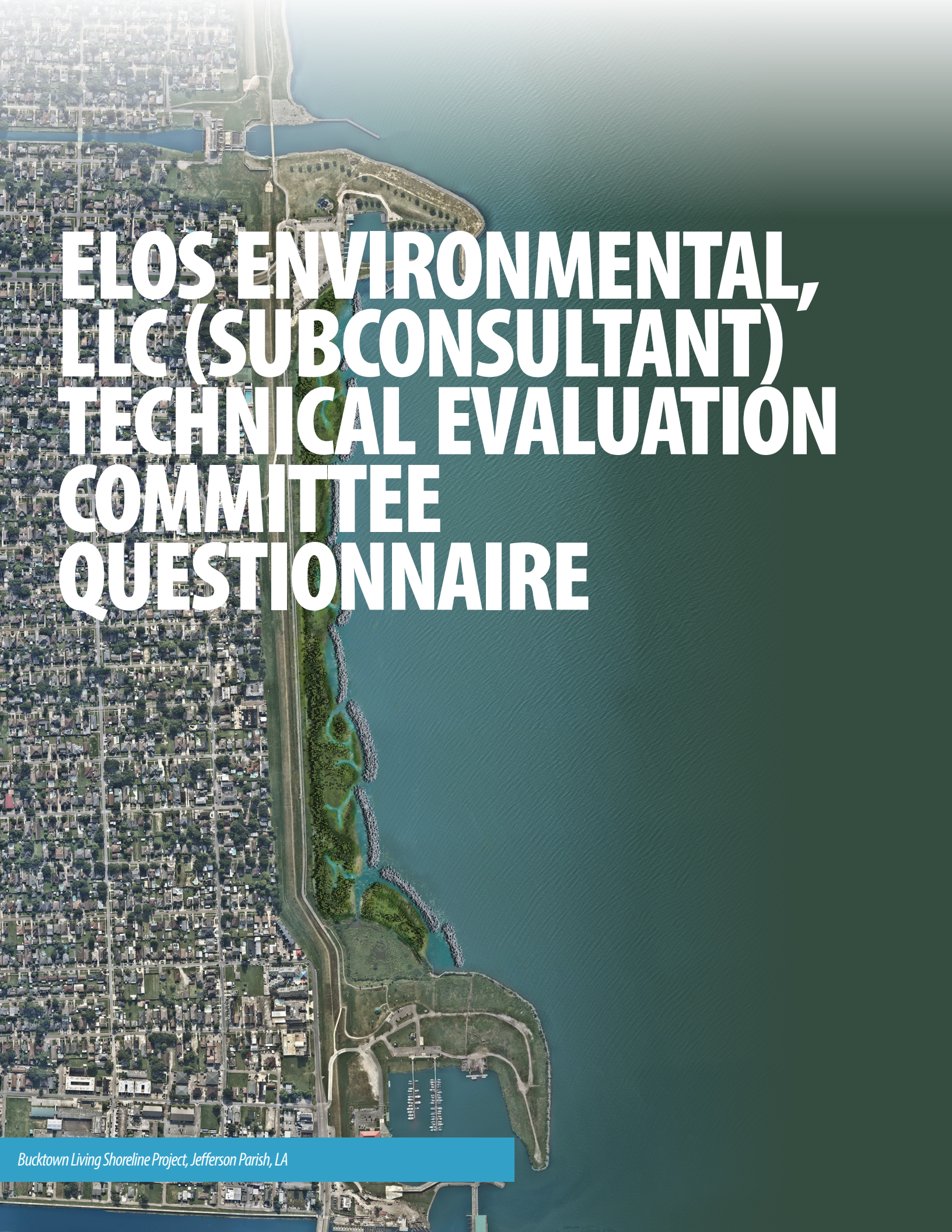
Fugro has provided subsurface explorations in support of Louisiana flood protection and coastal projects since 1946. Fugro has earned the reputation for consistently delivering high quality projects on-time and within budget. Since Hurricane Katrina, we have expanded our experience during the development, planning and execution of flood protection projects and coastal protection projects for local, state, and federal partners. Our staff has successfully performed over 80 separate task orders under these contracts. Fugro gives considerable thought to each task order on how to safely, effectively, and efficiently proceed with the project work. The graphic above high- lights the wide variety of recent project locations where Fugro has successfully executed flood protection and coastal projects.

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature: Eric Marx **Print Name:** Eric Marx, PE

Title: Vice President **Date:** July 16, 2024

ELOS ENVIRONMENTAL, LLC (SUBCONSULTANT) TECHNICAL EVALUATION COMMITTEE QUESTIONNAIRE



Bucktown Living Shoreline Project, Jefferson Parish, LA

Technical Evaluation Committee (TEC) Questionnaire Instructions

- The Technical Evaluation Committee (TEC) Questionnaire shall be used for professional services related to architecture, engineering, or survey projects.
- **The TEC Questionnaire should be completely filled out. Complete and attach ALL sections. Insert "N/A" or "None" if a section does not apply or if there is no information to provide.**
- Questionnaire must be signed by an authorized representative of the Firm. Failure to sign the questionnaire shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- All subcontractors must be listed in the appropriate section of the Questionnaire. Each subcontractor must provide a complete copy of the TEC Questionnaire, applicable licenses, and any other information required by the advertisement. Failure to provide the subcontractors' complete questionnaire(s), applicable licenses, and any other information required by the advertisement shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- If additional pages are needed, attach them to the questionnaire and include all applicable information that is required by the questionnaire.

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:
Coastal Engineering Consulting Services as Needed Parish Wide
SOQ 24–020, Jefferson Parish

B. Firm Name & Address:
ELOS Environmental, LLC
607 W. Morris Ave.
Hammond, LA 70403

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:
Lucas Watkins, Principal
lwatkins@elosenv.com
985-662-5501

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.
None

E. Please provide the number of employees whose primary function corresponds with each category:

10 Administrative	___ Estimators	___ Specification Writers
___ Architects (Licensed)	1 Geologists	___ Structural Engineers
___ Chemical Engineers	___ Geotechnical Engineers	___ Graduate Engineers
___ Civil Engineers	___ Interior Designers	10 Project Managers
2 Construction Inspectors	___ Landscape Architects	6 Clerical
28 Ecologists	___ Land Surveyor	2 Grant/Funding Specialist
___ Electrical Engineers	___ Mechanical Engineers	___ Sanitary Engineers
___ Engineer Intern	___ Environmental Engineers	
___ Professional Land Surveyors		59 **TOTAL**

F. Is this submittal by a JOINT-VENTURE? Please check: YES: NO: X

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

2.

H. Has this JOINT-VENTURE previously worked together? Please check:
YES: NO: X

I. List all subcontractors anticipated for this Project. Please note that <u>all subcontractors must submit a fully completed copy of this questionnaire</u>, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. N/A		
2.		
3.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:
Total Number: 59

TEC Professional Services Questionnaire

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Lucas Watkins, Principal

Project Assignment:

Principal

Name of Firm with which associated:

ELOS Environmental, LLC

Years' experience with this Firm:

18 years

Education: Degree(s)/Year/Specialization:

MS / 2005 / Biological Sciences

BS / 2000 / Forest Management

Active registration: Year first registered/discipline:

--2010/LA Arborist, License No. 19-1827; --LA Licensed Horticulturist; --LA Licensed Nuisance Wildlife Control Operator; --Certified FERC Regulatory Overview and Guidance; --Certified Prescribed Burn Manager; --Certified NPDES Erosion Inspector; --Certified Commercial Pesticide Applicator; --Certified National Highway Institute: NEPA and the Transportation Decision Making Process

Other experience and qualifications relevant to the proposed Project:

Mr. Watkins is the founding Principal of ELOS. Mr. Watkins ensures that ELOS acquires the best tools and techniques to guarantee efficient and cost-effective delivery of services to clients. His experience includes environmental regulatory compliance and project management. This includes the management of large-scale, multi-faceted projects, such as wetland restoration implementation, government grant management, complex construction projects, and disaster recovery debris removal efforts. His key strengths include wetland delineations, wetland permitting, wetland restoration, NEPA compliance, ASTM Phase I ESAs, stormwater management, FERC regulatory overview and guidance, endangered species surveys, and timber and forest management.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Brian Fortson, Senior Project Manager
Project Assignment:
Senior Project Manager
Name of Firm with which associated:
ELOS Environmental, LLC
Years' experience with this Firm:
11 years
Education: Degree(s)/Year/Specialization:
BS / 1995 / Wetland Ecology JD / 2006 / Civil Law
Active registration: Year first registered/discipline:
--Wetland Delineation Course, Louisiana State University Wetland Biochemistry Institute, 1996
Other experience and qualifications relevant to the proposed Project:
Mr. Fortson leads the permitting efforts for multiple projects for local development and infrastructure improvements efforts. Mr. Fortson provides technical expertise on many other projects for which he is not the lead scientist. He served as a Planning Technician, Land Use Planner, Environmental Specialist, and Coastal Wetland and Environmental Specialist, and Coastal Wetland and Environmental Resources Manager for St. Tammany Parish Government from 1988 to 2013. He was responsible for the administration of the St. Tammany Parish Local Coastal Program under the Coastal Zone Management Act and was responsible for managing the natural resource permitting efforts. Mr. Fortson was the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) representative for St. Tammany Parish and has proposed and presented multiple coastal restoration projects and facilitated the approval of projects through the permitting process.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Basile Dardar, Project Manager
Project Assignment:
Project Manager and Environmental Scientist
Name of Firm with which associated:
ELOS Environmental, LLC
Years' experience with this Firm:
2.5 years
Education: Degree(s)/Year/Specialization:
BS / 2014 / Biological Sciences
Active registration: Year first registered/discipline:
--2018/USACE Wetland Delineation --2020/OLDEB Certified Oyster Biologist --2019/Open Water Diving Certification --TWIC Card
Other experience and qualifications relevant to the proposed Project:
Mr. Dardar is a project manager and environmental scientist who has a wide range of experience including: permitting, environmental surveying, damage surveying, developing reports, research, sampling, testing, and coordinating with agencies and clients. Mr. Dardar provides environmental expertise, accurate reporting, and a high degree of professionalism to every project. He is also a certified oyster biologist, as well as a certified diver. His experience with marine biology in Louisiana coastal waters, including his experience as a commercial fisherman, makes him a unique asset to the ELOS team.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Hunter Perrilloux, Project Manager
Project Assignment:
Project Manager and Environmental Scientist
Name of Firm with which associated:
ELOS Environmental, LLC
Years' experience with this Firm:
4.5 years
Education: Degree(s)/Year/Specialization:
BS / 2018 / Biological Science
Active registration: Year first registered/discipline:
--2021/FAA Drone Pilot --2020/USACE Wetland Delineation
Other experience and qualifications relevant to the proposed Project:
Mr. Perrilloux is a project manager and environmental scientist who specializes in wetland delineations. Mr. Perrilloux serves as a field crew leader for wetland delineations at ELOS and assists in the processing of data and the creation of wetland delineation reports. He has worked on various environmental projects including mitigation bank monitoring, endangered species monitoring, and cultural resources surveys. As an FAA licensed drone pilot, he is able to collect and process drone footage for applications such as damage survey reports and environmental investigations.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Michael Bellone, Director of Environmental Services and Regulatory Affairs
Project Assignment:
Director of Environmental Services and Regulatory Affairs
Name of Firm with which associated:
ELOS Environmental, LLC
Years' experience with this Firm:
1 year
Education: Degree(s)/Year/Specialization:
MS / 1991 / Environmental Sciences BS / 1983 / Geological Sciences
Active registration: Year first registered/discipline:
--Registered Professional Geologist in the following states: Mississippi #520; Alabama #800; Tennessee #3924; Wisconsin #320; Texas #4344; --LA Licensed Contractor #50824; --LA Licensed Louisiana Contractor-Hazardous Waste Treatment or Removal #50824; --OSHA Certified Waste Site Supervisor; --Certified Hazardous Materials Manager #3849
Other experience and qualifications relevant to the proposed Project:
Mr. Bellone has directed multi-disciplinary environmental projects at over 1,200 sites throughout the United States, including 700 Phase I and Phase II Environmental Site Assessments (ESA) for governmental agencies, commercial clients, and private industry. He is experienced in conducting and managing multimedia environmental audits, Phase I, II, and III ESAs, contamination assessments, and remedial actions (soil, groundwater, and surface water). His specialties include hydrogeological investigations, site assessments, hazardous waste site closures, environmental permitting, compliance audits and health and safety audits, and the design of multimedia remedial systems. Mr. Bellone provides senior oversight and assists ELOS with fieldwork, report writing, data processing, and file organization to complete projects concerning Phase I and II ESAs and other NEPA-related environmental assessment documentation.

TEC Professional Services Questionnaire

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 1

Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Bucktown Wheel Wash Emergency Authorization Requests Jefferson Parish, LA Michelle M. Gonzales, CFM Director Ecosystem and Coastal Management Jefferson Parish Government 1221 Elmwood Pk Blvd Suite 310 Jefferson, LA 70123 mgonzales@jeffparish.net O: 504-736-6653 C: 225-223-2719	ELOS was contracted to prepare and submit emergency authorization requests and to prepare and submit formal permit applications requesting authorization from the U.S. Army Corps of Engineers (USACE) to conduct prop-washing at the mouth of Bucktown Marina basin near its confluence with Lake Pontchartrain on an approximately 1.50-acre site located in New Orleans, LA. ELOS obtained an emergency authorization requests and after-the-fact permit application from the USACE for identifying the possibility of impacting waters under federal jurisdiction, including wetlands and navigable waters. ELOS provided a clear documentation demonstrating the emergency nature of the situation, prompting USACE to swiftly evaluate the request and potentially issue authorization to proceed with necessary activities such as flood response or environmental remediation. The wheel wash system is positioned at exits of construction sites or quarries where vehicles are required to pass through before entering public roads to help in maintaining road safety by reducing the risk of accidents caused by slippery road conditions due to mud and debris from construction vehicles. Additionally, the wheel wash systems contributed to environmental protection by minimizing soil erosion and contamination of nearby water bodies with sediment-laden runoff from construction sites.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
April 2024	NA	$30,000

TEC Professional Services Questionnaire

PROJECT NO. 2		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Veterans Memorial Boulevard Pump Stations Orleans Parish, LA Blake Vutera, P.E. Gulf South Engineering and Testing, Inc. 15 Veterans Memorial Blvd Kenner, LA 70062 504-305-4401 ex 103 bvutera@gulfsoutheng.com	ELOS is currently contracted to provide Environmental Services in support of the Jefferson Parish Pump Stations Project on Veterans Memorial Boulevard in Jefferson Parish, LA. ELOS is responsible for applying for Coastal Use, Clean Water Act Section 404, and Rivers and Harbors Act Section 408, and levee permits for two pump stations located north and south of Veterans Memorial Boulevard along the west bank of the 17th Street Canal in New Orleans. The designs include the outflow pipe being lifted above the existing levee and through the existing floodwall. Additional access gates are also included in the designs to allow for maintenance. Due to the proposed impacts to the levee and floodwalls, the project must be reviewed by the Completed Works section of the U.S. Army Corps of Engineers for compliance with Section 408. This review process includes preparing an Environmental Assessment to determine potential impacts on cultural resources, threatened and endangered species, essential fish habitat, water quality, air quality, etc. The project's purpose is to improve street drainage at the Veterans Boulevard crossing of the 17th Street Canal.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2023	NA	$46,969

TEC Professional Services Questionnaire

PROJECT NO. 3		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
West Esplanade Boulevard Pump Station Jefferson Parish, LA Kazem Alikhani ECM Consultants, Inc. 1301 Clearview Parkway Suite 200 Metairie, LA 70001 504.885.4080 kazem@ecmconsultants.com	ELOS is currently contracted to provide Environmental Services in support of the Jefferson Parish Pump Station Project on West Esplanade Boulevard in Jefferson Parish, LA. ELOS is responsible for applying for Coastal Use, Clean Water Act Section 404, and Rivers and Harbors Act Section 408, and levee permits for a proposed pump station to be located in the neutral ground of West Esplanade Boulevard across Orpheum Avenue from the 17th Street Canal. The designs include the outflow pipe being lifted above the existing levee and floodwall into the canal. Due to the proposed impacts to the levee from outflow pipe support piles, the project must be reviewed by the Completed Works section of the U.S. Army Corps of Engineers for compliance with Section 408. This review process includes preparing an Environmental Assessment to determine potential impacts on cultural resources, threatened and endangered species, essential fish habitat, water quality, air quality, etc. The project's purpose is to improve street drainage in the West Esplanade/Lake Avenue vicinity.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2022	NA	$24,306

TEC Professional Services Questionnaire

PROJECT NO. 4		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Lafitte Area Levees Jefferson Parish, LA Mark Schutt Engineer Meyer Engineers 4937 Hearst Street, Suite 1B Metairie, LA 70001 504-885-9892	ELOS was contracted to perform a wetland delineation and submit a joint permit application to the U.S. Army Corps of Engineers and the Louisiana Department of Energy and Natural Resources, Office of Coastal Management for several proposed levee improvements including levee lifts, new levee segments, and corresponding pump stations for those levee systems. ELOS also conducted environmental assessments and cultural resources surveys for several of these sites: Lower Lafitte Orange Street, Goose Bayou, Pen Levee, Goose Bayou Rachel Street Pump Station, Jones Point Levee, Jones Point Carmelite Pump Station, Jones Point Trahan & Jones Point Pump Station, Pailet Levee, Town of Jean Lafitte Gloria Drive Pump Station, Town of Jean Lafitte Highway 45 Pump Station, and Upper LA 45. The scope of work included: wetland delineations, permitting, agency communication, cultural resources surveys, environmental assessments, and section 106 reviews. Project Sites: Lower Lafitte Orange Street Goose Bayou Pen Levee Goose Bayou Rachel Street Pump Station Jones Point Levee Jones Point Carmelite Pump Station Jones Point Trahan & Jones Point Pump Station Pailet Levee Town of Jean Lafitte Gloria Drive Pump Station Town of Jean Lafitte Highway 45 Pump Station Upper LA 45	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
Ongoing	NA	$975,586

TEC Professional Services Questionnaire

PROJECT NO. 5		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Tangipahoa Parish RESTORE Act Breakwater Project Tangipahoa Parish, LA Robby Miller Parish President 206 E Mulberry St Amite City, LA 70422 985-748-3211	To move forward several projects in Tangipahoa Parish's multiyear plan under the RESTORE Act, which dedicated oil spill funds to restoring the Gulf Coast region, ELOS was contracted to complete a feasibility study for dredging the bar channel at the mouth of the Tangipahoa River and restoration of a boat launch. The study included a summary of economic and environmental benefits, a mitigation plan and its costs, a permitting plan, and other regulatory requirements. ELOS also updated prior Geographic Information System (GIS) analysis of sediment and land accretion behind a previously built rock breakwater. Land loss between 1989 and 2013 at the shoreline in this area was calculated to be 55 acres. Between 2014, when the first phase of the project was completed, and 2016, approximately 45 acres of land and sediment have been captured behind the breakwater through natural processes. This analysis was not only key to securing additional funding from the U.S. Army Corps of Engineers (USACE), but more importantly, it enabled the parish to use the dredged material beneficially to accelerate the natural land-building process. During Phase II of the breakwater project, ELOS prepared the and received the complex construction permits, completed cultural resources management services to relocate any existing, submerged, or eroding archaeological sites, and monitored construction and the project's post-construction, land-building success. The "Lake Pontchartrain Shoreline Protection Project" was given the Best Restored Shores Award for 2023 by the American Shore & Beach Preservation Association.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
Ongoing	NA	$130,000

TEC Professional Services Questionnaire

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility**	
West Shore Lake Pontchartrain Connector Levee St. James Parish, LA Kevin O'Gorman, P.E. Intracoastal Consultants, LLC 2351 Energy Dr, Ste 1010 Baton Rouge, LA 70808 225-308-3213	ELOS has been contracted for environmental services related to the installation of the West Shore Lake Pontchartrain Connector Levee. The project includes installation of earthen levees, a pump station, a gravity drainage system, and water control structures as flood control measures to allow the levee to remain an open system until circumstances require closure. Specifically, ELOS is completing a geotechnical boring survey and permit application (the survey requires 11 soil boring locations and 14 cone penetration test locations), completing a joint permit application to the U.S. Army Corps of Engineers (USACE) and the Louisiana Department of Energy and Natural Resources (Office of Coastal Management), performing a wetland delineation and final report to receive a jurisdictional determination from USACE, performing a Section 106 consultation and desktop review, and coordinating agencies for the approximately 99-acre site in St. James Parish. The preliminary actions will also determine whether ELOS will complete permits for additional agency coordination under the Clean Water Act and Rivers and Harbors Act in addition to levee permits. One important aspect of this project is coordinating not only agencies, but also adjacent land owners and securing access to complete data collection and surveys. After receiving a notice to proceed in March 2024, ELOS has already completed the wetlands delineation report and submitted it for consideration to receive a jurisdictional determination. The Section 106 consultation and desk review is also underway, showing that ELOS works diligently and quickly to ensure the project moves forward effectively.	
Completion Date (Actual or estimated)	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
Ongoing	NA	$144,000

TEC Professional Services Questionnaire

PROJECT NO. 7		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Plaquemines Parish Coastal Team Consulting Plaquemines Parish, LA Vincent Frelich Director of Coastal Restoration Plaquemines Parish Government 333 F. Edward Hebert Blvd., Building 100, Suite 212, Belle Chasse, LA 70037 (504) 297-5629 vfrelich@ppgov.net	ELOS participated as a consulting team member for the implementation of the seven primary Plaquemines Parish Coastal Strategic Implementation Plan ridge restoration projects, conceptualized as part of the Plaquemines Parish Coastal Plan. ELOS assisted in designing, evaluating, and permitting a series of potential ridge and marsh restoration projects in Plaquemines Parish. The ridge projects are evaluated for their potential to reduce impacts. The assessment for these projects evaluated plant species, height, diameter, and densities along the ridges. ELOS performed ecological assessments for the large-scale coastal ridge and marsh restoration projects for inclusion in its Coastal Master Plan. ELOS worked with different engineering firms to design and assess the benefits and impacts associated with the construction of ridge formations and adjacent marsh platform creation through the use of dedicated sediment delivery from dredging in the Mississippi River and transporting the sediment through long distance pipelines to the project site. ELOS also coordinated the geotechnical and soil boring effort associated with the design and compiled the design footprint information from A&E Teams associated with the Plaquemines Parish Ridge Restoration Projects and worked with those A&E Teams to ensure that the ratio between marsh impacts from ridge construction and benefits resulting from marsh creation was adequate to establish a net benefit in habitat credits when constructed. All teams have submitted shape files and tabulated impact data which has been assessed and compiled by ELOS. A spreadsheet containing all relevant impact estimations has been produced and published on the Coastal Team Project Management website at Huddle.com.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2014	NA	$143,000

TEC Professional Services Questionnaire

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Tangipahoa Parish Coastal Master Plan Robby Miller Parish President 206 E Mulberry St Amite City, LA 70422 985-748-3211	ELOS has been contracted to provide consulting services to Tangipahoa Parish Government in developing and updating its Coastal Master Plan. The primary objective of this plan is to develop a comprehensive and actionable strategy for coastal resilience, protection, and sustainable development in the parish. The plan addresses the critical challenges and opportunities associated with the coastal region of Tangipahoa Parish, including wetland restoration, shoreline protection, drainage improvements, and floodplain management. It is a multifaceted approach that integrates scientific, engineering, economic, and community perspectives to ensure the long-term sustainability and resilience of the parish's coastal areas. To develop the original plan, ELOS collected and analyzed data related to the coastal geography, storm surge modeling, hazard data, and existing studies on coastal restoration and flood protection throughout the region. Stakeholder meetings with residents, local businesses, governmental agencies, and non-governmental agencies were held to make sure the plan's components aligned with the needs and aspirations of Tangipahoa Parish residents. The resilience strategies were then aligned with priorities of similar plans including coastal plans and RESTORE Act plans. The final component of the plan involved feasibility and financial implementation with reliable funding sources and timelines. ELOS is currently working with the Parish to add new projects into the plan using the same comprehensive approach.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
Ongoing	NA	$148,640

TEC Professional Services Questionnaire

M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	**Defendant:**	
1. None	**None**	**None**
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

At ELOS, we are dedicated to restoring and enhancing coastal ecosystems through our specialized expertise in coastal restoration and resilience. With a deep understanding of the unique local needs, we offer a comprehensive suite of services that address project planning, management, regulatory compliance, and monitoring. Our commitment to sustainability and environmental stewardship drives our every action as we partner with clients to protect communities and coastal resources

ELOS has the capacity to support coastal restoration planning, project development, and funding efforts. Specific service offerings include:

-Local coastal master planning
-RESTORE Act Direct Component Multiyear Implementation planning
-Natural Resource Damage Assessment (NRDA) project development
-Comprehensive funding strategies for coastal restoration projects

TEC Professional Services Questionnaire

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature: Lucas Watkins **Print Name: Lucas Watkins**

Title: Principal **Date:** 7-3-2024

SOUTHERN SHORES ENGINEERING, LLC (SUBCONSULTANT) TECHNICAL EVALUATION COMMITTEE QUESTIONNAIRE

Technical Evaluation Committee (TEC) Questionnaire Instructions

- The Technical Evaluation Committee (TEC) Questionnaire shall be used for professional services related to architecture, engineering, or survey projects.
- **The TEC Questionnaire should be completely filled out. Complete and attach ALL sections. Insert "N/A" or "None" if a section does not apply or if there is no information to provide.**
- Questionnaire must be signed by an authorized representative of the Firm. Failure to sign the questionnaire shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- All subcontractors must be listed in the appropriate section of the Questionnaire. Each subcontractor must provide a complete copy of the TEC Questionnaire, applicable licenses, and any other information required by the advertisement. Failure to provide the subcontractors' complete questionnaire(s), applicable licenses, and any other information required by the advertisement shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- If additional pages are needed, attach them to the questionnaire and include all applicable information that is required by the questionnaire.

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:
Statement of Qualifications for Coastal Engineering Consulting As-Needed Parish Wide
SOQ 24-020 (Resolution No. 144205)

B. Firm Name & Address:
Southern Shores Engineering, LLC
2251 Drusilla Ln. Suite D
Baton Rouge, LA 70809

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:
Whitney C. Thompson, PE
Principal
2251 Drusilla Ln. Suite D
Baton Rouge, LA 70809
Phone: 225-252-5544
Email: WThompson@southernshoreseng.com

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.
Whitney C. Thompson, PE
Principal
2251 Drusilla Ln. Suite D
Baton Rouge, LA 70809
Phone: 225-252-5544
Email: WThompson@southernshoreseng.com

E. Please provide the number of employees whose primary function corresponds with each category:

___ Administrative	___ Estimators	___ Specification Writers
___ Architects (Licensed)	___ Geologists	___ Structural Engineers
___ Chemical Engineers	___ Geotechnical Engineers	___ Graduate Engineers
3 Civil Engineers	___ Interior Designers	___ Project Managers
___ Construction Inspectors	___ Landscape Architects	___ Clerical
___ Ecologists	___ Land Surveyor	___ Grant/Funding Specialist
___ Electrical Engineers	___ Mechanical Engineers	___ Sanitary Engineers
___ Engineer Intern	___ Environmental Engineers	
___ Professional Land Surveyors		3 **TOTAL**

F. Is this submittal by a JOINT-VENTURE? Please check: YES ◯ NO ◉

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1.

2.

H. Has this JOINT-VENTURE previously worked together? Please check:
YES ◯ NO ◯

I. List all subcontractors anticipated for this Project. Please note that all subcontractors must submit a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. N/A		
2.		
3.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:

3

TEC Professional Services Questionnaire

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Whitney C. Thompson, PE, Principal

Project Assignment:

Coastal Engineering & Design

Name of Firm with which associated:

Southern Shores Engineering, LLC

Years' experience with this Firm:

4

Education: Degree(s)/Year/Specialization:

B.S./2005/Civil Engineering

Active registration: Year first registered/discipline:

LA PE 0034825, 2009/Civil Engineering

Other experience and qualifications relevant to the proposed Project:

Ms. Thompson is an industry expert in coastal engineering, having led coastal restoration and water resources projects for nearly 20 years. She is responsible for the design and management of projects including marsh creation/dredging, shoreline stabilization, barrier island restoration, and living shorelines. Ms.Thompson has worked closely with state and federal agencies, as well as the private sector, leading clients from feasibility to permitting and design and through construction. Ms. Thompson has extensive experience with coastal engineering and analysis as well as coastal zone permitting, having permitted some of the most complex dredging projects in the Gulf Coast region. Ms. Thompson has implemented over a dozen restoration projects in Louisiana and has designed over 4,000 aces of habitat, ar managed construction projects up to $120,000,000 in value.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Christopher Paul, PE Coastal Engineer/Project Manager
Project Assignment:
Coastal Engineering/Construction Administration
Name of Firm with which associated:
Southern Shores Engineering, LLC
Years' experience with this Firm:
4
Education: Degree(s)/Year/Specialization:
BS/2014/Civil Engineering BA/2008/Business Administration
Active registration: Year first registered/discipline:
LA PE 0043282, 2018/Civil Engineering
Other experience and qualifications relevant to the proposed Project:
Christopher Paul, PE, is responsible for the design, management, and construction observation of coastal restoration projects including marsh creation/dredging, shoreline protection, and barrier island restoration. He focuses on applied engineering principles such as hydraulics, hydrology, coastal processes, and geotechnical engineering. He performs engineering calculations, prepares plans and specifications for construction, and produces estimated construction costs for restoration projects. During construction, he is responsible for observations and oversight including daily construction observation reports, dredge compliance analysis, sediment compatibility analysis, pay survey data QA/QC, volume computations and pay recommendations, field adjustment reports, change orders, permit compliance reporting, and moderating construction meetings.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
John Darnall, EI Coastal Engineer
Project Assignment:
Coastal Engineering/Construction Administration
Name of Firm with which associated:
Southern Shores Engineering, LLC
Years' experience with this Firm:
4
Education: Degree(s)/Year/Specialization:
MS/2016/Coastal and Marine Engineering and Management BS/2014/Civil Engineering
Active registration: Year first registered/discipline:
LA EI 33971, 2019/Civil Engineering 2017/FAA UAS Remote Pilot #3996624
Other experience and qualifications relevant to the proposed Project:
John Darnall, EI, is responsible for the design and construction administration of coastal restoration projects including marsh creation/dredging, shoreline protection, and barrier island restoration. He focuses on applied engineering principles such as hydraulics, hydrology, coastal processes, and geotechnical engineering. He performs engineering calculations, prepares plans and specifications for construction, and produces estimated construction costs for restoration projects. During construction, he is responsible for construction observations and oversight including daily construction observation reports, dredge compliance analysis, sediment compatibility analysis, documentation of construction activities, pay survey data QA/QC, volume computations and pay recommendations, field adjustment report change orders, permit compliance, and moderating construction meetings.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Intentionally Left Blank
Project Assignment:
Name of Firm with which associated:
Years' experience with this Firm:
Education: Degree(s)/Year/Specialization:
Active registration: Year first registered/discipline:
Other experience and qualifications relevant to the proposed Project:

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Intentionally Left Blank
Project Assignment:
Name of Firm with which associated:
Years' experience with this Firm:
Education: Degree(s)/Year/Specialization:
Active registration: Year first registered/discipline:
Other experience and qualifications relevant to the proposed Project:

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 1

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
QuickReef® Design Analysis Various Coastal Locations Client: Native Shorelines, A Davey Company Contact: Mary-Margaret McKinney, Director of Coastal Restoration, 252-333-9852 MaryMargaret.McKinney@davey.com	Native Shorelines contracted SSE to conduct engineering analyses to optimize QuickReef® living shoreline structures. SSE evaluated wind and wave conditions as well as local tidal datums to design a wave flume physical modeling study. SSE is evaluating results to determine wave attenuation properties of the structures. SSE is also performing computational fluid dynamics modeling via FLOW3D on QuickReef® design variations to evaluate effects of the structures.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
September 2024 (E)	$73,000	$73,000

PROJECT NO. 2

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Lincoln Beach Park Redevelopment Master Plan Client: City of New Orleans (sub to Sasaki) Contact: Alex Hill, Senior Associate, Sasaki, 720-504-9486 ahill@sasaki.com	Lincoln Beach is situated along Lake Pontchartrain in New Orleans and was once a vibrant and cherished destination for waterfront recreation. Over time, this historic site experienced prolonged public closure and disinvestment, leaving it underutilized. The City of New Orleans plans to redevelop the site into a resilient waterfront destination. SSE is leading environmental permitting and planning as well as tree surveying and coastal engineering independent technical review.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
Spring 2025 (E)	Undislosed	$30,000

TEC Professional Services Questionnaire

PROJECT NO. 3		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility**	
Lake Rosemound Dredging and Restoration Plan Client: Lake Rosemound Association Contact: Walter Pilie', Dredging Abatement Committee Chairman, 504-615-3115 bod9@lakerosemound.org	The Lake Rosemound Association contracted SSE to develop a restoration plan to maintain sustainability of the lake. Lake Rosemound continues to experience sedimentation due to natural and anthropogenic causes such as severe storm impacts, adjacent logging, and altered hydrology. SSE is developing an incremental plan to target environmental and societal benefits desired by the client. The preferred alternative will move to final design. After completing the design phase, SSE will develop lake restoration construction plans and specifications and manage construction.	
Completion Date (Actual or estimated)	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2025 (E)	$3M (construction)	$200,000

PROJECT NO. 4		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Living Shorelines Performance Study Client: North Carolina Coastal Federation Contact: Lexia Weaver, Ph.D., Living Shoreline Lead, 252-393-8185 x501 lexiaw@nccoast.org	The North Carolina Coastal Federation contracted SSE to install wave gauges at four different living shoreline structures along the coast of North Carolina, each with a different design. In addition, 3D photogrammetry will be collected to quantitatively assess oyster spat recruitment and shoreline response. The performance of each living shoreline design will be evaluated for effectiveness in attenuating wave energy and supporting marine ecosystem development.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
October 2024 (E)	$88,000	$76,000

TEC Professional Services Questionnaire

PROJECT NO. 5		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Proctor Point Marsh Creation and Shoreline Stabilization Feasibility Study, St. Bernard Parish, LA Client: Restoration Systems George Howard, CEO 919-306-4258 george@restorationsystems.com	SSE was contracted by Restoration Systems to conduct a study for the Proctor Point Marsh Creation and Shoreline Stabilization Project to evaluate the feasibility and conceptual cost of marsh enhancement via hydraulic dredging coupled with shoreline protection. The Proctor Point wetlands are an important natural buffer that is one of the multiple lines of defense protecting vulnerable communities in and around the city of New Orleans from storm surge. The Proctor Point wetlands consist of brackish and saline marshes and serve as valuable habitat for wildlife, fish and shellfish.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
Planning phase completed 7/2021	$40,000,000 (construction)	$4,000

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Bayou Dularge Ridge, Marsh, and Hydrologic Restoration Terrebonne Parish, LA Sub to: Waggoner Engineering Robbie Lear 225-298-0800 robbie.lear@waggonereng.com	Sigma Consulting Group, Inc. subcontracted SSE for engineering and design services for the Bayou Dularge Ridge, Marsh, and Hydrologic Restoration Project. SSE's role is leading dredging and equipment access design as well as performing independent technical review of marsh and coastal ridge habitat features. SSE also led shoreline stabilization engineering and design for the Grand Pass hydrologic restoration structure.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
November 2021	$61,000,000 (estimated construction cost)	$142,000

TEC Professional Services Questionnaire

PROJECT NO. 7		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Golden Triangle Marsh Creation Orleans/St. Bernard Parishes Client: Vida Carver, PE, CPRA 225-342-2799 Vida.Carver@la.gov	SSE was contracted to complete final bid documents and conduct construction administration and oversight for this project. SSE personnel led the regulatory and permitting process and developed Plans and Specifications for the project. Marsh habitat was constructed via hydraulic dredging from a borrow area within Lake Borgne.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
June 2022	$35,000,000 (construction)	$507,000

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
QuickReef® FLOW3D Modeling Various Coastal Locations Client: Native Shorelines, A Davey Company Contact: Mary-Margaret McKinney, Director of Coastal Restoration, 252-333-9852 MaryMargaret.McKinney@davey.com	Native Shorelines contracted SSE to perform computational fluid dynamics (CFD) modeling in support of the design of a QuickReef® living shoreline system designed for installation in soft soils.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
September 2024	$17,000	$17,000

TEC Professional Services Questionnaire

PROJECT NO. 9		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Post-Ida Storm Assessment and Improvement Project St. John the Baptist Parish, LA Client: Kurt Evans, SJB 225-200-0295 kurt.evans@sjbgroup.com	After Hurricane Ida left a path of destruction, SSE was contracted to assess drainage in St. John the Baptist Parish to support improvements. Post-storm damage assessment missions were flown by SSE's FAA certified UAS pilots to determine the location and extent of impacts to drainage. Improvement recommendations were made by SSE engineers.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
February 2022	Undisclosed	$6,000

PROJECT NO. 10		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Intentionally Left Blank		
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**

TEC Professional Services Questionnaire

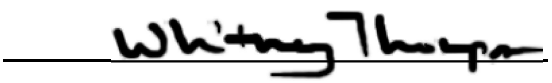
M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	**Defendant:**	
1. N/A		
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

Southern Shores Engineering LLC (SSE) commits to supporting clients in providing sound coastal engineering consulting services. SSE specializes in coastal design, project management, coastal zone permitting, and construction administration, focusing on dredging, shoreline protection/living shoreline, barrier island, and marsh restoration projects. SSE personnel have designed restoration projects utilizing, offshore, nearshore, inland, and Mississippi River sediment for fill material to construct beach and dune, marsh, and barrier island shorelines, coordinating with navigation entities and tackling logistical challenges to successfully implement these projects. A Louisiana-based, woman-owned firm, SSE personnel are extremely familiar with coastal processes unique to Louisiana, local soil conditions, and the coastal Louisiana marine construction industry, providing a strong foundation to support implementation of the State's ambitious restoration plan. Our professionals have years of experience providing design services for marsh creation, barrier island, dredging, and shoreline protection projects, as well as conducting planning studies, supporting borrow area investigations and construction corridor design, and facilitating the implementation of projects.

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature:  **Print Name:** Whitney Thompson, PE

Title: Principal Coastal Engineer **Date:** 7/1/2024

COASTAL ENVIRONMENTS, INC (SUBCONSULTANT) TECHNICAL EVALUATION COMMITTEE QUESTIONNAIRE

LaBranche West (PO-42) Shoreline Protection Project, St. Charles Parish, LA

Technical Evaluation Committee (TEC) Questionnaire Instructions

- The Technical Evaluation Committee (TEC) Questionnaire shall be used for professional services related to architecture, engineering, or survey projects.
- **The TEC Questionnaire should be completely filled out. Complete and attach ALL sections. Insert "N/A" or "None" if a section does not apply or if there is no information to provide.**
- Questionnaire must be signed by an authorized representative of the Firm. Failure to sign the questionnaire shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- All subcontractors must be listed in the appropriate section of the Questionnaire. Each subcontractor must provide a complete copy of the TEC Questionnaire, applicable licenses, and any other information required by the advertisement. Failure to provide the subcontractors' complete questionnaire(s), applicable licenses, and any other information required by the advertisement shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- If additional pages are needed, attach them to the questionnaire and include all applicable information that is required by the questionnaire.

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:

Statement of Qualifications (Technical Evaluation Committee Questionnaire) for Coastal Engineering and Consulting Services on an As-Needed Basis SOQ 24-020 (Resolution No. 144205).

B. Firm Name & Address:

Coastal Environments, Inc.
1260 Main Street
Baton Rouge, LA 70809

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:

Karen M. Wicker, Ph.D.
Senior Vice President
Coastal Environments, Inc.
1260 Main Street
Baton Rouge, LA 70802
225-383-7455 Ext. 119
225-383-7925 (Fax)
225-892-3249 (Cell)

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.

N/A

E. Please provide the number of employees whose primary function corresponds with each category:

3 Administrative	___ Estimators	___ Specification Writers
___ Architects (Licensed)	___ Geologists	___ Structural Engineers
___ Chemical Engineers	___ Geotechnical Engineers	___ Graduate Engineers
___ Civil Engineers	___ Interior Designers	___ Project Managers
___ Construction Inspectors	___ Landscape Architects	1 Clerical
5 Ecologists	___ Land Surveyor	___ Grant/Funding Specialist
___ Electrical Engineers	___ Mechanical Engineers	___ Sanitary Engineers
___ Engineer Intern	___ Environmental Engineers	
___ Professional Land Surveyors		9 **TOTAL**

F. Is this submittal by a JOINT-VENTURE? Please check: YES ◯ NO ◉

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1.
N/A

2.
N/A

H. Has this JOINT-VENTURE previously worked together? Please check:
YES ◯ **NO** ◉

I. List all subcontractors anticipated for this Project. Please note that all subcontractors must submit a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. N/A		
2.		
3.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:

5

TEC Professional Services Questionnaire

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Karen Wicker, PhD
Senior Vice President of Applied Science and Planning

Project Assignment:

Biological & Environmental Assessment

Name of Firm with which associated:

Coastal Environments, Inc.

Years' experience with this Firm:

47

Education: Degree(s)/Year/Specialization:

PhD/1979/Geography w/Minor in Marine Science
MS/1975/Geography
BA/1970/American Studies

Active registration: Year first registered/discipline:

N/A

Other experience and qualifications relevant to the proposed Project:

Dr. Wicker has experience providing advisory services for federal, state, and local governmental agencies, primarily in coastal Louisiana, involving development of site and regional coastal restoration and management plans; multi-use management plans; Coastal Zone Management Programs; NEPA process compliance documents; environmental inventories; regulatory compliance and permitting (Sections 10, 404 and 401, CUP); and identification of proposed project opportunities and constraints as part of multi-use management, development, and habitat restoration processes. She has extensive experience in identification, mapping, and quantification of temporal and spatial distribution of land use, habitats, physiographic features, and causative factors associated with landscape changes in the Northern Gulf Coast Region. She directed two recent project in Jefferson Parish: (1) Bayou Segnette BLH Mitigation Project, Baseline and Initial Monitoring Report. and (2) the Nine-Mile to Barataria Entergy Line. Coordinated with client's contractor and property owner and directed field investigations to document vegetation and habitat conditions pre- and post-construction of new Entergy Transmission lines and poles.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Hunter Guidry Director of Applied Science and Planning Biologist/Wetland Ecologist
Project Assignment:
Biological & Environmental Assessment; Permitting; Marsh and Ridge Restoration; Biological and Environmental Assessment of Wetlands; Cost Estimates
Name of Firm with which associated:
Coastal Environments, Inc.
Years' experience with this Firm:
8
Education: Degree(s)/Year/Specialization:
BS/1996/Environmental Management System
Active registration: Year first registered/discipline:
LA Specific Traffic Control Tech. (TCT) – ATSSA/DOTD 2021; OSHA 1910.120 40 Hr HAZWOPER 2021; Construction Stormwater Permit Training 2015; Certified Environmental Inspector - EAA; Wetland Delineation, Wetland Training Institute, Inc. 2014; Advanced Topics in Hydric Soils Coastal Training Program 2014; TWIC
Other experience and qualifications relevant to the proposed Project:
Mr. Guidry has experience conducting environmental site assessments, wetland delineations, and threatened and endangered species surveys; preparing permit applications; and coordinating with regulatory agencies. He is experienced in processing LPDES permits and monitoring for industrial facilities including sampling, permit preparation, and report writing. He has conducted Storm Water Pollution Prevention Plans for construction sites, transmission line corridors, and industrial facilities, and performed sampling for sediment, water, and biota at offshore facilities for a produced water study. He completed an EPA Wetland Vegetation Monitoring Project in LA and AR, and a WVA monitoring assessment for the Morganza to the Gulf (MTG) Hurricane and Storm Damage Risk Reduction System (HSDRRS), Supplemental Environmental Impact Statement (SEIS) for the USACE. He obtained site access permission; managed field monitoring crews, sampling of wetland sites as part of EPA designated sampling methodologies; photo-documented vegetation at marshes, swamps, and bottomland hardwood sites; and prepared data sheets. He collected and pressed vegetation, collected soil and water samples, and submitted for analysis. He prepared site reports as part of EPA's on-going assessment of the status of US wetlands.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Mark Gagliano Vice President of Restoration Certified Oyster Biologist
Project Assignment:
Coastal Planning & Design; Living Shoreline Design
Name of Firm with which associated:
Coastal Environments, Inc.
Years' experience with this Firm:
30
Education: Degree(s)/Year/Specialization:
BGS/2005/Biology and Aquaculture
Active registration: Year first registered/discipline:
LA State Contractor's License Specialty: Seeding, Sodding, Soil Stabilization, Sheet Piling, & Coastal Restoration & Habitat Enhancement, #32569; Master 100 Tons (GRLKCT-860: Vessel Captain; Assistance Towing (GRLKCT42): Vessel Captain; USACE Construction Quality Management for Contractors #784 (SAM011200255); LA State Certified Oyster Biologist, DNR Oyster Damage Evaluation
Other experience and qualifications relevant to the proposed Project:
Mr. Gagliano is a LA State Certified Oyster Biologist with experience conducting mariculture research, collecting environmental data in wetland and estuarine environments, and designing and implementing coastal restoration projects across the Gulf Coast. He is a co-developer of the patented ReefBlkTM unit that was successfully placed in nine estuarine locations in LA, TX, and AL to stabilize shorelines and increase habitat diversity through creation of bioengineered oyster reefs. He has successfully designed and directed vegetation planting projects and sand fencing projects in wetlands and on barrier islands in LA and MS. He is experienced in monitoring geophysical surveys in wetlands to ensure compliance with established operating procedures for geophysical surveying, drilling and recording operations, and educating field crews regarding environmental precautions to minimize damage to and restore wetlands unavoidably impacted by survey vehicles. He recently completed the Coalition to Restore Coastal Louisiana's Barataria Bay Recycled Oyster Shell Living Shoreline Project in Jefferson Parish including permitting, fabricating, and installing 1,198 gabion units along the shoreline of an island in Barataria Bay to initiate growth of 3,594 linear feet of high vertical oyster reefs for shoreline protection and biodiversity enhancement.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Walker Wilson Senior Wetland and Wildlife Biologist
Project Assignment:
Biological and Environmental Assessment of Wetlands; Field Investigations
Name of Firm with which associated:
Coastal Environments, Inc.
Years' experience with this Firm:
20
Education: Degree(s)/Year/Specialization:
MS/2005/Wildlife BS/2001/Wildlife & Fisheries BS/1999/Zoology
Active registration: Year first registered/discipline:
EPA National Wetlands Condition Assessment Training, 2021; Wetland Delineation, Wetland Training Institute, 2015; Marsh Burning Certification LDAF, LSU & ULL 2012; NAUI Open Water II & Nitrox Certified; 404 Permit Training Registration
Other experience and qualifications relevant to the proposed Project:
Mr. Wilson has 20 years of experience in environmental compliance and biological investigations, primarily wildlife biology, ecology, botany, wetlands, and biological assessments. His experience includes remote sensing and image interpretation; jurisdictional wetland delineations and determinations; biological assessments and mitigation according to USFWS criteria; oil spill assessment monitoring; litigation support; protected species surveys; wetland and wildlife management plans; migratory bird surveys; wading bird rookery surveys; herpetofauna surveys; mammal surveys; site assessments; vegetation surveys; mussel surveys; operating air boats and outboard engine boats; operating all-terrain vehicles; collecting water samples for lab analysis; and collecting soil samples for lab analysis using augers, push cores, and vibro-core machines. Much of his work has been in coastal Louisiana, including Jefferson Parish. Examples include (1) Jean Lafitte Canal Monitoring Project and (2) EPA National Wetlands Condition Assessment Project.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Mark Schexnayder, M.S. Vice President of Applied Science and Planning Fisheries Biologist
Project Assignment:
Coastal Planning & Design; Living Shoreline Design; Biological & Environmental Assessment; Technical Evaluations
Name of Firm with which associated:
Coastal Environments, Inc.
Years' experience with this Firm:
1
Education: Degree(s)/Year/Specialization:
B.S./Botany M.S./Marine Biology
Active registration: Year first registered/discipline:
Professional Association of Diving Instructors (PADI)
Other experience and qualifications relevant to the proposed Project:
Mr. Schexnayder, MS is a career biologist who joined the CEI team in 2024. Over his career, he earned respected roles such as Louisiana Department of Wildlife and Fisheries (LDWF) Director of the Marine Laboratory on Grand Terre and Crustacean Program Manager. He joined Louisiana Sea Grant/LSU AgCenter in 2000 as a Coastal Advisor. He was named a Special Assistant to the Chancellor to oversee recovery efforts in the Greater New Orleans Area after Hurricane Katrina. Mark helped craft the Bayou St. John Management Plan and led several restoration projects in the bayou and in New Orleans City Park, such as removal of a dam on Bayou St John and the Big Lake enhancements. He also was part of a team that installed nine artificial fishing reefs in Lake Pontchartrain. When the 2010 BP oil spill occurred, Mark returned to LDWF to help coordinate fisheries recovery efforts. As Deputy Assistant Secretary for the Office of Fisheries, his projects included the development of seafood sustainability, certification and traceability programs. Additionally, here presented LDWF on the Crab, Shrimp and Oyster Task Forces. As an employee of Batture, Mark is able to apply his talents to public parks and coastal projects, as well as local, State and Federal government projects.

TEC Professional Services Questionnaire

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 1

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
USACE Bayou Segnette Mitigation Monitoring, Jefferson Parish, LA USACE New Orleans District Kristen Butcher, Environmental Studies Section 504.862.1390; Kristen.Butcher@usace.army.mil Paul Hughbanks, Contracting Officer's Representative 504.862.1100; Paul.J.Hughbanks@usace.army.mil	CEI conducted baseline and initial environmental monitoring of the 123-acre mitigation area and prepared a report of findings. CEI provided performed five tasks: (1) install field monitoring stations; (2) collect data on vegetation at monitoring stations; (3) process and analyze monitoring data; (4) prepare report documenting methodology, data collection, and analysis and history of previous mitigation activities; and (5) construct replacement wood plank bridge to access a sampling area. Data collection and analysis were designed to determine whether applicable mitigation success criteria have been achieved. The report included recommended mitigation management and maintenance activities to ensure project mitigation success criteria and goals set by the USACE. Performed additional vegetation monitoring for supplemental planting for year-3 project goals.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
12/2022	$75,000	$75,000

PROJECT NO. 2

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
TNC / NOAA Oyster Reefs for Shore Stabilization, Grand Isle & Biloxi Marshes, Jefferson and St. Bernard Parishes, LA The Nature Conservancy Amy Smith Kyle 504.913.5993; asmithkyle@TNC.org	CEI designed, prepared permit applications, and obtained permits to construct bioengineered oyster reefs to initiate reef growth, reduce edge erosion along existing shorelines, and enhance fisheries habitat. Obtained a permit to construct a total of 7.03 miles of linear oyster reefs; 4.54 mile in the Biloxi Marsh, St. Bernard Parish, and 2.49 mile behind Grand Isle in Jefferson Parish. The total 3.4 miles of artificial reef protects approximately 350 acres of marshland located behind the reef structures. CEI was responsible for fabrication and transportation of 3,600 ReefBlkTM units to the four sites; transportation and loading of oyster shell into the ReefBlkTM units; transportation of heavy equipment, marine vessels, crew quarters, and supplies; and personnel to construct and install the oyster ReefBlkTM units. Deliverables included Coastal Use permit, Section 10/404 permit, USCG Private Aids to Navigation Permit, As-Built drawings, and 3.4 miles of oyster ReefBlkTM units.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
05/2011	~$3,950,000	$3,400,000

TEC Professional Services Questionnaire

PROJECT NO. 3		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility**	
Lake Lery Marsh Creation Project, Coastal Impact Assistance Program (CIAP), St. Bernard Parish, LA St. Bernard Parish Government William McCartney, St. Bernard CZM Adm. 504.278.4303; wmccartney@sbpg.net	CEI provided input regarding the project area's environmental setting, design opportunities/constraints, and project parameters that would influence successful establishment of an intermediate marsh. CEI assisted in defining the proposed action and construction techniques to facilitate permitting and avoiding adverse effects; obtaining permit application data; and coordinating a pre-application meeting with USACE, other regulatory agencies, and the prime contractor to identify agency concerns and conditions and define environmental issues and mitigation requirements. CEI prepared, submitted, and tracked Section 404, Section 10, CUP permit applications and responded to comments. CEI prepared a wetland delineation and tracked the submittal until the USACE issued a jurisdictional determination. CEI biologists consulted USFWS and LDWF databases for potential threatened and endangered species in the area and looked for T&E species during the wetland delineation survey.	
Completion Date (Actual or estimated)	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
11/2015	~$2,700,000	$77,300

PROJECT NO. 4		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Nine Mile to Barataria Entergy Transmission Line Installation Assessment Jefferson Parish, LA Entergy c/o T Baker Smith PO Box 2266 Houma, LA 70361 Kodi Babin 985-223-9288 kodi.babin@tbsmith.com	CEI conducted vegetation surveys via airboat along the Entergy transmission line right-of-way and 250-foot buffer and along proposed access routes on the Edward Wisner Donation property prior to Entergy's replacement of wood poles with steel poles. The objective was to document type and condition of vegetation and habitats immediately prior to, immediately after and after a 1-year growing season post-construction to assess type and existence of damage related to construction. Data were delineated on high resolution aerial imagery and reports of findings documented investigation objectives, environmental setting, methodology and assessment of construction impacts on wetlands.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
02/2022	$33,469	$33,469

TEC Professional Services Questionnaire

PROJECT NO. 5		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
NPS Jean Lafitte Canal Backfill Environmental and Ecological Monitoring, Marrero, LA Jean Lafitte National Park Service c/o CDM Smith John Williamson IV, CSE 512-652-5319 williamsonjw@cdmsmith.com	CEI provided environmental and ecological monitoring support (airboats and qualified environmental scientists) to CDM Smith and subconsultant field crews under contract to the National Park Service for equipment installation and intense monitoring in 2021 and will support interim annual monitoring through 9/30/2025. Project objectives are to assess outcome of backfilling ~17 mi of canals to restore natural hydrology and wetland functions and values in preserve to fulfill RESTORE Council requirements.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
Pre-construction monitoring:12/2021 Post-construction Monitoring: 09/2025 (estimated)	~$401,704	$127,176

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
LDOTD I-10/Loyola Interchange Improvement Environmental Assessment, Jefferson Parish, LA LADOTD c/o Alliance Transportation Group Brandon Perilloux, PE (504) 738-8181 bperilloux@alliance-transportation.com	CEI conducted an Environmental Site Assessment Phase 1 and prepared an ESA-I report on three build alternates for the proposed I-10/Loyola Interchange. The investigation identified: 1) potential, abandoned hazardous & solid waste sites, 2) hazardous waste generators, 3) facilities that treat, store, and/or dispose of hazardous wastes and 4) underground & aboveground storage tanks. The findings of the ESA-I investigation were summarized and along with a map of identified sites were included in the EA.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
11/2018	$2,537,000	$49,600

TEC Professional Services Questionnaire

PROJECT NO. 7		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Reach B-2 Maritime Forest Ridge, Ft. Jackson to Venice, Plaquemines Parish Plaquemines Parish Government c/o GCR, Inc. Mike Flores 504-304-2500 mflores@gcrconsulting.com	CEI assisted in the design and permitting for a proposed 7.8 mi forested ridge embankment adjacent and parallel to the USACE-NOD Reach B-2 back protection levee. CEI biologists designed the vegetation and maintenance components of the proposed ridge. Additional services included wetland delineation and acquisition of USACE approved JD; cultural resources investigation; remote sensing survey of reach of Mississippi River containing proposed borrow site; vegetation plan for forested ridge; compensatory wetland mitigation project and permitting advisory input.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2015	~$250,000	$117,000

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
CRCL's Oyster-Filled Gabion Installation, Barataria Bay, Jefferson Parish, LA Coalition to Restore Coastal LA Deb Abibou 504-264-6812 deba@crcl.org	This CRCL project required 1198 oyster-filled gabion baskets to be installed at an island in Barataria Bay for shoreline stabilization. CEI designed and engineered the reef structure; purchased and filled gabions and installed the gabions using CEI vessels. The firm consulted on the CRCL permit application, identified access routes to site and obtained access permission from oyster lease holders and property owners. CEI purchased and installed USCG mandated "aids to navigation" hazard signs and prepared an As Built survey for the client and LDNR.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
06/2020	~$295,700	$265,700

TEC Professional Services Questionnaire

PROJECT NO. 9		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Proposed Connector between US HWY 61 and I-10, St. John the Baptist Parish LaDOTD c/o N-Y Associates, Inc. Bruce Richards, AICP, PTP, GIP 504-885-0500 brichards@n-yassociates.com	CEI scientists assisted in evaluating alternate alignments and investigated the environmental setting and potential for impacts and prepared associated NEPA required documents and sections of EIS. CEI biologists delineated wetlands for two alternates and created a report for submittal to USACE for JD and conducted surveys for threatened and endangered species and colonial nesting bird. Additional investigations included an Environmental Site Assessment Phase I and a Cultural Resources investigation, including standing structure surveys.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
06/2015	$1,487,00	$75,000

PROJECT NO. 10		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
Teche 230 kV Expansion, Caneland to Segura Transmission Line, St. Mary and Iberia Parishes Cleco Power, LLC Jason.Perrotti 318-484-7412 Jason.Perrotti@cleco.com	CEI assisted Cleco in evaluating alternative alignments for a proposed 26-mi aerial transmission line. CEI biologists conducted a wetland delineation on the selected alignment; prepared a report with wetland maps and submitted to the USACE for JD. A threatened and endangered species survey was conducted during the wetland delineation survey. The firm prepared and submitted permit applications (CUP, Section 404 & Section 401). A phase I cultural resources survey was conducted and report of findings submitted to the SHPO.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
11/2019	~$65,000	$65,000

TEC Professional Services Questionnaire

M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	**Defendant:**	
1. N/A		
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

CEI has been active in planning, basic research, and applied environmental sciences in the Northern Gulf Coastal Region and Lower Mississippi Valley Region for over 50 years. With 26 full-time science professionals, CEI routinely provides environmental science consulting services including wetland restoration and shoreline protection planning and implementation; wetland delineations, biological evaluations and assessments; NEPA and other regulatory compliance; permitting; mitigation and project monitoring; Phase 1 Environmental Site Assessments; HTRW investigations; mitigation planning, implementation and monitoring; coastal zone management programs; rare, threatened and endangered species surveys; oyster surveys; cultural resources investigations (terrestrial and underwater); and GIS database development, analysis, and management. CEI is very familiar with the environment of Jefferson Parish and has performed numerous projects in the parish including: Bayou Segnette BLH Mitigation Project (USACE), Jean Lafitte Canal Backfilling Monitoring (vegetation survey), Damage Assessment of Entergy Transmission Line Restoration through Wisner Donation, The Nature Conservancy / NOAA Bioengineered Oyster Reef project on Grand Isle, and LDOTD's EA for the Huey P. Long Bridge Expansion.

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature: Karen M Wicker **Print Name:** Karen M. Wicker, Ph.D.

Title: Senior Vice President **Date:** 07/02/2024

ADAPTIVE MANAGEMENT AND ENGINEERING, LLC (SUBCONSULTANT) TECHNICAL EVALUATION COMMITTEE QUESTIONNAIRE

Lighting Point Living Shoreline Project, Bayou La Batre, AL

Technical Evaluation Committee (TEC) Questionnaire Instructions

- The Technical Evaluation Committee (TEC) Questionnaire shall be used for professional services related to architecture, engineering, or survey projects.
- **The TEC Questionnaire should be completely filled out. Complete and attach ALL sections. Insert "N/A" or "None" if a section does not apply or if there is no information to provide.**
- Questionnaire must be signed by an authorized representative of the Firm. Failure to sign the questionnaire shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- All subcontractors must be listed in the appropriate section of the Questionnaire. Each subcontractor must provide a complete copy of the TEC Questionnaire, applicable licenses, and any other information required by the advertisement. Failure to provide the subcontractors' complete questionnaire(s), applicable licenses, and any other information required by the advertisement shall result in disqualification of proposer pursuant to J.P. Code of Ordinances Sec. 2-928.
- If additional pages are needed, attach them to the questionnaire and include all applicable information that is required by the questionnaire.

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:

SOQ 24–020 Coastal Engineering Consulting Serivces As Needed Parish Wide (Resolution No. 144205)

B. Firm Name & Address:

Adaptive Management and Engineering, LLC
11429 Pennywood Avenue
Baton Rouge, Louisiana 70809

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:

Venu Tammineni, P.E.
Principal
11429 Pennywood Avenue
Baton Rouge, Louisiana 70809
Ph: 225-424-7869
www.amesouth.com

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.

Gregory Mattson, II, P.E.
Engineering Manager
11429 Pennywood Avenue
Baton Rouge, Louisiana 70809
Ph: 225-424-7869
www.amesouth.com

E. Please provide the number of employees whose primary function corresponds with each category:

1 Administrative	___ Estimators	___ Specification Writers
___ Architects (Licensed)	___ Geologists	___ Structural Engineers
___ Chemical Engineers	3 Geotechnical Engineers	1 Graduate Engineers
___ Civil Engineers	___ Interior Designers	1 Project Managers
___ Construction Inspectors	___ Landscape Architects	___ Clerical
___ Ecologists	___ Land Surveyor	___ Grant/Funding Specialist
___ Electrical Engineers	___ Mechanical Engineers	___ Sanitary Engineers
___ Engineer Intern	___ Environmental Engineers	
___ Professional Land Surveyors		6 **TOTAL**

F. Is this submittal by a JOINT-VENTURE? Please check: YES ◯ NO ◉

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1.
N/A

2.
N/A

H. Has this JOINT-VENTURE previously worked together? Please check:
YES ◯ **NO** ◉

I. List all subcontractors anticipated for this Project. Please note that all subcontractors must submit a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. N/A		
2.		
3.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:

4

TEC Professional Services Questionnaire

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Venu Tammineni, P.E.
Principal

Project Assignment:

Coastal Engineering & Design, Dredging / Beneficial Use

Name of Firm with which associated:

Adaptive Management and Engineering, LLC

Years' experience with this Firm:

5

Education: Degree(s)/Year/Specialization:

Master of Science/2005/Civil Engineering (Geotechnical Engineering)

Active registration: Year first registered/discipline:

LA PE. 0036864 - 2012/Civil Engineer

Other experience and qualifications relevant to the proposed Project:

Total Experience: 19 years
Mr. Tammineni is a registered professional engineer in the States of Louisiana, Texas and Ohio. He specializes in providing geotechnical design in soft soil sediments and is passionate about protecting and restoring the Gulf coast. He has experience with permitting, providing geotechnical design for marsh and ridge restoration, shoreline stabilization and protection, beneficial use of dredge material, and living shoreline. Mr. Tammineni has experience in instrumentation and monitoring of hydraulically dredged and placed marsh fill sediments and has been involved with developing methods on accounting for dredging activities in geotechnical design. He has completed over thirty (30+) coastal protection and marsh creation projects in Louisiana. He has provided training to agencies (CPRA and others) for geotechnical design of marsh creation using PSDDF.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Gregory Mattson, II, P.E. Engineering Manager
Project Assignment:
Coastal Engineering & Design, Dredging / Beneficial Use
Name of Firm with which associated:
Adaptive Management and Engineering, LLC
Years' experience with this Firm:
3
Education: Degree(s)/Year/Specialization:
Master of Science/2014/Civil Engineering
Active registration: Year first registered/discipline:
LA PE.0042397 - 2018/Civil Engineer(Geotechnical)
Other experience and qualifications relevant to the proposed Project:
Total Experience: 10 years Mr. Mattson is a registered professional engineer in the Louisiana. He specializes in designing marsh creation and restoration projects and is very knowledgeable in the areas of coastal and geotechnical engineering. With six years of experience with marsh creation design prior to working for AME, he is proficient in project planning, analyzing project data, performing and overseeing design analyses, preparing construction permit applications, reviewing contract documents, and developing construction cost estimates. He has successfully completed projects for various public agencies and private sector clients. He is well versed with the Coastal Protection and Restoration Authority's (CPRA) Marsh Creation Guidelines and United States Army Corp of Engineer's (USACE) Engineering and Design Manual (EM 1110-2-5025) for Dredging and Dredged Material. His Master's thesis focused on analyzing the effects of dredged slurry concentration, salinity, and particle size distribution on settling and consolidation properties. He worked for the CPRA for five years to begin his career designing and managing numerous marsh creation, hydrologic restoration, salinity control, and flood protection projects.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Ryan Williamson, P.E.
Project Assignment:
Coastal Engineering & Design, Dredging / Beneficial Use
Name of Firm with which associated:
Adaptive Management and Engineering, LLC
Years' experience with this Firm:
3
Education: Degree(s)/Year/Specialization:
Bachelor of Science/2017/Civil Engineering
Active registration: Year first registered/discipline:
LA PE.0048866 - 2024/Civil Engineering
Other experience and qualifications relevant to the proposed Project:
Total Experience: 6 years Mr. Williamson is a driven young engineer licensed in the state of Louisiana. He joined Adaptive Management and Engineering (AME) in 2021 with 3 years of geotechnical experience, with a strong emphasis on coastal soils. He has experience conducting geotechnical field investigations on land, over water, and in marsh; performing laboratory testing and QA/QC; generating project maps, cross sections, heat maps, and other drawings; designing geotechnical projects; and implementing geotechnical instrumentation and monitoring programs.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
N/A
Project Assignment:
Name of Firm with which associated:
Years' experience with this Firm:
Education: Degree(s)/Year/Specialization:
Active registration: Year first registered/discipline:
Other experience and qualifications relevant to the proposed Project:

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
N/A
Project Assignment:
Name of Firm with which associated:
Years' experience with this Firm:
Education: Degree(s)/Year/Specialization:
Active registration: Year first registered/discipline:
Other experience and qualifications relevant to the proposed Project:

TEC Professional Services Questionnaire

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 1

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Bucktown Living Shoreline Project, Jefferson Parish, LA Jefferson Parish – Ecosystem and Coastal Management Michelle M. Gonzales, CFM 1221 Elmwood Pk Blvd, Suite 310 Jefferson, LA (504) 736-6653 MGonzales@jeffparish.net	Working as subconsultant on construction monitoring and inspection team. AME installed geotechnical instrumentation at four locations within the project marsh creation portion of the project, behind the constructed breakwaters. The intent is to excavate a kayak channel post-contruction. The instrumentation data will help inform when to excavate the material.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2024 (estimated)	$15.5 million	$47,000

PROJECT NO. 2

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Caminada Headland Back Barrier Marsh Creation (BA-171) Project, Lafourche Parish, LA CPRA Renee Bennet, PMP 150 Terrace Avenue Baton Rouge, LA 70802 (225) 342-4592 renee.s.bennett@la.gov	Working as a subconsultant on installation of Instrumented Settlement Plates (ISPs) and HDPM fill monitoring during and post-construction. This included providing an updated rate of settlement with time charts for post-construction behavior of HDPM fill.	
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2022 (actual)	N/A	$175,000

TEC Professional Services Questionnaire

PROJECT NO. 3		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility**	
Lake Villa Pond Improvements Project, Jefferson Parish, LA Jefferson Parish – Ecosystem and Coastal Management Michelle M. Gonzales, CFM 1221 Elmwood Pk Blvd, Suite 310 Jefferson, LA (504) 736-6653 MGonzales@jeffparish.net	AME assisted in obtaining a Jefferson Parish/CPRA/USACE permit to conduct the field exploration program, which includes soil borings on land and sampling in the existing pond. A full laboratory testing program and geotechnical analyses were completed to support the USACE levee analysis, material excavation, deep foundations, and other geotechnical recommendations for the project.	
Completion Date (Actual or estimated)	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**
2022 (AME's portion)	N/A	$31,000

PROJECT NO. 4		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
N/A		
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**

TEC Professional Services Questionnaire

PROJECT NO. 5		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
N/A		
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
N/A		
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**

TEC Professional Services Questionnaire

PROJECT NO. 7		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
N/A		
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
N/A		
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**

TEC Professional Services Questionnaire

PROJECT NO. 9		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
N/A		
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**

PROJECT NO. 10		
Project Name, Location and Owner's contact information:	**Nature of Firm's Responsibility:**	
N/A		
Completion Date (Actual or estimated):	**Estimated Cost:**	
	Entire Project:	**Work for which Firm was Responsible:**

TEC Professional Services Questionnaire

M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	**Defendant:**	
1. N/A		
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

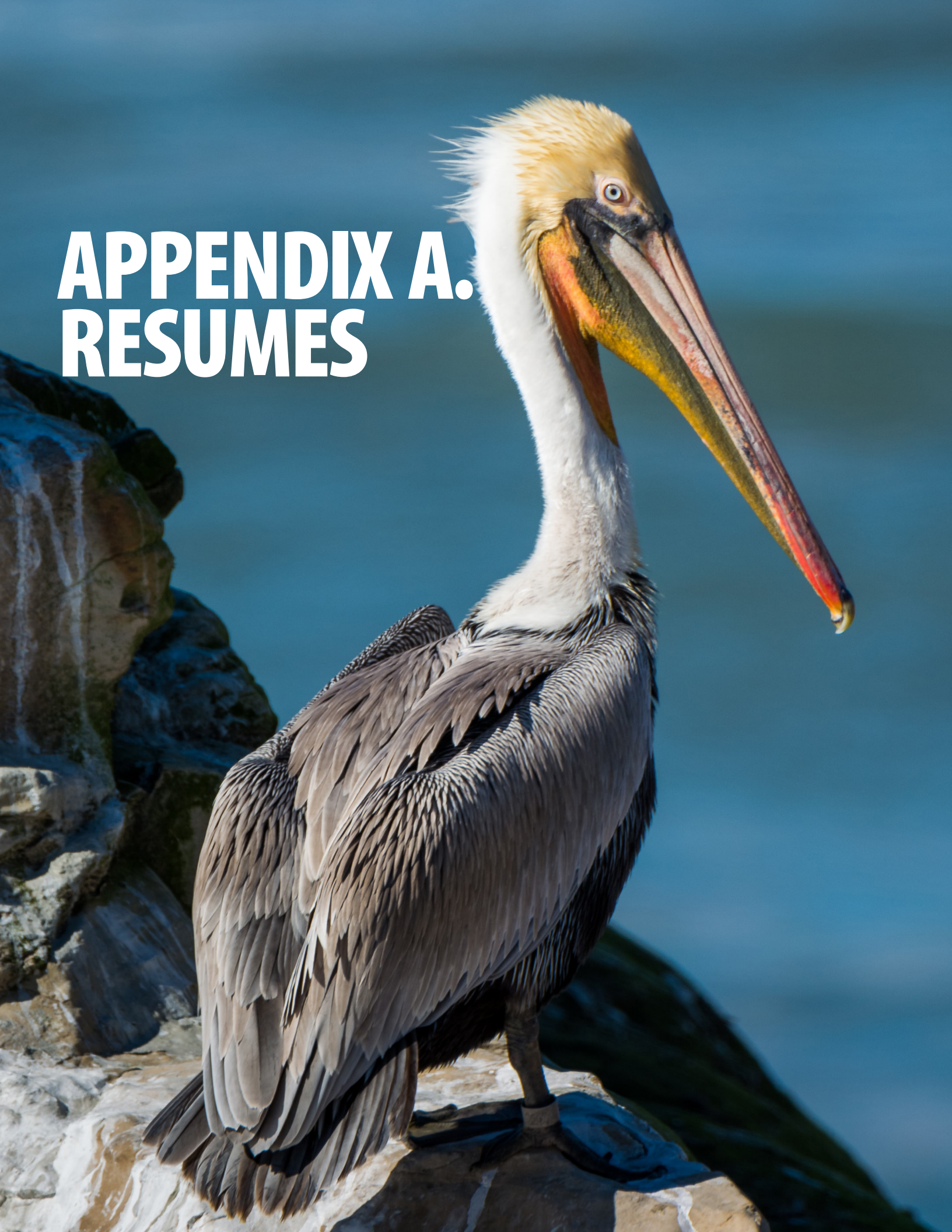
Adaptive Management and Engineering, LLC (AME) is a small business, 8(a) certified, and Hudson Initiative firm headquartered in Louisiana. AME provides full-scale geotechnical services (including drilling and laboratory testing), coastal engineering and design, and instrumentation and monitoring services to various public and private sector clients. AME's staff have a combined experience of 60 years working in soft soils of Gulf Coast. They are well versed in planning and providing geotechnical recommendations for coastal, industrial, commercial, and transportation projects. AME prides themselves in the due diligence they perform prior to the start of any project including detailed desktop analysis of any available data as well as any safety requirements to perform the job efficiently and safely. As with any project, while meeting or exceeding industry standards, it is critical for the design to take construction means and methods and practical constraints into consideration to provide for a viable, economical, and efficient design. AME's planning and geotechnical design aims to accomplish this on every project.

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature: Gregory A. Mattson, II, P.E. Digitally signed by Gregory A. Mattson, II, P.E. Date: 2024.07.01 16:50:29 -05'00' **Print Name:** Gregory A. Mattson, II, P.E.

Title: Engineering Manager **Date:** 7/1/2024

APPENDIX A. RESUMES



APPENDIX A //

ORGANIZATIONAL CHART & RESUMES

Jefferson Parish
State of Louisiana

PRINCIPAL-IN-CHARGE
Jonathan Hird, PE *

PROJECT MANAGER
Mindy Joiner, MS

QA/QC
Jeff Shelden, PE *
Don Blancher, PhD, BCES
Hugo Bermudez, PE

ENGINEERING MANAGER & TECHNICAL LEAD
Kevin Hanegan, PhD, PE *

COASTAL ENGINEERING & DESIGN
Chris Williams, PE *
Gerald Songy, PE *
Nick Cox, PE *
Samantha McKisson, EIT
Peyton Posey, EIT
Whitney Thompson, PE [1] *
Venu Tammineni, PE [5] *
Gregory Mattson, II, PE [5] *

PERMITTING
Mindy Joiner, MS
Chris Williams, PE *
Meg Goecker, MS
Lucas Watkins [2]
Hunter Guidry [4]

CONSTRUCTION ADMINISTRATION
Mike Hardy
David Warren
Christopher Paul, PE [1] *
John Darnall, EIT [1]

H&H MODELING
Kevin Hanegan, PhD, PE *
Colin Anderson, PE *
Maarten Kluijver, PE
Chris Siverd, PhD, PE *
Julia Mudd
Nick Scalfano, EIT
Tim Nelson, PG, CFM *
Brooke Morris, PE, PLA *

BIOLOGICAL & ENVIRONMENTAL ASSESSMENT
Mindy Joiner, MS
Don Blancher, PhD, BCES
Lucas Watkins [2]
Brian Fortsen [2]
Cori Gavins [2]
Hunter Guidry [4]
Walker Wilson [4]

GRANT WRITING
Mindy Joiner, MS
Meg Goecker, MS
Jessica McIntyre, PE
Tim Nelson, PG, CFM *

DREDGING / BENEFICIAL USE
Gerald Songy, PE *
Nick Cox, PE *
Seann Perez, CPE
Pete Kotulak, PE
George Ramseur
Mike Huebsch, PE
Venu Tammineni, PE [5] *
Gregory Mattson, II, PE [5] *

OUTREACH EDUCATION & MARKETING MATERIALS
Mindy Joiner, MS
Meg Goecker, MS
Don Blancher, PhD, BCES
Amanda Zullo
Scott Lagueux, AICP, LEED AP, ENV SP
Delaney McGuinness, PLA, NGICP
Andy Sternad, AICP, AIA
Kelli Cunningham, AIA, ASLA, PLA
Sophie Riedel, PLA

TOPOGRAPHIC & BATHYMETRIC SURVEY
Greg Spiller, PE, MBA [3] *
David Cormier, PLS [3]

GEOTECHNICAL INVESTIGATION
Eric Marx, PE [3] *
Sam Bryant, PhD, PE [3] *

KEY

1 SSE
2 ELOS
3 Fugro
4 CEI
5 AME

Local Employee
* Louisiana Professional Engineer/Geologist

PRINCIPAL-IN-CHARGE //

JONATHAN HIRD, PE

YEARS OF EXPERIENCE: 23

OFFICE LOCATION: Baton Rouge, LA

EDUCATION:

» MS, Civil & Environmental Engineering, Louisiana State University, 2001
» BS, Environmental Science, University of East Anglia, England, 1993

REGISTRATION:

» Professional Engineer: LA, #32299, 2006

AFFILIATIONS:

» American Society of Civil Engineers
» Coastal Restoration and Enhancement through Science and Technology Program Board Member
» Coasts, Oceans, Ports & Rivers Institute

Jonathan has 23 years of experience in multidisciplinary projects across southern Louisiana. He has served as a project engineer, project manager, and principal-in-charge for a diverse range of coastal engineering and ecosystem restoration projects, ranging from watershed master planning, applying multi-dimensional numerical models to project concept development, assessing project feasibility and project performance evaluations as well as sediment management and programmatic approaches to marsh creation and restoration. His experience also includes the development of living shorelines, sediment management strategies (on local and regional scales), the beneficial use of dredged material, and the application of long distance pipeline technology for marsh creation and restoration for some of the largest marsh creation projects on the Gulf Coast, involving tens of millions of cubic yards and thousands of acres of marsh created.

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *Principal-in-charge* for feasibility study, planning, engineering, design, permitting and development of plans, specification and construction documents for the more than 4,500 LF of offshore segmented breakwater, 33-acres of intertidal marsh, and recreational access amenities, including kayak launch, kiteboard launch, and nearly a mile of recreational access / "kayakable" Blueway. Led the feasibility study and alternatives analysis for 7,800-LF of living shoreline concepts from Bucktown Harbor to the Lake Pontchartrain Causeway. Oversaw development of a field data collection program for a geotechnical investigation along the shoreline and sediment resources evaluation for the creation of the intertidal marsh. Provided technical oversight for the wave modeling. Provided guidance on the Risk:Cost statistical evaluation to determine the necessary elevation of the living shoreline to increase the resiliency of the restored marsh platform, and sized breakwater armor stone for resiliency when exposed to extreme storms. Provided QA/QC of construction cost estimates. Principal-in-Charge for detailed Engineering and Design, permitting, and development of Issue for Bid Construction documents.

BUCKTOWN MARINA ECONOMIC REVITALIZATION VISION PLAN, JEFFERSON PARISH, LA. *Principal-in-charge* for this collaborative effort with Jefferson Parish to assist them in developing a programmatic approach to develop a comprehensive Master Plan / planning process for the economic re-vitalization of the Bucktown Marina. Served as principal for the marketing opportunities analysis, concept developments, stakeholder engagement. Also assisting in the grant application process required for implementation.

MISSISSIPPI RIVER LONG DISTANCE SEDIMENT PIPELINE PROJECT (BA-43EB), JEFFERSON, LAFOURCHE, AND PLAQUEMINES PARISHES, LA. *Principal-in-charge* responsible for the engineering design of a long distance sediment pipeline to convey 11 MCYDS of sediments mined from the Mississippi River to create more than 1,100 acres of emergent marsh and ridge habitat at multiple locations more than a 13.5-mile corridor in the Central Barataria Basin. Responsible for borrow site determination, alignment corridor, New Orleans Lower Coast Railroad Crossing, Highway 23 Crossing, access bridge replacement, drainage culvert replacement, and placement locations containment.

PONTCHARTRAIN-MAUREPAS SURGE CONSORTIUM MODELING , LAKE PONTCHARTRAIN BASIN, LA. *Principal-in-charge* for the advanced numerical modeling of a suite of projects to determine the effectiveness of several proposed surge-reduction projects in the Pontchartrain-Maurepas region. Collaborated with project sponsors to develop a scope of working consisting of modeling base case and with project conditions for hurricane storm surges in the Lake Pontchartrain Basin for a total of four structural and non-structural projects, supporting feasibility studies and master planning.

DAUPHIN ISLAND CAUSEWAY LIVING SHORELINE, DAUPHIN ISLAND, AL. *Principal-in-charge* for this Phase I Independent Technical Review of 3.5 miles of living shoreline along the Dauphin Island Causeway. Provided technical oversight in project evaluation, risk assessment, data gap analysis, schedule review and client, project partner, / sponsor coordination. Providing decision tree and schedule management required in order to align with the availability of 1.5 mcyds of Beneficial Use of Dredged Material from the widening and deepening of the Mobile Ship Navigation Channel. Provided senior technical review in coordination with the USACE Mobile District Programs and Project Management and Operations Branch.

GRAVELINE BAY MARSH CREATION, DAUPHIN ISLAND, AL. *Principal-in-charge* for this 300,000 CY, 75-acre marsh restoration project. Provided technical oversight on construction alternatives analysis leading to optimal project layout based on a spectral wave modeling phase which provided operational and extreme wave conditions at the project site.

PROJECT MANAGER; BIOLOGICAL & ENVIRONMENTAL ASSESSMENT; GRANT WRITING; PERMITTING; OUTREACH EDUCATION & MARKETING MATERIALS //

MINDY JOINER, MS

YEARS OF EXPERIENCE: 16

OFFICE LOCATION: New Orleans, LA

EDUCATION:

- MS, Ecology, Southeastern Louisiana University, 2010
- BS, Organismal and Integrative Biology, Southeastern Louisiana University, 2007

Mindy has 16 years of environmental project management, research, and outreach and coordination experience. She has served as task manager/project manager for multiple Jefferson Parish projects and has managed several engineering, science, and grant writing projects and environmental assessments. As a coastal scientist, she has participated in wetland delineations, contributed species habitat requirements to project design, developed pre- and post- construction monitoring plans, secured federal and state permits, and performed Oil Pollution Act (OPA) and National Environmental Policy Act (NEPA) analyses on a suite of projects for the federal government as part of the RESTORE Act. She is experienced in public outreach as well as organizing and facilitating public meetings.

BUCKTOWN HARBOR VISION PLAN AND GRANT SUPPORT, JEFFERSON PARISH, LA. *Environmental scientist* part of outreach team working with advocacy group to implement the Bucktown Harbor Vision Plan. Logistical planning support for advocacy group meetings, in-person meeting support, and coordination with Parish officials regarding the direction of the group. Environmental scientist tasked with grant writing for the Bucktown Living Shoreline and Bucktown Harbor Marina projects. Identified appropriate grants, worked with the client to assess effort and task breakdown, draft proposals, and coordinate with granting agencies. Successfully obtained approximately $3 million in funding .

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *Project manager* for the engineering and design of a living shoreline including 4,500 LF of offshore segmented breakwaters and 30 acres of habitat creation. Lead team through modeling, engineering and design, and permitting efforts. Lead team to design shoreline protection directly adjacent to the Jefferson Parish Hurricane Storm Damage Risk Reduction System (HSDRRS) to provide increased resilience to the levees and the community. Led permitting efforts to secure all federal and state permits with US Army Corps of Engineers (USACE), Louisiana Department of Environmental Quality (LDEQ), Louisiana Department of Wildlife and Fisheries (LDWF), and Louisiana Coastal Restoration and Protection Authority. Project manager for the Construction Supervision & Inspection of Construction. Also provided Construction S&I of the recreational access amenities, including kayak launch, kite-board launch and nearly a mile of recreational access / "kayakable" Blueway.

LARGE SCALE BARATARIA MARSH CREATION: UPPER BARATARIA COMPONENT (BA207), PLAQUEMINES AND JEFFERSON PARISHES, LA. *Environmental scientist* compiling information for the Restoration Plan (RP) / Environmental Assessment (EA). This includes OPA and NEPA analysis and drafting sections for inclusion in the EA for the creation of a large-scale marsh creation project in upper Barataria basin.

LIGHTNING POINT SHORELINE RESTORATION AND LONG-TERM SITE SUSTAINABILITY PLAN, BAYOU LA BATRE, AL. *Environmental scientist* assisted in the planning, outreach, and permitting of a shoreline restoration project. Coordinated project permitting with the USACE, Alabama Department of Environmental Management (ADEM), and Alabama Department of Conservation and Natural Resources (ADCNR). Researched and drafted habitat and vegetation requirements for desired species, which were incorporated into the design. Drafted monitoring and planting plans. Provided logistical planning support, agenda planning, and day-of support for stakeholder charrettes to solicit project ideas, share project components, and inform stakeholders of progress.

RIVER REINTRODUCTION INTO MAUREPAS SWAMP NEPA COMPLIANCE DOCUMENTS, BATON ROUGE, LA. *Environmental scientist* overseeing the preparation of EA and Biological Assessment for a river diversion project. Leading team in reviewing existing data, updating existing conditions, assessing data gaps, and drafting EA and BA for submission to the USACE to satisfy NEPA regulations compliance.

NOAA OPEN OCEAN RP/EA SUPPORT, GULF COAST. *Environmental scientist* part of the team to identify and develop restoration project alternatives and coordinate outreach. Performed OPA and NEPA analysis and contributed written sections to the RP and EA. Cataloged, categorized, and coordinated responses to the public comments received. Planed public meetings and webinars to engage the public for comment on restoration projects. Coordinated all logistics for public meetings including selecting and securing venues, directing meeting setup and layout, producing agendas for agency officials and the public, and overall meeting flow.

QA/QC //
JEFF SHELDEN, PE

YEARS OF EXPERIENCE: 39

OFFICE LOCATION: Raleigh, NC

EDUCATION:

» MS, Civil Engineering, North Carolina State University, 1985
» BS, Civil Engineering, University of Virginia, 1984

REGISTRATION:

» Professional Engineer: LA, #29462, 2001

AFFILIATIONS:

» American Shore and Beach Preservation Association
» American Society of Civil Engineers
» Chi Epsilon, the National Civil Engineering Honor Society
» Tau Beta Pi, the National Engineering Honor Society

As a professional engineer with 39 years of experience, Jeff regularly leads multidisciplinary teams in completing complex projects. He is accustomed to providing project vision through demonstrated creativity, foresight, and solid technical judgment in anticipating and solving unprecedented planning and engineering problems. He is one of the firm's thought leaders in riverine, estuarine, and coastal hydraulics and processes, as well as the application of various numerical models used for those analyses. His numerical modeling experience includes detailed familiarity with the MIKE suite, RMA, Delft 3D, and GENESIS models in 1-,2-, or 3D applications to determine sediment and pollutant transport, tidal hydraulics, salinity intrusion, and hydraulic and storm surge effects on coastal structures. Jeff is experienced in navigating political landscapes with diverse stakeholders and is well versed in working with local, state, and federal regulatory agencies to obtain environmental documents and necessary permits. Throughout much of his career, he has worked with local communities and diverse stakeholders to address their concerns as an important component of project success. Jeff has been assisting the State of Louisiana on restoration projects for the past 24 years.

MISSISSIPPI RIVER LONG DISTANCE SEDIMENT PIPELINE PROJECT (BA-43EB), JEFFERSON, LAFOURCHE, AND PLAQUEMINES PARISHES, LA. *Senior coastal engineer* assisting and providing QA/QC for the engineering design of a long distance sediment pipeline to convey 11 MCYDS of sediments mined from the Mississippi River to create more than 1,100 acres of emergent marsh and ridge habitat at multiple locations over a 13.5-mile corridor in the Central Barataria Basin. Responsible for borrow site determination, alignment corridor, New Orleans Lower Coast Railroad Crossing, Highway 23 Crossing, access bridge replacement, drainage culvert replacement, and placement locations containment.

BARATARIA BASINWIDE NUMERICAL MODELING AND RESTORATION PLANNING, LAFOURCHE, JEFFERSON, AND PLAQUEMINES PARISHES, LA. *Project manager* for engineering services to provide the Louisiana Department of Natural Resources (LDNR) in support of hydrodynamic model development for Barataria-Terrebonne estuary system. His assistance consisted of a study that cataloged/evaluated existing hydrologic, hydraulic, and climatological data and existing hydrodynamic models within the study area. . Under a subsequent contract, assisted with development of a 2D hydrodynamic and salinity model for the entire basin to assist in the state's COAST 2050 program. New model development included extensive data collection efforts, model calibration and verification, model runs to study the potential effects of proposed projects, and training of LADNR personnel.

LIGHTNING POINT SHORELINE RESTORATION AND LONG-TERM SITE SUSTAINABILITY PLAN, BAYOU LA BATRE, AL. *Senior coastal engineer* providing QA/QC for determining environmental design criteria for the shoreline protection component of the Lightning Point Restoration living shoreline project using hydrodynamic, spectral wave, and BW modeling. Determined wave height thresholds for restored marsh edge erosion and modeled wave generation, propagation, and transmission at project shoreline protection features using advanced numerical modeling. Completed statistical evaluation of extreme water levels and operational and extreme wave heights to determine the necessary elevation of the living shoreline to increase the resiliency of the restored marsh platform, and sized breakwater armor stone for resiliency when exposed to extreme storms. Designed fish gaps in the shoreline protection to allow for adequate tidal flushing while limiting wave penetration and designed a tidal creek network for the restored marsh platform based on bulk channel network characteristics from nearby natural marshes.

MYRTLE GROVE DELTA BUILDING DIVERSION (BA-33), BARATARIA BASIN, LA. *Quality manager and senior hydraulic engineer* for development and application of a two-dimensional, hydrodynamic, and salinity model to evaluate various Mississippi River diversion alternatives to enhance the Barataria Basin. During model development, calibration, and verification, he provided technical input and guidance regarding both formulation of boundary conditions and model parameters/connectivity, and production runs of scenarios to be simulated/analyzed.

NOAA SHORELINE RESTORATION TECHNICAL REVIEW, JEFFERSON AND PLAQUEMINES PARISHES, LA. *Project manager* who assisted NOAA in a technical and engineering review and quality control of the extensive engineering and design work performed by others for these two barrier island restoration projects. Reviewed engineering reports, analyses, and assessments prepared by others.

QA/QC; OUTREACH EDUCATION & MARKETING MATERIALS; BIOLOGICAL & ENVIRONMENTAL ASSESSMENT //

DON BLANCHER, PhD, BCES

YEARS OF EXPERIENCE: 45

OFFICE LOCATION: Mobile, AL

EDUCATION:

- Post-Doctoral Fellowship, University of Florida, 1979
- PhD, Environmental Engineering Sciences, University of Florida, 1979
- MS, Zoology and Physiology, Louisiana State University, 1974
- BA, Biology, University of New Orleans, Louisiana, 1972

REGISTRATION:

- Board Certified Environmental Scientist, American Academy of Environmental Engineers: #12-ES016, 2012

AFFILIATIONS:

- Alabama's Water Environment Association
- Florida's Water Environment Association
- Louisiana's Water Environment Association
- Water Environment Federation (WEF) Active Member of Watershed Committee; Surface water & Ecology Symposia, Program Committee; Total Maximum Daily Load (TMDL)/Pollution Trading Task Force; Modeling Expert Group of the Americas
- Former WEF Co-Chair (2007-2009) TMDL Specialty Conference; Marine Water Quality Committee, Chairman

Don has 45 years of experience in applied environmental sciences and systems ecology in a wide range of environments. He has extensive experience in the assessment, analysis, and planning of numerous restoration projects. He is a senior consultant performing general project management, restoration planning and implementation, ecological assessment, and modeling; energy analysis; surface water quality modeling (aquatic and marine), particularly nutrients and organic chemicals using AQUATOX; expert witness; Natural Resource Damage Assessment (NRDA); benthic macroinvertebrate assessment and analysis (aquatic and marine); wetland and submerged aquatic vegetation assessment and analysis; aquatic toxicology and risk assessment; Clean Water Act (CWA) permitting, data interpretation, and reporting. Don has extensive experience in Louisiana coastal waters spanning all aspects of ecological and EAs and ecosystem restoration through his experience with several programs.

LIGHTNING POINT SHORELINE RESTORATION AND LONG-TERM SITE SUSTAINABILITY PLAN BAYOU LA BATRE, AL. *Project principal* supporting a team for modeling, engineering, permitting support, and design services for a large living shoreline. The project includes 1.5 miles of segmented, overlapping breakwaters; 40 acres of marsh and tidal creek habitat utilizing dredged material from a nearby borrow area; and improved Low Impact Development (LID) parking lot with green infrastructure elements, such as bioretention cells, pervious parking stalls, and bioswales. Successfully led permitting with USACE, ADEM, and ADCNR.

LARGE SCALE MARSH CREATION, UPPER BARATARIA BAY, LA. *Project scientist* participating on coastal engineering team in large-scale marsh restoration project Creating nearly 1200 acres of brackish marsh in the Upper Barataria Basin. Program Manager for the overall project funded by NOAA and CPRA. National Oceanographic and Atmospheric Administration IDIQ Project.

UPPER MOBILE BAY MARSH CREATION BENEFICIAL USE, AL. *Project scientist* for planning and permitting on coastal engineering team in large-scale marsh restoration project in upper Mobile bay utilizing dredged sediments from the harbor and port berths. Beneficial use of dredged sediments to create 1200 acres of brackish marsh in the upper Mobile Bay. Provided permit assistance, especially on EPA comments and requirements, negotiated with agency representatives to develop dredged material sampling and analysis program for the project.

GRAVELINE BAY MARSH RESTORATION PROJECT, DAUPHIN ISLAND, AL. *Project scientist* participating on coastal engineering team in large-scale marsh restoration project with 40 acres of habitat. Assisting the Town of Dauphin Island in project management and grant writing for funding by the NFWF Gulf Environmental Benefit fund, helping to secure $1.3M in design effort. Documented water quality conditions and marsh construction progress (using drones) through vegetative planting phase.

PERDIDO PASS NAVIGATION AND PERDIDO ISLAND RESTORATION, ORANGE BEACH, AL. *Program manager and principal scientist* on two task orders from the City of Orange Beach to provide hydrodynamic and sediment modeling of Perdido Pass and develop alternatives for island restoration. Providing administrative program management, data collection, and planning, guidance, and analysis for the overall restoration approach.

EAST END BEACH AND DUNE RESTORATION PROJECT, DAUPHIN ISLAND, AL. *Program scientist* participating on coastal engineering team in large-scale beach and dune restoration project along 1.5 miles of beach and 40 acres of habitat. Assisting the Town of Dauphin Island in project management and grant writing for funding by the NFWF Gulf Environmental Benefit fund, helping to secure $1.3M in design effort. Worked on long term sustainability plan for beach nourishment.

MOBILE BAY SHORE HABITAT CONSERVATION AND ACQUISITION INITIATIVE PHASES I AND II, CITY OF MOBILE, AL. *Project principal* supported habitat assessments and development of reports and decision-making matrix to assist the city in developing scientifically justifiable reasoning for the pursuit of land parcel conservation for specific funding sources (National Fish and Wildlife Foundation [NFWF] Gulf Environmental Benefit Fund [GEBF]). Provided due diligence support and grant advice for the pursuit of the next phases of the initiative.

NOAA DEEP WATER HORIZON (DWH) RESTORATION IDIQ CONTRACT FOR THE GULF OF MEXICO (AL, FL, LA, MS, TX). *Program manager* who provides overall planning and program management for this 5-year task order contract for NOAA Office of Restoration. Activities include both program management of all task orders under the program, as well as active participation on several of the project level work.

QA/QC //

HUGO BERMUDEZ, PE

YEARS OF EXPERIENCE: 28

OFFICE LOCATION: Fort Lauderdale, FL

EDUCATION:

- ME, Ocean Engineering, Texas A&M University, 1996
- BS, Civil Engineering, University of New Mexico, 1994

REGISTRATION:

- Professional Engineer: Puerto Rico, #28579, 2023; FL, #90569, 2020; TX, #85907, 1999

Hugo has 28 years of experience in coastal engineering, including as a coastal modeler, project designer and engineer, project manager, and senior technical advisor. As a project engineer and designer, Hugo has participated in the execution of coastal protection and resiliency measures that attenuate and/or dissipate storm surge and waves to reduce flooding, erosion, and risk to vulnerable coastal areas. Some of these projects have included features such as offshore breakwaters, revetments, bulkheads/seawalls, and groins. He has also designed and engineered projects that restore and protect coastal habitats (ecosystem restoration) such as beach and dune nourishment, oyster reefs, living shoreline concepts, salinity control structures, barrier island restoration, marsh and wetland creation, island rookery creation, and tidal flow restoration. Hugo has also managed numerous projects to assist state agencies and local municipalities with coastal planning. These projects have consisted of feasibility-level studies and alternatives analyses to increase the resiliency of coastal communities and identify which coastal protection and restoration features will work best with driving coastal forces to promote the longevity of communities. His experience also includes the acquisition of state and federal permits, management and administration of construction, and post-construction project monitoring, including adaptive management.

CAMERON PARISH SHORELINE RESTORATION, CAMERON PARISH, LA. *Project director* for a $42M beach nourishment project along the Gulf Coast Beach which consisted of importing dredged sand from 20 miles offshore. Managed sub-consultants and analysis/design team members and tracked budgets and timelines on all deliverables for the project. Executed reviews of all technical deliverables to assure compliance with project goals, client concerns and coastal engineering standards.

GRAND ISLE BARRIER SHORELINE STABILIZATION, JEFFERSON PARISH, LA. *Project manager* for an analysis to evaluate the performance of the existing breakwaters to determine if a beach nourishment project would be stable. The analysis evaluated proposed modifications to the breakwaters to provide greater stabilization of the park shore and thus increase the longevity of the proposed beach nourishment. Oversaw the analysis for the existing breakwater system and identified the main reason for the poor performance of the existing breakwaters. Additionally, assisted in the development of alternatives. Lastly, throughout the project, coordinated with the client and presented results to government agencies.

LIVING SHORELINE DEMONSTRATION, ST. BERNARD PARISH, LA. *Senior technical advisor* for project to protect shoreline erosion along the coastal fringe marsh in St. Bernard Parish, LA by using the living shoreline products to attenuate the wave energy that reaches the shore and to stimulate oyster growth and thereby increase the biodiversity in the immediate area. Oversaw and managed the data collection efforts, coastal engineering analysis, and preliminary design. Tracked project budget, timelines, deliverables, and execution tasks.

ELMER'S ISLAND BREACH REPAIR, LA. *Project manager* who oversaw the computation of statistics for waves, winds, water levels, and storm occurrence. Oversaw numerical modelling in support of the analysis and design calculations. Modeling work included circulation modeling, wave penetration modeling, and shoreline morphologic modeling. Results from these analyses were used to develop alternative breach fill solutions. Responsibilities also included the management of field data collection tasks including topographic/bathymetric surveys, geotechnical field investigation, sediment borrow source investigation and preliminary and final design assistance.

FORT LIVINGSTON WAVE PROTECTION, JEFFERSON, LA. *Design engineer* for project to protect the shoreline against severe storm events. Responsible for the development and evaluation of alternative shore protection schemes through extensive wave and hydrodynamic modeling, both numerical and analytical.

ADOLPH THOMAE PARK SHORELINE RESTORATION AND STABILIZATION, CAMERON COUNTY, TX. *Project director* who managed the coastal engineering analysis, design, permitting process, plans and specifications, as well as the 2006 construction of a composite retaining structure to stabilize approximately 850 linear feet of eroding shoreline. Phase 2 was constructed in 2010 and stabilizes 1,650 more feet. Phase 3 will follow with the remaining 1,670 feet.

ENGINEERING MANAGER & TECHNICAL LEAD; H&H //

KEVIN HANEGAN, PhD, PE

YEARS OF EXPERIENCE: 13

OFFICE LOCATION: New Orleans, LA

EDUCATION:

- PhD, Coastal Hydrodynamics and Morphology, University of New Orleans, 2020
- MS, Coastal and Marine Engineering and Management, Delft University of Technology, Netherlands, 2011
- BS, Civil Engineering, Louisiana State University, 2009

REGISTRATION:

- Professional Engineer: LA, #0041433, 2017

AFFILIATIONS:

- American Society of Civil Engineers (ASCE)

Kevin has 13 years of coastal engineering and project management experience including analyzing coastal and riverine processes to support a range of coastal protection, restoration, and infrastructure projects. He specializes in the development and application of advanced hydrodynamic, sediment transport, and morphologic models to support project analysis and design as well as the design of shoreline protection, marsh restoration, living shoreline, and other coastal ecologic restoration projects. His recent projects include investigating long-term benefits and impacts of a freshwater diversion on the Central Terrebonne wetlands region with a coupled hydrodynamic, sediment transport, and ecological model, performing supporting coastal analysis and leading design for living shoreline projects throughout the Gulf Coast, and supporting the development of the Louisiana Coastal Master Plan.

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *Assistant project manager and lead coastal engineer* responsible for developing feasibility-level designs for shoreline protection, marsh creation, and managed access components of the proposed Bucktown Living Shoreline. Performed wave modeling to determine environmental design criteria, determined wave height thresholds for restored marsh edge erosion. Completed statistical evaluation of extreme water levels and operational and extreme wave heights to determine the necessary elevation of the living shoreline to increase the resiliency of the restored marsh platform, and sized breakwater armor stone for resiliency when exposed to extreme storms. Supervised development of feasibility-level cost estimates and alternatives analysis to recommend the preferred configurations to advance to engineering and design. Assisted with permitting coordination and optimization of project features to balance habitat creation and recreational-use goals while minimizing costs. Acted as Engineer of Record for final design, leading and supervising the development of construction plans and specifications, evaluating birds, and administering the construction of the Bucktown Living Shoreline project.

DAUPHIN ISLAND CAUSEWAY LIVING SHORELINE, DAUPHIN ISLAND, AL. *Project manager and engineer-of-record* leading the design of a living shoreline project protecting approximately three miles of the vulnerable Dauphin Island Causeway shoreline with breakwaters and creating approximately 130 acres of marsh habitat through the beneficial use of dredged material from the Mobile Harbor Channel deepening. Formulated, planned, and led modeling, engineering and design, and client and USACE coordination efforts to deliver design documents under an extremely aggressive schedule. Supervised the analysis of the Choctaw Turning Basin dredged material characteristics to create higher scrub/shrub habitat using sandier material and fully contained marsh fill with finer material and use all available material beneficially.

GRAVELINE BAY MARSH RESTORATION PROJECT, DAUPHIN ISLAND, AL. *Coastal engineer* supervising the development of spectral wave model and analyses to develop environmental design criteria. The design included the construction of 60 acres of marsh mounds that maximize marsh edge habitat for fish, crabs, shrimp, and other wildlife. Obtained Nation-wide Permit from the USACE.

BARATARIA PRESERVE FUTURE CONDITIONS MODELING, JEAN LAFITTE NATIONAL PARK AND PRESERVE, LA. *Project manager and supervising coastal modeler* leading effort to provide park managers with projections of key coastal environmental conditions across the Barataria Preserve landscape in future decades. Responsible for client coordination and management and the development of a technical approach to provide higher-level and more detailed predictions on hydrodynamics, salinities, elevations, and wetland vegetation types under a range of future environmental scenarios. Supervised and coordinated development of Mike21-FM and ICM platforms for project execution.

LARGE-SCALE UPPER BARATARIA MARSH CREATION, PLAQUEMINES AND JEFFERSON PARISHES, LA. *Coastal and hydraulic engineer* for the development and application of a three-dimensional hydrodynamic, sediment transport, and morphology Delft3D model of the Lower Mississippi River to predict infilling of sediment borrow pits and optimize borrow-pit sequencing in the creation of a large-scale marsh creation project in upper Barataria basin.

STATE OF LOUISIANA COASTAL MASTER PLAN 2023 UPDATE. *Project manager and supervising coastal modeler* leading effort to update and improve the previously developed statewide ICM for use in the 2023 Coastal Master Plan.

COASTAL ENGINEERING & DESIGN; PERMITTING //

CHRIS WILLIAMS, PE

YEARS OF EXPERIENCE: 30

OFFICE LOCATION: New Orleans, LA

EDUCATION:

» MS, Civil Engineering, University of Louisiana at Lafayette, 1996
» BS, Civil Engineering, Louisiana State University, 1993

REGISTRATION:

» Professional Engineer: LA, #28579, 1999

AFFILIATIONS:

» American Society of Civil Engineers

Chris has 30 years of civil engineering experience, with an emphasis on coastal engineering and environmental restoration projects. Before joining M&N, Chris previously served as the Administrator of the Project Management Branch for the CPRA of Louisiana. In this capacity, he oversaw 15 project managers responsible for implementing more than 400 individual coastal restoration and flood protection projects throughout coastal Louisiana. He also served as the program manager for the State of Louisiana's CIAP program. Chris also worked as a project manager for the State of Louisiana where he oversaw the design and construction of more than 100 coastal restoration projects.

MISSISSIPPI RIVER LONG DISTANCE SEDIMENT PIPELINE PROJECT (BA-43EB), JEFFERSON, LAFOURCHE, AND PLAQUEMINES PARISHES, LA. *Project manager* responsible for the construction phase of a 13.5-mile, 30-inch discharge pipe laid from the Mississippi River into Barataria Basin. More than 11 MCYDS of material were pumped to create approximately 1,100 acres of marsh. Chris was responsible for the construction inspectors and resolving construction issues. He has also worked with the state to expand the project, including the additional design, land rights coordination, permitting, and regulatory agency coordination.

LARGE-SCALE BARATARIA MARSH CREATION: UPPER BARATARIA COMPONENT (BA207) JEFFERSON AND PLAQUEMINES PARISH, LA. *Project manager* for the creation of approximately 1,100 acres of marsh in the Barataria Basin using the Mississippi Riverbed as the sediment source, currently in the design phase. Approximately 10 MCYDS of the dredged material will travel from the Mississippi River to the marsh creation site via a 13-mile pipeline placed on a land-based conveyance corridor. Design involves coordinating the surveying, geotechnical, modeling, and environmental tasks. This fast-paced project will be designed and constructed within three years from authorization for design. The project has been advertised for bid, a contract successfully awarded, and is currently in the pre-construction phase. Construction is estimated to take approximately 18-24-months depending on the award of Bid Options.

LIGHTNING POINT RECREATIONAL PARK GREEN INFRASTRUCTURE, BAYOU LA BATRE, AL. *Coastal engineer* for the design of a shoreline protection and marsh creation project. Approximately 1 mile of rock shoreline was constructed offshore which will protect a 40-acre marsh habitat created as part of the project. Project tasks included conducting a design charrette with stakeholders, coordinating and obtaining state and federal permits for the project. Advertised and assisted the client (The Nature Conservancy) with selecting a contractor. Severed as the Owners Engineer and Owners Representative during construction.

LABRANCHE WETLANDS STORMWATER DRAINAGE AND WATERSHED MASTER PLAN, ST. CHARLES PARISH, LA. *Project manager* for a program for establishing a planning process to guide wetland restoration and creation in the LaBranche Wetlands pertaining to water resource-related issues within the drainage basin.

LAKE PONTCHARTRAIN SHORELINE PROTECTION AND ENHANCEMENT, ST. CHARLES PARISH, LA. *Project manager* for this project to provide an integrated and sustainable solution to restore and protect the Lake Pontchartrain shoreline and the LaBranche Wetlands. Combined the consolidation of shoreline protection and wetland restoration projects to date with proposed restoration measures into a unified strategy that included a stabilized shoreline, a healthy marsh, and a restored levee protection system, as part of the multiple lines of defense strategy. Performed an alternatives analysis that assessed proposed solutions to maintain shoreline protection integrity and provide shoreline ecosystem enhancement. Currently completing the design of the shoreline protection and enhancement projects, as recommended in the feasibility report as part of the St. Charles Parish CIAP program. The design features two sections of shoreline protection comprising marsh toe armoring with riprap and an offshore perched breakwater with marsh fill and vegetative plantings in between. Served as the Owners Engineer and Project Observer for the construction phase.

BAYOU DUPONT III SEDIMENT DELIVERY - MARSH CREATION (BA-164), PLAQUEMINES AND JEFFERSON PARISHES, LA. *Project manager* for the use of the Mississippi River Long Distance Sediment Pipeline Project (BA43-EB) for the delivery of 2 MCYDS of materials dredged from the Mississippi River to create and nourish approximately 275 acres of emergent wetlands and create 9,679 LF of earthen terraces adjacent to the BA-39 Bayou Dupont Project. The project involves dredging sediment from the Mississippi River. Utilization of the existing Long Distance Sediment Pipeline yielded significant cost savings of up to $7 million in mobilization and demobilization costs, as well as more than a $1 reduction in the per-unit price of dredged material, a savings of nearly $2 million. Also responsible as project manager for the supervision and inspection of the construction of the combined projects.

COASTAL ENGINEERING & DESIGN; DREDGING/BENEFICIAL USE //

GERALD SONGY, PE

YEARS OF EXPERIENCE: 9

OFFICE LOCATION: Baton Rouge, LA

EDUCATION:

- MS, Coastal and Marine Engineering and Management, Delft University of Technology, Netherlands, 2016
- BS, Civil Engineering, Louisiana State University, 2013
- Texas A&M Dredging Engineering Short Course, 2020

REGISTRATION:

- Professional Engineer: LA, #PE.0044760, 2020

AFFILIATIONS:

- American Society of Civil Engineers

Gerald has nine years of experience in coastal and hydraulic engineering, and coastal and ecosystem restoration projects. His project experience includes permitting, analysis, design, and construction administration of marsh creation, tidal creek creation, shoreline protection, beach nourishment, and oyster reef restoration projects. His experience also includes design of living shorelines, beneficial use of dredged material for wetland restoration, sediment management, and dredged material transport for land reclamation. He is experienced in project mapping and spatial data analysis with ArcGIS and has experience with MATLAB for program development, model pre- and post-processing, and visualization. Gerald also has experience with numerical wave and passing vessel modeling in addition to cross-shore modeling of beach and dune processes. He has extensive field experience, which includes site observations during both design and construction phases and accompanying biologists to assist in performing wetland delineations. In addition to Gerald's project experience on the Lake Pontchartrain side of Jefferson Parish, he has spent countless hours of personal time fishing and boating along the Grand Isle coastline.

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *Coastal engineer* who led the feasibility-level opinion of probable cost effort, value engineering report, and cost-saving measures; generated a data gap analysis report; assisted with the feasibility study deliverable; and contributed to the geotechnical investigation planning, settlement analysis, cost estimates, and engineering and design (30 percent, 95 percent, and final design). This Jefferson Parish proposed living shoreline project included marsh creation, shoreline protection, and tidal creek creation features along the south Lake Pontchartrain shoreline, immediately seaward of a federal flood protection levee. The material will be dredged from a borrow site approximately 2.5 miles away and hydraulically transported via pipeline to the marsh creation area.

LARGE-SCALE BARATARIA MARSH CREATION: UPPER BARATARIA COMPONENT, NOAA-NMFS, BARATARIA BAY, LA. *Coastal engineer* for this National Oceanic and Atmospheric Administration Eastern Acquisition Division project, assisted with all design phases—from tentative to final design tasks (including report, plans, and specifications), bidding, and construction administration phase. This ongoing marsh creation project aims to restore approximately 1,300 acres of marsh using dredge material from a location in the Mississippi River that is approximately 13 miles from the proposed marsh creation areas. This project will help to restore and extend the marsh in this area westward by continuing to restore areas adjacent to the previously constructed long-distance sediment pipeline marsh restoration projects. Additional tasks included post-Hurricane Ida site assessment and documentation using both ground photos and drone footage.

LABRANCHE SHORELINE PROTECTION (PO-0194) AND MAINTENANCE LIFT PROJECT. *Lead coastal engineer* who oversaw all phases of design including data collection, permitting, final design, and bidding phase. The maintenance lift included approximately 3,500 LF of enhanced shoreline protection and the unprotected shoreline included approximately 2.5 miles of shoreline protection in an environment with weak, challenging soils and energetic waves generated in Lake Pontchartrain. The shoreline protection design feature included a light-weight aggregate core in an effort to reduce the breakwater settlement.

LIGHTNING POINT RESTORATION, THE NATURE CONSERVANCY, BAYOU LA BATRE, AL. *Coastal engineer* assisting with both the 95% and final design and specifications, numerical modeling, and construction administration for this project involving shoreline protection, marsh creation, and tidal creek creation. This project will place approximately 250,000 CY of fill to restore roughly 45 acres of marsh, construct 7,000 LF of breakwater and 750 LF of revetment, and create a large tidal creek network for the restored area.

GRAVELINE BAY MARSH RESTORATION, DAUPHIN ISLAND, AL. *Coastal engineer* performed quality assurance/quality control reviews of the 90 percent plans and specifications for this 5-acre marsh creation project on the north side of Dauphin Island.

INCREASE ATCHAFALAYA FLOW TO TERREBONNE MARSHES, COASTAL PROTECTION & RESTORATION AUTHORITY, MORGAN CITY, LA. *Coastal engineer* assisting with 30% design, data collection, and downstream flooding modeling to increase freshwater and sediment flows from the Atchafalaya River to Terrebonne marshes, which have experienced erosion and decline primarily due to increased salinity levels. For 30% design, provided geotechnical permitting and geotechnical data collection coordination, existing utility coordination, GIS, and dredging of the GIWW/beneficial use of the dredged material for marsh restoration.

COASTAL ENGINEERING & DESIGN; DREDGING/BENEFICIAL USE //

NICK COX, PE

YEARS OF EXPERIENCE: 15

OFFICE LOCATION: Houston, TX

EDUCATION:

» MS, Civil Engineering with Coastal Emphasis, Texas A&M University, 2011
» BS, Civil Engineering with Structural Emphasis, Clemson University, South Carolina, 2009

REGISTRATION:

» Professional Engineer: LA, #40307, 2015

Nick has 15 years of experience working on civil and coastal engineering projects. His work is focused on providing resilient coastal engineering design for small- to large-scale coastal restoration projects. He has successfully planned, designed, and implemented coastal engineering projects working as the engineer of record for dredging and marsh creation projects ranging from 100,000 to 11 MCYDS and 20 to 1,200 acres in size. With more than 4,000 acres of marsh creation experience, he is a leading expert on the Gulf Coast. Work within these projects includes data management and analysis, advanced numerical modeling of hydrodynamic processes, project management, and construction oversight.

UPPER MOBILE BAY WETLAND CREATION (PLANNING) PROJECT, AL. *Senior coastal engineer and assistant project manager* for this ongoing project to provide engineering and design for up to 1,200 acres of beneficial use wetland habitat for the Alabama Port Authority. The project is currently in the 30% design phase. Utilized Engineering With Nature design initiatives to complete the preliminary and conceptual design to provide wetland creation capacity for phased placement of beneficial use dredge material throughout a 25-year project life. Led the hydrodynamic and spectral wave modeling to determine design environmental forces and answer regulatory concerns related to the project permit. Designed containment berms and rock riprap revetment shoreline protection. Led the geotechnical investigations, and identification of borrow material. Designed the borrow area for hydraulic dredging to construct the containment berms.

LARGE-SCALE BARATARIA MARSH CREATION: UPPER BARATARIA COMPONENT (BA-0207), AL. *Engineer of record* for this 11-million cubic yard and 1,100-acre marsh creation project which is currently in construction. Oversaw the planning, engineering and design, and permitting components of the project. Led the dredging and marsh creation area layout and design, including ecological design components such as tidal ponds and hydrologic connections to surrounding waterways. Additionally, provided critical coordination with the U.S. Army Corps of Engineers to modify an existing dredge pipeline corridor to allow construction of a new flood protection levee in vicinity of the project. Oversaw a hydrodynamic and sediment transport model of the two borrow areas in the Mississippi Rivers and analyzed the model data to predict sediment infill rates. Led the preparation of construction drawings and specifications and is leading the project through construction.

LAKE PONTCHARTRAIN SHORELINE PROTECTION AND ENHANCEMENT PROJECT, ST. CHARLES PARISH, LA. *Coastal engineer* responsible for the development of 2D hydrodynamic and saline model of entire LaBranche Wetlands to evaluate proposed interior marsh restoration strategies in front of the SCHPL, including the rehabilitation of existing water control structures as well as the potential for such structures on the shoreline for suppression of saltwater intrusion and retention of re-introduced freshwater into the wetlands. Currently, M&N in partnership with the USACE and Pontchartrain Levee District (PLD) under a PAS agreement is using the model to assess potential benefits of proposed hydrologic restoration projects being explored by St. Charles Parish, Jefferson Parish, CWPPRA, USACE, and NGOs as part of the development of a Master Plan for the Hydrologic Restoration of LaBranche Wetlands.

MISSISSIPPI RIVER LONG DISTANCE SEDIMENT PIPELINE PROJECT (BA-43EB), PLAQUEMINES, JEFFERSON, & LAFOURCHE PARISH, LA. *Coastal engineer and assistant project manager* for this project that involved the combination and adaptive management of three marsh creation projects, BA-48, BA-164, and BA-43 (EB). The construction for all three projects was completed under the BA-43 (EB) project construction contract and created a nearly 13-mile corridor of emergent marsh for the placement of a hydraulic dredge pipeline to restore wetland areas converted to open water in the Barataria Basin, and 1,100 acres of intertidal marsh creation. Served as assistant project manager during the planning and design of the additional marsh creation and oversaw all construction administration and inspection.

LIGHTNING POINT RESTORATION, BAYOU LA BATRE, AL. *Coastal engineer* who led the design of the civil, geotechnical, and dredging components of the Lightning Point Restoration project and assisted on the coastal engineering design components. Nick led the geotechnical data acquisition plan and analysis including hydraulic fill settlement rates utilizing the PSDDF software. He designed the project's mechanical and hydraulic dredging components and assisted in the design of the rock breakwaters and the tidal creeks. Breakwater design involved a rigorous basis of design detailing MetOcean conditions at the project site. He further assisted in the sizing of the stone and completed numerical hydrodynamic modeling of the tidal creeks with MIKE 21 for permitting purposes. He prepared the permitting drawings and responses to USACE questions regarding Section 10/404/408 permitting.

COASTAL ENGINEERING & DESIGN //

SAMANTHA MCKISSON, EIT

YEARS OF EXPERIENCE: 2

OFFICE LOCATION: Baton Rouge, LA

EDUCATION:

» BS, Civil Engineering, University of Louisiana at Lafayette, 2022

REGISTRATION:

» Engineer-in-Training: LA, Civil Engineering, #23-177-57, 2022

Samantha has two years of experience in civil and coastal engineering projects including engineering analysis and construction administration. Her work involves inland hydraulic and hydrologic analysis, design, and construction observation for civil, coastal restoration, coastal protection, and living shoreline projects. She has field experience in preliminary data collection and construction administration. Based on experience, she is familiar with construction plans and specifications, surveying methodologies, environmental compliance, and floodplain management.

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *Coastal engineering intern* who assisted with review of bid documents and is working as part of the construction administration team during the construction phase of this living shoreline project which includes hydraulic dredging for marsh creation, breakwater construction, tidal creek creation, and a blueway for recreational kayaks and paddleboards. Assisted in performing a preliminary cost estimate for an alternative marsh creation containment option to expedite the opening of the blueway feature for the project.

LARGE-SCALE BARATARIA MARSH CREATION: UPPER BARATARIA COMPONENT, NOAA-NMFS, JEFFERSON AND PLAQUEMINES PARISHES, LA. *Coastal engineering intern* who supported project deliverables for construction administration and who has held construction observer/inspector role for periods of time. Additional activities included developing a construction completion report, record drawings, daily construction reporting, and construction data review and processing.

LABRANCHE SHORELINE PROTECTION (PO-0194) AND MAINTENANCE LIFT PROJECT, COASTAL PROTECTION AND RESTORATION AUTHORITY, KENNER, LA. *Coastal engineering intern* who assisted with design and bid support including review of the bid documentation and is working as part of the construction administration team during the construction phase of this project, which will create rock riprap breakwaters along the shoreline of Lake Pontchartrain.

INCREASE ATCHAFALAYA FLOW TO TERREBONNE MARSHES, COASTAL PROTECTION AND RESTORATION AUTHORITY, MORGAN CITY, LA. *Coastal engineering intern* who assisted in survey deliverable verification and documentation which was part of the 30% design deliverable package for this freshwater diversion project.

DAUPHIN ISLAND CAUSEWAY SHORELINE RESTORATION, DAUPHIN ISLAND, AL. *Coastal engineering intern* who assisted with review of bid documents and is working as part of the construction administration team during the construction phase of this living shoreline project which includes breakwater construction.

ALOE BAY LIVING SHORELINE, DAUPHIN ISLAND, AL. *Coastal engineering intern* that helped to generate the site investigation and data analysis report concerning geotechnical and water level data within the project site.

LOUISIANA WATERSHED INITIATIVE, REGION 4. *Civil engineering intern* that performed hydraulic and hydrologic modeling for the purpose of an updated understanding of statewide flooding for a variety of recent storm events including the areas DeSoto, Sabine, Vernon, Rapides, Beauregard, Allen, Calcasieu, Jefferson Davis, and Cameron parishes for Fenstermaker.

NORFOLK FLOODWALL – CASINO REACH – LIVING SHORELINE DESIGN, NORFOLK, VA. *Coastal engineering intern* who assisted with the living shoreline design, which includes shoreline protection (rock breakwaters), intertidal (marsh) and supratidal (ridge) fill features to provide habitat diversity and a natural buffer between the Elizabeth River and the floodwall structure. Tasks included: wave transmission calculations, preliminary concept development, stone stability calculations, and drafting a basis of design report for the living shoreline.

COASTAL ENGINEERING & DESIGN //

PEYTON POSEY, EIT

YEARS OF EXPERIENCE: 3

OFFICE LOCATION: Mobile, AL

EDUCATION:

- MS, Civil Engineering with Coastal Emphasis, University of South Alabama, 2021
- BS, Civil Engineering, University of South Alabama, 2019

REGISTRATION:

- Engineer-In-Training: AL, EIT, #EI18924, 2021

Peyton has three years of experience in coastal engineering, including permitting, hydrodynamic and morphological modeling and analysis, natural capital benefits analysis using AQUATOX results, design, specification development, and construction administration to support marsh creation/restoration and beach nourishment projects. Her experience also includes design of living shoreline, beneficial use of dredged material for wetland restoration, shoreline protection features, and boat ramps.

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *Coastal engineering intern and modeler* who set up and utilized MIKE3-Wave to analyze the diffraction, transmission, and attenuation of Lake Pontchartrain waves through the breakwater design.

UPPER MOBILE BAY BENEFICIAL USE WETLAND CREATION SITE PROJECT, MOBILE, AL. *Coastal engineer-intern* assisting in design tasks for the planning and permitting of a 1,200-acre beneficial use site and the engineering and design of the first 100 acres. Lead the net capital benefits analysis and report development that assigns a monetary value to the ecological benefit of the project throughout the project life based on AQUATOX modeling results in order to justify the work. Assisted in the development, analysis, and reporting of an in-depth wave and flow modeling effort to investigate project impacts within upper Mobile Bay.

LIGHTING POINT BREAKWATERS PHASE II, BAYOU LA BATRE, AL. *Coastal engineer-intern* for the design and construction of 4 segmented rock riprap breakwaters totaling 3,300 LF. Lead the development of the design drawings and authored the project specifications for review by the EOR. Assisted in construction administration.

INCREASE ATCHAFALAYA FLOW TO TERREBONNE MARSHES, MORGAN CITY, LA. *Assistant project manager* who assisted in budget monitoring, invoicing, and project design team meeting minute development.

SUSTAINABLE RIVERS PROGRAM: ATCHAFALAYA BASIN MODEL UPDATE, BATON ROUGE, LA. *Coastal numerical modeler* for developing and updating a state of the art, 2D MIKE 21 FM Hydrodynamic and Salinity Wetland Morphology model of the entire Atchafalaya River Basin, the Wax Lake, and Atchafalaya River Deltas, the Atchafalaya Bay system, and a portion of the Gulf of Mexico to support the USACE and The Nature Conservancy's Sustainable Rivers Program collaboration. Once fully developed, the model will be a state-of-the-art tool for evaluating environmental flows in the Atchafalaya Basin, supporting the transition of Basin management toward environmental and habitat benefits in addition to flood protection. Compiled and processed water level, current, and velocity measurements for use in the model calibration and validation, developed a data inventory report for the Atchafalaya Basin, and assisted model calibration to the 2019-2020 flood and low-flow period.

DAUPHIN ISLAND CAUSEWAY SHORELINE RESTORATION PROJECT, MOBILE COUNTY, AL. *Coastal engineer-intern* supporting the technical review of past design work, engineering and design of the project, and coordination with the U.S. Army Corps of Engineers to receive beneficial use material and restore approximately 100 acres of intertidal salt marsh along the western shore of Mobile Bay. Completed a technical review of the previously contracted marsh creation and shoreline protection design.

SALT AIRE SHORELINE RESTORATION, MOBILE, AL. *Assistant project manager and coastal engineer-intern* for the restoration and protection of 30 acres of intertidal salt marsh along the western shore of Mobile Bay. Performed numerical wave modeling, analysis of wave attenuation capabilities of existing project features, borrow area design tasks, shoreline protection design tasks, marsh creation design tasks, and tidal creek design tasks. Lead the development of a design alternatives report with multiple creative solutions working with current project features and providing high level cost estimating for the funder's consideration. Lead the QA/QC process for all deliverables.

GRAVELINE BAY MARSH RESTORATION, DAUPHIN ISLAND, AL. *Coastal engineer-intern* who assisted the development of the construction specifications and construction oversite for the construction of 60 acres of intertidal salt marsh mounds.

DREDGING / BENEFICAL USE //

GEORGE RAMSEUR

YEARS OF EXPERIENCE: 34

OFFICE LOCATION: Mobile, AL

EDUCATION:

» BS, Geology and Anthropology, Tulane University, 1979

George is a senior coastal scientist with 34 years of experience in ecological program development, science-based planning, restoration implementation, and project management. As Director of Ecological Restoration at MDMR, he expanded Mississippi's role in evaluating and managing estuarine productivity and sustainability issues in an expanded Mississippi Sound domain called the Louisiana, Mississippi, Alabama Coastal System (LMACS). From 2014 to 2021, he directed the Office of Coastal Restoration and Resiliency at MDMR where the LMACS concept took shape in 2017. Prior to that, he developed and managed Mississippi's Beneficial Use of Dredged Material Program and earlier managed terrestrial restoration planning and implementation in the Coastal Preserves Program.

UPPER MOBILE BAY WETLAND CREATION SITE PLANNING. *BU and regulatory advisor* for design, planning and permitting for 1200 acres of marsh through beneficial use of dredged material from the Alabama Port Authority. Task lead for obtaining an individual long-term permit for the 1200-acre wetland creation project utilizing dredge material from the Mobile Ship Channel and adjacent public berths of the Alabama State Port Authority. Lead author of the Environmental Assessment for analyzing the consequences of the project to satisfy NEPA compliance on this federally funded project.

DAUPHIN ISLAND CAUSEWAY SHORELINE RESTORATION PROJECT, MOBILE COUNTY, AL. *BU and technical support* for the independent technical review of project engineering and design data and full design of 3.5 miles of segmented breakwater and 900,000 cubic yards of dredged material in coordination with USACE to receive material beneficially.

DAUPHIN ISLAND BEACH RENOURISHMENT, DAUPHIN ISLAND, AL. *Project technical advisor* supporting engineering team in conducting 30% design plans. Support Town of Dauphin Island in outreach to community and State and Federal agencies. Supported two community public meeting updates.

NEW ROUND ISLAND BENEFICIAL USE HABITAT AND HISTORIC/GEOMORPHIC RESTORATION PROJECT, PASCAGOULA, MS. *Project originator and lead* developed original project concept and entire state/federal permit for dredging a relict shallow sand shoal outward to form a berm capable of accommodating the beneficial use (BU) of over 3.3 million cubic yards of new-cut dredged material pumped approximately 5 miles from the Port of Pascagoula, Mobile Corps District/USACE navigation channel to restore 220 acres of marsh and beach/dune habitat.

DEER ISLAND RESTORATION, BILOXI, MS. *Project lead and MDMR BU program manager* for a project originally constructed in 2002 by Mobile Corps District as the "204 Marsh Creation Project" which was largely evacuated of fill material by Hurricane Katrina. Responsible for coordinating its "re- restoration" using BU materials from the Port of Gulfport starting in 2009. Developed the project and permit for a 100% expansion of the site which was constructed starting in 2011. The current Mobile Corps District, Mississippi Coastal Improvement Plan expansion will add 400 acres of habitat strategically designed to improve oyster habitat.

BILOXI MARSH CROSS-BORDER (MS TO LA) BU MARSH RESTORATION PROJECT, BILOXI, MS. *Project originator and lead* to undertake the first permitting process in the Gulf of Mexico proposing that one state implement a major restoration project in an adjoining state (Johnson Bay, St. Bernard Parish, Louisiana). This involved coordinating Parish, State, and Federal outreach over a four-year process to gain the initial permit in 2018. This permit was extended in 2020 to continue the availability of this almost 900-acre project to accept up to 10M cubic yards of new cut dredged material from the Port of Gulfport through 2022.

ALABAMA PORT AUTHORITY DREDGED MATERIAL MANAGEMENT PLAN (30 YEARS), AL. *Lead author* for Beneficial Use and Engineering with Nature (BU) components of a long-term (30 year) dredged material management plan for the Alabama Port Authority (APA). Short- and long-term BU measures in line with USACE Engineering with Nature and current Natural and Nature Based approaches were identified to provide the Port with alternatives selected for their ability to support a balanced, long-term dredged material management program.

ALABAMA PORT AUTHORITY CONFINED DISPOSAL FACILITY DIKE RAISING, AL. Assistant client manager facilitating a primary short-term preferred alternative in the Dredge Material Management Plan. The project, once implemented, will extend the lifespan of the facilities for decades and provide an operational safety valve for the port if alternative disposal options are interrupted.

DREDGING / BENEFICIAL USE //

SEANN PEREZ, CPE

YEARS OF EXPERIENCE: 28

OFFICE LOCATION: Raleigh, NC

EDUCATION:

- MBA, Business Administration, Northern Illinois University, 2001
- BA, Business Management, North Central College, 1992
- BA, Speech Communications, North Central College, 1992

REGISTRATION:

- Certified Professional Estimator, ASPE, 2022

Seann is a construction estimator with 28 years of dredging experience. As a lead estimator for the largest dredging company in North America, he participated in some of the most high-profile, complex projects in the dredging industry, including several projects of more than $100 million. His skills have been applied to port and harbor projects for waterways in New York Harbor, Wilmington Harbor, Delaware River, Charleston Harbor, Miami Harbor, and the Port of Long Beach, as well as large-scale beach nourishment projects. Seann is very familiar with the development of dredging and beach nourishment plans and specifications and understands the constructability of projects to aid in developing cost-effective projects.

UPPER MOBILE BAY BENEFICIAL USE WETLAND CREATION PROJECT, MOBILE, AL. *Construction estimator* for the development of a 1,200-acre wetland creation site in Upper Mobile Bay. The project is currently in the design phase and includes the construction of dredge-filled containment dikes, installation of rock revetments, excavation of tidal creeks, construction of access channels, and construction of a material offloading facility. Working with design engineers on cost estimates for many different methodologies of containment dikes, borrow sources, and revetments to arrive at the most cost-effective solution. Reviewed geotechnical data for most efficient areas of dike placement as well as potential borrow material sources.

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *Construction estimator* for the development of a 200-acre marsh restoration project for the Bucktown community on Lake Pontchartrain. The project is currently in the design phase and includes the construction of rock breakwater, earthen containment dikes, dredging for marsh creation, excavation of tidal creeks, and vegetative plantings. Working with the design engineers on various construction scenarios. Discussing with the contractors from the industry to come up with the best solutions for construction of the project.

NAGS HEAD BEACH RENOURISHMENT, TOWN OF NAGS HEAD, NC. *Senior estimator* for this more than $30 million project that included 4 MCYDS of beach fill covering more than 50,000 LF of beach. Offshore borrow was designed for either a hopper or hydraulic dredge. The project was bid with two options: one for work in 2018 and one for work in 2019. Developed internal cost estimates to bid this project, looking at countless options to secure the best bid. Communicated with multiple subcontractors to capture their costs. Once the project was procured, re-estimated the project monthly to track actual costs and production and incorporate future planning based on site development.

CHARLESTON ENTRANCE CHANNEL DEEPENING – CONTRACT I, USACE, CHARLESTON, SC. *Senior estimator* for this more than $250 million project that involved deepening of the Charleston Entrance Channel covering 10 miles of offshore channel and included 13 MCYDS of sand, gravel, and limestone using the hopper, hydraulic, and backhoe work. Offshore disposal included mitigation and beneficial use reefs. Responsible for developing internal cost estimates to bid this project. Developed competitor estimates in anticipation of what their costs would be to perform the work. Responsible for re-estimating the project monthly, working with the project management team on tracking actual performance, and adjusting costs based on updated plans.

MIAMI HARBOR ENTRANCE CHANNEL DEEPENING, MIAMI, FL. *Senior estimator* for this $200 million project to deepen the Miami Harbor channel entrance. Work included dredging 5 MCYDS with hydraulic, hopper, and mechanical dredges. Construction included a 17-acre seagrass mitigation site, 9 acres of artificial reef, and 7 acres of seagrass plantings. Responsible for developing internal cost estimates to bid this project and exploring countless options to secure the best bid. Communicated with multiple subcontractors in capturing their costs. Once the project was procured, developed monthly estimate updates by tracking actual costs and production and incorporating future planning based on site developments.

DELAWARE RIVER DEEPENING – ROCK REACH B, USACE, PHILADELPHIA, PA. *Senior estimator* for this $150 million deepening of the Delaware River project. Work included drilling and blasting, chopping rock with a cutter suction dredge, and clamshell and backhoe digging of blasted and unblasted rock. Multiple disposal sites upland and offshore were used. Responsible for developing internal cost estimates to bid this project. Worked with the USACE on numerous modifications to complete this project. The contractor on another dredging project adjacent to this one failed to complete, so approximately $70 million of modification work was added to this project.

DREDGING / BENEFICIAL USE //

PETE KOTULAK, PE

YEARS OF EXPERIENCE: 39

OFFICE LOCATION: Mobile, AL

EDUCATION:

- BCE, Civil Engineering, Johns Hopkins University, Maryland, 1994
- BS, Biology with Chemistry Minor, Cleveland State University, Ohio, 1982
- AA, Biology/Engineering, Cuyahoga Community College, Ohio, 1980

REGISTRATION:

- Professional Engineer: MD, #20032, 1994; Delaware, #18765, 2013; OH, #PE77001, 2016; PA, #043137E, 1992; VA, #0402049715, 2013; AL, #PE50467, 2021

Pete is a project manager and design engineer with 39 years of experience in coastal and dredging consulting. He specializes in coastal engineering and dredged material management and has experience in hydraulics/hydrology, environmental restoration, tidal wetlands design, oceanography, stormwater management, soil erosion, and sediment control. He has produced planning studies, evaluations, design, construction documents, technical calculations, and written reports to support a variety of coastal/dredging-related civil works projects.

UPPER MOBILE BAY BENEFICIAL USE WETLAND CREATION PROJECT, MOBILE AL. *Design engineer* assisting with the coastal and dredging engineering design of the containment dikes for this beneficial use project in the Upper Mobile Bay. Performed review and quality control evaluation of concept designs, including review of geotechnical information, bathymetry, and coastal data including past hurricanes. Assisted with constructability studies and reviewed the opinion of probable costs for the construction of the initial phase of the project.

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *Senior technical reviewer* of constructability issues for the Bucktown Living Shoreline project. Performed review of the plans and guided on the use of geotubes and sources of sediment to construct the living shoreline containment structures. Evaluated and provided recommendations on recycled concrete crushing operations for use of the crushed concrete as the core of the breakwaters.

ALABAMA PORT AUTHORITY, DREDGED MATERIAL MANAGEMENT PLAN, MOBILE, AL. *Lead engineering author* on the 2023 Dredged Material Management Plan. Developed multiple alternatives for dredged material placement for the next 30 years with associated costs per cubic yard for the upper and lower harbor. Developed detailed design alternatives for containment dikes of current upland disposal facilities for short-term solutions.

MASSEYS DITCH CHANNEL MAINTENANCE DREDGING, INDIAN RIVER BAY AND REHOBOTH BAY, DE. *Project manager* who provided design, permitting, and construction support services for channel maintenance dredging and placement on Atlantic Ocean beach as beneficial use. M&N's scope of work included project management; project meetings and project schedule; data review; engineering analysis and design development including placement methodology; prepared design and contract documents (drawings and technical specifications); prepared engineers estimate of probable cost; prepared permit application and obtained permits and approvals as required; prepared construction bid form; provided bidding phase assistance; provided construction support services (i.e., submittal reviews, RFIs, site visits, etc.), and provided as-built drawings and certificates of completion.

LITTLE RIVER CHANNEL DREDGING, DOVER, DE. *Project manager* for dredging design for the project to dredge the 2.3-mile-long federal channel in Little River extending from the Route 9 Bridge east into the Delaware Bay, and placement of material at the Little Creek Wildlife Management Area for beneficial use to raise the land elevation in the wetland. Prepared plans, specifications, and cost estimates; obtained permits; and performed construction support services followed by as-built record drawings.

CLEVELAND HARBOR SUSTAINABLE SEDIMENT ENGINEERING SERVICES, CLEVELAND, OH. *Project manager* for a study to identify and evaluate the relative cost and ability to implement a variety of sediment management activities that are potentially more sustainable than current sediment management practices as part of an overall effort to develop both a short- and long-term sediment management program for the Cleveland Harbor federal channel.

TOLEDO HARBOR DREDGED MATERIAL MANAGEMENT ANALYSIS & BENEFICIAL USE PLANNING, TOLEDO, OH. *Dredged material specialist* responsible for assisting prime contractor to identify practical and implementable solutions to manage dredged material, with a focus on upgrading existing or building new Confined Disposal Facilities. The project also included data collection, technical evaluations of geotechnical, hydrodynamics, and sediment transport phenomena; conducting an economic assessment using engineering cost estimations; preparing a sediment management plan; and identifying funding for projects.

DREDGING / BENEFICIAL USE //

MIKE HUEBSCH, PE

YEARS OF EXPERIENCE: 16

OFFICE LOCATION: Mobile, AL

EDUCATION:

» BS, Civil Engineering, Purdue University, 2008

REGISTRATION:

» Professional Engineer: TX, Civil, #150823, 2023; AL, Civil, #PE53950, 2024

Mike is a civil engineer with 16 years of experience in dredging, marine construction, and surveying. His experience includes planning and scheduling site mobilization/demobilization, safe execution of all site operations, design, analyzation, and estimation, as well as project oversight. Mike has traveled and worked extensively both in the US and overseas, managing day to day operations for large scale dredging projects, primarily for the US Army Corps of Engineers.

PASS A'LOUTRE DISPSOSAL AREA MAINTENACE AND MARSH CREATION, MS. *Site manager* for the project to pump 14mil cyd of sand that hopper dredges have dumped here while maintaining the Mississippi River. The sand is being used for marsh creation West of the River. This project utilized 1 cutter suction dredge and over 20,000ft of subline. This project required crossing the Mississippi river with our dredge pipe and lots of cooperation with USACE and pilot organizations as well as other dredge contractors continuing to bottom dump material in the disposal area we were maintaining.

SHIP ISLAND MISSISSIPPI PHASE 1, SHIP ISLAND, MS. *Project engineer* for the project to pump 7mil cyd from four different borrow areas, utilizing two large hopper dredges and one booster pump. This project was to close Camille's cut on Ship Island and build the island back up for hurricane protection. This project closed a 3-mile gap between the two parts of ship island. Responsible for pay volumes, accurate surveys, and advising the dredges on where to get the material from.

AVON AND BUXTON BEACH RENOURISHMENTS, AVON AND BUXTON, NC. *Site manager* for the project to renourish beaches on the outer banks, 2.2mil cyd pumped to the beach utilizing two large hopper dredges pumping on out on five different subline setups, and running two beach crews for Dare County, NC. Primarily oversaw pipeline mobilization and demobilization from Norfolk down to worksites on the outer banks.

FIRE ISLAND INLET DREDGING, LONG ISLAND, NY. *Site manager* for the project to dig 1.6mil cyd from Fire Island inlet for maintenance and to renourish beaches on Robert Moses State Park and Gilgo beach in Long Island. This project utilized one cutter suction dredge with two booster pumps and 30,000ft of subline. Responsible for safe execution of all operations on site. Planning and scheduling for site mobilization and demobilization. Overseeing the project team including Quality Control, Site Safety and Health Officer, and the Engineering Team.

AL NASEEM NEW CHANNEL AND LAND RECLMATAION, AL NASEEM, SAUDI ARABIA. *Project engineer* for the project to dredge 9.5mil cyd of new work channels to be used for land reclamation. This project utilized two 30in cutter suction dredges and two 30in booster pumps. Designed cut layouts and calculated dig and fill volumes for the dredge. One portion of the project required a cost comparison between dredging and doing the work in the dry in some hard rock areas.

THE ISLAND PROJECT ROCK DREDGING NEW CHANNEL AND LAND RECLAMATION, AL KHOR, QATAR. *Assistant project engineer* for a project to dig 1.5mil cyd of rock for a new channel near Al Khor Qatar. The material was used to build islands for a coast guard base. This project utilized 1 30in cutter suction dredge and over 30,000 cutter teeth during the dredging. Estimated the number of cutter teeth to be used and designed a system of tracking cutter wear during the project.

DIYAAR AL MUHARRAQ AND EAST HIDD SOCIAL HOUSING LAND RECLAMATION, BAHRAIN. *Site engineer* for projects to dredge over 10mil cyd for land reclamation. These projects utilized two 30in cutter suction dredges and two 30in booster pumps. Analyzed a large amount of borehole data to recommend dredge cuts and calculated the volume of material suitable fill material that could be productively dredged.

CONSTRUCTION ADMINISTRATION //

MIKE HARDY

YEARS OF EXPERIENCE: 40

OFFICE LOCATION: Mobile, AL

EDUCATION:

- BS, Computer Science, University of Southern Mississippi, 1974
- AA, Electronics Technology, Northwest Mississippi Junior College, 1972

Mike is a construction inspector and project manager with 40 years of experience. He can verify that a product or process has complied with established standards, including commercial, governmental, and military specifications.

LIGHTNING POINT MARSH RESTORATION, BAYOU LABATRE, AL. *Construction inspector* stationed onsite to observe and document the construction progress and adherence to the design specifications of a 40 acre marsh restoration project consisting of breakwaters and dredge fill to build up the marsh as well as creating tidal creeks and scrub shrub habitats. Aerial (drone) and ground level photography are utilized by me for inspection. Turbidity levels are monitored. Observations included watching for protected species such as manatees and sea turtles as well as documenting the bird population prior to and during construction.

HOLIDAY ISLE CONDOMINIUMS, DAUPHIN ISLAND, AL. *Construction project manager* who located and monitored another company to complete demolition and rebuild. After Hurricane Sally damaged the 7-story building, a restoration company was hired to remove the damage and rebuild. This company had difficulties finding labor, so they abandoned the project after demolishing many units. Under guidance the restoration was completed without further issues.

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *Construction inspector* of constructability issues for the development of a 200-acre marsh restoration project for the Bucktown community on Lake Pontchartrain. The project is currently in the design phase and includes the construction of rock breakwater, earthen containment dikes, dredging for marsh creation, excavation of tidal creeks, and vegetative plantings. Working with the design engineers on various construction scenarios. Discussing with the contractors from the industry to come up with the best solutions for construction of the project.

DAUPHIN ISLAND CAUSEWAY SHORELINE RESTORATION PROJECT, MOBILE COUNTY, AL.. *Construction inspector* for a shoreline restoration project on a local barrier island for the Mobile County Commission. Project duties include on-site observation of dredging activities and placement of riprap along the causeway leading to Dauphin Island, Alabama. The project requires dredging access and approach channels for rock barges to bring riprap material on-site. Responsibilities also include attending project meetings and project quantities verification for monthly pay estimates.

GRAVELINE BAY MARSH RESTORATION, DAUPHIN ISLAND, AL. *Construction inspector* who assisted the development of the construction specifications and construction oversite for the construction of 60 acres of intertidal salt marsh mounds.

SAN RELOCATION, DAUPHIN ISLAND, AL. *Restoration monitor* who inspected and monitored sand relocation from roads to the beach on Dauphin Island after Hurricane Sally.

CONSTRUCTION ADMINISTRATION //

DAVID WARREN

YEARS OF EXPERIENCE: 28

OFFICE LOCATION: Mobile, AL

EDUCATION:

» AS, Computer Information Systems, Southeast College of Technology, 1998

David is a construction inspector with 28 years of experience in the construction field. His recent Moffatt & Nichol experience has been focused on coastal shoreline restoration and marina development projects in Alabama. Prior to joining Moffatt & Nichol, David worked on a variety of construction projects that included roadways, sidewalks, airports, and other infrastructure work.

DAUPHIN ISLAND CAUSEWAY SHORELINE RESTORATION, PHASE I, CODEN, AL. *Construction inspector* for a shoreline restoration project on a local barrier island for the Mobile County Commission. Project duties include on-site observation of dredging activities and placement of riprap along the causeway leading to Dauphin Island, Alabama. The project requires dredging access and approach channels for rock barges to bring riprap material on-site. Responsibilities also include attending project meetings and project quantities verification for monthly pay estimates.

MOBILE RIVERFRONT DEVELOPMENT BULKHEAD, MOBILE, AL. *Construction inspector* for a large bulkhead project along the riverfront for the City of Mobile. Responsibilities include on-site construction activities observation, including steel sheet piling installation, concrete slab work, and shoreline stabilization near an existing tunnel in the Mobile River. The project requires coordinating with City of Mobile and cruise line officials and attending project meetings on a regular basis. Also reviews and approves monthly contractor pay requests.

CITY DOCKS REDEVELOPMENT PROJECT, BAYOU LA BATRE, AL. *Construction inspector* on a large redevelopment project in Bayou la Batre for Mobile County. The project includes redeveloping the existing docks into a world-class facility. Project elements involve installing new boat ramps and boat docks, adding public open space for entertaining, installing new public walkways and boardwalks for the public to use for wildlife viewing, and installing new parking lots and sidewalks. Additional responsibilities include monitoring contractors' pay quantities, reviewing monthly pay requests, and attending project meetings.

ZEIGLER BOULEVARD IMPROVEMENTS, MOBILE, AL. *Construction inspector and project manager* on this City of Mobile project that expanded a two-lane roadway into a five-lane roadway within the city. The project involved clearing and grubbing, installing new concrete curb and gutter, installing drainage features, roadway backfill, and asphalt placement. Additional duties included supervising a junior-level construction inspector during the project.

WHISTLER STREET SIDEWALKS, PRICHARD, AL. *Construction inspector and project manager* for this City of Prichard project that consisted of installing new Americans with Disabilities Act (ADA)-compliant concrete sidewalk in a well-established neighborhood within the city. Conducted project meetings and coordinated with local officials. The project involved recording daily quantities; resolving site issues; and installing drainage structures, new concrete sidewalk, new concrete curb and gutter, new ADA elements, backfill, and final dressing of project areas. Additional duties included compiling monthly pay requests for submittal to the City, compiling required paperwork for submittal to the Alabama Department of Transportation, coordinating laboratory testing, and supervising a junior-level construction inspector during the project and project closeout.

HILLSDALE DRAINAGE DITCH, MOBILE, AL. *Construction inspector and project manager* during the design phase to remove and replace the Hillsdale drainage ditch. Assisted City of Mobile officials and design staff with project design and conducted pre-bid and bid assistance, including project bid addenda. Once the project was awarded and released for construction, performed construction inspection. Project elements included removing and replacing a deteriorated concrete ditch in a well-established city neighborhood; maintaining traffic control; conducting project meetings; and coordinating with local City officials, residents who live along the project, and the project laboratory. Responsibilities also included compiling monthly pay requests for submittal to the City of Mobile Engineering Department and supervising a junior-level construction inspector during the project and project closeout.

LITTLE FLOWER AVENUE, MOBILE, AL. *Construction inspector and project manager* on this City of Mobile project that involved total replacement of an existing concrete roadway within the city. Project involved recording daily quantities; resolving site issues; removing existing concrete pavement; installing new curb and gutter, new waterline, and drainage structures; roadway backfill; asphalt placement; and traffic striping.

H&H MODELING //

COLIN ANDERSON, PE

YEARS OF EXPERIENCE: 11

OFFICE LOCATION: New Orleans, LA

EDUCATION:

- MS, Coastal and Ecological Engineering, Louisiana State University, 2022
- BS, Environmental Systems Engineering, Pennsylvania State University, 2013

REGISTRATION:

- Professional Engineer: NY, Environmental, #105214, 2021; LA, Environmental, #0048077, 2023

Colin is a coastal engineer with a master's degree in coastal and ecological engineering. He specializes in the intersection of waterfronts and environmental engineering. Colin has 11 years of experience in coastal, riverine, environmental, and geotechnical projects. His coastal engineering projects include living shorelines, beach nourishment, scour analysis, hydraulic modeling, and ecological modeling. Prior to coastal engineering, Colin began his career in New York City where he performed environmental and geotechnical oversight of construction projects. For several years, he conducted inspections and collected environmental samples at brownfield cleanup sites. He has since acquired a master's degree in Coastal and Ecological Engineering at Louisiana State university. There, he created a 2D HEC-RAS model of the lower Atchafalaya River Basin that included cypress-tupelo restoration modeling.

TANGIPAHOA PARISH LIVING SHORELINES, NEW ORLEANS, LA. *Coastal engineer* for a living shoreline project to protect the eroding coastline between Pass Manchac and Tangipahoa River for the Tangipahoa Parish government. Work included construction administration and inspections of approximately 2 miles of breakwaters. The inspection work included realigning breakwater centerlines in the field to avoid sensitive ecosystems. Construction administration tasks ranged from creating technical specifications to leading progress meetings and approving submittals.

MCFADDIN NATIONAL WILDLIFE REFUGE BEACH RIDGE RESTORATION PROJECT PHASE II, MCFADDIN, TX. *Coastal engineer* responsible for construction administration and site inspections of 17 miles of beach nourishment along the McFaddin National Wildlife Refuge for Texas General Land Office. Responsibilities included submittal reviews, processing payment applications, leading project meetings, and regularly tracking volume of dredged material and the associated burn-rate of funds. Construction administration included rapid submittal reviews of dredging volumes with HYPACK to substantiate payment applications for over $10-million. Inspections required travel to the remote project location and observing dredging progress on land.

ANTICIPATING THREATS TO NATURAL SYSTEMS (ACTIONS), BATON ROUGE, LA. *Graduate research assistant* who created a 2-D HEC-RAS model of the lower Atchafalaya River Basin to research the impacts of Vertical Feature Extraction on hydraulic connectivity between the main channel and backswamp. Constructed and edited a DEM using ArcMap; performed a model convergence study of Vertical Feature Extraction and computational mesh sizing; and analyzed the success of restoration strategies by measuring ecological parameters.

FEMA CASE #24-02-00095 MOHAWK RIVER CORRIDOR, HERKIMER COUNTY, NY. *Coastal engineer* for river modeling in HEC-RAS for a collaborative project to create FEMA flood maps for Herkimer County, NY. Responsibilities included significant GIS work and HEC-RAS modeling. FEMA is conducting a Flood Risk Project for portions of Herkimer County and the Mohawk River Corridor. The scope of this project includes base level engineering and digital floodplain mapping as well as issuance of a new Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM). This updated flood hazard information can be used for expanding local flood risk awareness, enhancing emergency management services, FEMA regulatory submittals, and hazard mitigation planning.

PRELIMINARY SCOUR ANALYSIS OF BRIDGE REPLACEMENT AT RIGOLETS PASS, SLIDELL, LA. *Coastal engineer* for hydraulic modeling using HEC-RAS to support a preliminary scour analysis of a bridge replacement at Rigolets Pass in Slidell, LA. This pass receives significant tidal flow, episodic storm surge, and navigational traffic. The maximum flow velocities from the hydraulic modeling were used to estimate scour to inform a go/no-go decision on pursuing further design.

BENJAMIN HARRISON MEMORIAL BRIDGE DOLPHIN ANALYSIS, HOPEWELL, VA. *Coastal engineer* supporting scour analysis of a dolphin protection design for the Benjamin Harrison Bridge for the Virginia Department of Transportation. Created a hydraulic model of the James River from Richmond to the Chesapeake Bay in SRH-2D. The model included tidal forces and riverine flows. Scour was calculated from the two-dimensional flow velocities around the current pier and fenders and then compared to the flow velocities for a proposed design.

H&H MODELING //

MAARTEN KLUIJVER, PE

YEARS OF EXPERIENCE: 18

OFFICE LOCATION: New York, NY

EDUCATION:

» MS, Hydraulic Engineering, Delft University of Technology, Netherlands, 2006
» BS, Civil Engineering, Delft University of Technology, Netherlands, 2005

REGISTRATION:

» Professional Engineer: TX, #120418, 2015

Maarten has broad civil and hydraulic engineering knowledge with a key focus on coastal protection and restoration and associated hydraulic and morphological modeling. With 18 years of experience, Maarten has a thorough knowledge of coastal and riverine processes, regional sediment management, and coastal flood protection, demonstrated through extensive project experience in New Orleans and the Mississippi River Delta. Maarten leads projects to restore and preserve coastal systems on behalf of M&N's clients, most notably the CPRA of the State of Louisiana and the City of New York. Maarten is the project manager and technical lead for a key project that is part of Louisiana's State Master Plan, the "Increase Atchafalaya Flow to Terrebonne" project. He has provided design, analysis, modeling, and project management services for the USACE in New Orleans following Hurricane Katrina as a coastal engineer in the Hurricane Protection Office and performed post-Hurricane Sandy project evaluations for USACE's North Atlantic Division. His most recent coastal engineering project portfolio includes studies on sea level rise and flood risk in the New York metropolitan area. These studies are developed to enhance flood protection systems, design a more effective response to sea level rise and coastal erosion, and restore and preserve coastal systems while synergistically sustaining and maintaining both natural and built environments.

ST. CHARLES PARISH HURRICANE PROTECTION LEVEE SHORELINE PROTECTION & ENHANCEMENT PROJECT, ST. CHARLES PARISH, LA. *Hydraulic engineer* responsible for establishing a planning process to guide wetland restoration and creation in the LaBranche Wetlands pertaining to water resource-related issues within the drainage basin. The planning process considers elements such as water source and quality (salinity), selection of plant material, substrate augmentation, hydrodynamic/hydraulic analysis, and best management practices and identifies ecological and physical limitations to wetland restoration and creation as well as opportunities to enhance vegetative diversity within the scoping area. The scope also investigates how wetland creation will impact the surrounding communities by describing the effects on water quality (salinity), potential flood attenuation benefits, and aesthetics. In addition, studied and modeled various project alternatives and water management scenarios to freshen and restore the LaBranche Wetlands to a less saline regime. Hydrodynamic modeling was completed with the RMA2 and RMA4 models to characterize normal hydrodynamic and salinity regimes in the wetland and map changes due to the implementation of structural and non-structural restoration projects. Provided the Lake Pontchartrain Levee District, USACE, and Coalition to Restore Coastal Louisiana with scenario evaluation and design alternatives.

STATE OF LOUISIANA COMPREHENSIVE MASTER PLAN FOR A SUSTAINABLE COAST, 2017 REVISION, NEAR TERM PLANNING & MODEL DEVELOPMENT & APPLICATION, STATEWIDE LA. *Coastal engineer and technical reviewer* for CPRA's update to the 2012 Coastal Master Plan. Reviewed the development and supporting documentation of the ICM for the assessment of hydrodynamic, geomorphic, and ecological effects due to restoration and protection projects. Also responsible for QC of scripts and algorithms that aided in the program wide QC checks and QC effort for all ICM modules.

CHANGING COURSE DESIGN COMPETITION, LA. *Coastal engineer* who assisted the M&N team in the disciplines of riverine hydraulics and morphology. The M&N team won this Environment Defense Fund-sponsored international design competition to develop innovative solutions to rebuild and protect the Louisiana coast through a competitive process that will allow for creativity and flexibility. The project goals were to deliver a far-reaching yet implementable framework to "change the course" of the Lower Mississippi River in a way that 1) restores effective sediment pathways to the delta, 2) feeds surrounding areas with desperately needed sediment, 3) sustains navigation, and 4) promotes the cultural, economic, and commercial fabric of the region. The M&N-led team was challenged to create innovative, implementable solutions that will build on the state's master plan. The M&N team's preferred design for the Lower Mississippi River system (The Giving Delta) works to maximize the use of the river's freshwater and sediment for land-building while achieving the best outcomes for navigation, ecosystem restoration, flood management, socioeconomic issues, and sustainable community. The resulting vision was vetted by technical experts, stakeholder and community interests, and the public. Additionally, the vision was specifically tailored to meet the requirements of being parallel, synergistic, and additive to Louisiana's ongoing official master planning efforts.

MID-BARATARIA SEDIMENT DIVERSION, LA. *Lead hydraulic engineer* responsible for numerical modeling of the Mid-Barataria Diversion complex to optimize the diversion structure's sediment capture and maximize hydraulic efficiency sediment transport through the channel.

H&H MODELING //

CHRIS SIVERD, PHD, PE

YEARS OF EXPERIENCE: 10

OFFICE LOCATION: New York, NY

EDUCATION:

- PhD, Civil Engineering, Louisiana State University, 2019
- MS, Civil Engineering, Delft University of Technology (Netherlands), 2014
- BS, Civil Engineering, Louisiana State University, 2010

REGISTRATION:

- Professional Engineer: LA, #44779, 2020

Chris has 10 years of broad knowledge in civil engineering with a focus on coastal engineering and hydraulic structures. His project experience includes the investigation of coastal and riverine hydrodynamic and morphodynamic processes in coastal Louisiana. While completing his post-graduate work at Louisiana State University, he performed an extensive study of the evolution of the Louisiana coastal landscape and hurricane storm surge from 1850 to 2110. He developed ADCIRC storm surge models that represent the topo-bathymetric configuration and surface roughness characteristics of the Louisiana coast for 11 specific years between 1850 and 2110 and quantified surge and wave height evolution during this time. He also quantified the cost of past and future sea level rise via a case study of Lafitte, LA. Using levee height cost approximation methods previously applied in the Rotterdam area, as well as EurOtop guidelines, he calculated the approximate cost to protect Lafitte if Hurricane Isaac storm surge occurred in each model year from 1930 to 2110.

BARATARIA PRESERVE FUTURE CONDITIONS MODELING (BPFCM), JEAN LAFITTE NATIONAL HISTORICAL PARK AND PRESERVE, LA. *Coastal engineer* for this Jean Lafitte and National Park Service managed future conditions project. Developed grid and boundary conditions for MIKE21-FM modeling, calibrated model to site data, and provided pre- and post-processing of calibration and future with project conditions simulations. A high-resolution MIKE21-FM two-dimensional hydrodynamic model was developed to simulate water levels, flows, and salinities within the project area (Barataria Basin). For the park's 25-year-long planning horizon, this new MIKE21-FM model examined Barataria Preserve flow and salinity conditions at specific future points in time. This new model was developed as a complement to the larger integrated group of models of the entire Louisiana coast (Louisiana Coastal Master Plan ICM) which has been used to predict flooding depths, salinities, and vegetation cover along the coast.

2023 LOUISIANA COASTAL MASTER PLAN ICM DEVELOPMENT, STATEWIDE. *Coastal engineer* who expanded the ICM grid to include hydrologic flow from upland areas. Utilized ArcMap 10.6 to merge Hydrologic Unit Code 12 (HUC12) upland basins with the ICM grid previously developed for the 2017 Louisiana Coastal Master Plan. Assigned attributes to additional upland compartments and links based on previously developed raster data regarding elevation, total area, land versus water area, upland area, and marsh edge area. Also was on the QA/QC team that checked the initial 2023 ICM future without protection simulation results for each model compartment. Reported unusual results findings to M&N team members who then reported all M&N unusual results findings to CPRA.

INCREASE ATCHAFALAYA FLOW TO TERREBONNE 30% ENGINEERING AND DESIGN, BATON ROUGE, LA. *Coastal engineer* responsible for performing Computational Fluid Dynamics (CFD) modeling of freshwater diversion channel and structure alternatives using the FLOW-3D CFD model. Developed FLOW-3D model computational grids and performed extensive sensitivity testing to determine the influence of parameters on steady-state hydrodynamics and hydrodynamic forces in the vicinity of the diversion structure. After the FLOW-3D model was calibrated, set up ten different FLOW-3D production run model scenarios to output the forces on the diversion structure and velocities through the diversion structure bays for various Atchafalaya River discharges and corresponding water level regimes. Wrote memo that summarized results and conclusions. Also, responsible for a project interactions analysis with the diversion structure. Started with a base MIKE-21 FM basinwide model set up and added the HNC Lock, Bayou Chene floodgate, and Bayou Carencro diversion to the model mesh and roughness files to test the impact of each project on the future diversion structure operation.

MIRABEAU DISSIPATOR NEW ORLEANS, LA. *Coastal engineer* who a 3D computational fluid dynamics (CFD) model via the FLOW-3D program to investigate the velocities generated on the ledges, gullies and end of the dissipator to confirm adequate water movement. Also generated high quality animations to be presented to a wider audience.

PRELIMINARY FLOOD RISK ASSESSMENT FOR PROPOSED FACILITY IN PORT ALLEN, LA. *Coastal engineer* for this flood risk analysis of a project site for a proposed large industrial facility located in Port Allen, LA. Performed the necessary research to determine the existing and future probability of flooding at the project site due to coastal, riverine and precipitation sources. Necessary research included reviewing existing data, numerical models, and studies (i.e., literature review). Composed a memo summarizing our findings, which was sent to the client. Prepared slides and presented our findings to the client.

H&H MODELING //
JULIA MUDD

YEARS OF EXPERIENCE: 1

OFFICE LOCATION: New Orleans, LA

EDUCATION:

- MS, Civil Engineering-Water Resources, Louisiana State University, 2023
- BS, Environmental Science, Tulane University, 2017

Julia is a coastal and water resources associate specializing in coastal and urban stormwater modeling, especially in areas with compound flooding. Her skills include stormwater and green infrastructure modeling (design and analysis) and physical modeling of open channel flow (design, data collection, processing, analysis, report synthesis). Julia is a recent graduate from Louisiana State University's Civil Engineering/ Water Resources Master's program. She managed and operated the Lower Mississippi River Physical Model (LMRPM) in the LSU Center for River Studies for 3.5 years while conducting her thesis research on a behavioral comparison between a fluorescent tracer sediment and the LMRPM sediment. While studying environmental science at Tulane University, Julia used ArcGIS to calculate historic eroded sediment volumes on the South Fork Eel River catchment in California to better understand the geomorphology associated with the evolution of the river's knick point.

GENTILLY RESILIENCE DISTRICT, NEW ORLEANS, LA. *Stormwater modeler* to support planning of district-scale green infrastructure retrofits. Planning efforts include expansion of the first of its kind resilience district beyond the initial $131M in HUD funding awarded in 2016 as part of the National Disaster Resilience Competition. Modeling alternative pump station operations and canal level controls for improved conveyance of stormwater in the district.

LAFITTE GREENWAY BRIC GRANT, NEW ORLEANS, LA. *Stormwater modeler* (PCSWMM) to test stormwater storage potential along the Lafitte Greenway linear park in New Orleans and calculate reductions in neighborhood flooding due to new storages. New storages and routing were added to an existing SWMM model of the city of New Orleans created by CDM Smith and maintained by Ardurra.

MOSS POINT LID, MS. *Stormwater modeler* to determine feasibility of new stormwater parks in available parcels in Moss Point, MS. Julia created a HEC-RAS 2D model of the project area and calculated the stormwater storage potentials and neighborhood flood reductions of several different LID interventions using HEC-RAS 2D and ArcGIS Pro. This project is part of a proposal to be submitted to the next round of NERRS Habitat Protection and Restoration Infrastructure Investment and Jobs Act (IIJA) funding. A community design approach collaborating with local city officials, civic leaders, and local stakeholders will be implemented to define strategies to reduce flooding, NPS pollution, and the burdens of climate change that have been impacting this chronically underfunded community.

BROOKLEY BY THE BAY, MOBILE, AL. *Stormwater modeler* using MIKE 21 Spectral Wave modeling to support breakwater design. Assisted in MIKE 21 Spectral Wave modeling to support breakwater design for Brookley by the Bay living shoreline. The future waterfront park presents an opportunity for people to reconnect with the water's edge and immerse themselves within the rich, bio-diverse ecosystems that once defined and sustained the region.

HAMPTON BOULEVARD DCIP, NORFOLK, VA. *Stormwater modeler* creating a stormwater model on PCSWMM to test design improvements to existing stormwater conveyance system along Hampton Boulevard that experiences persistent nuisance, tidal and compound flooding. Determined the feasibility of tide gates, pipe enlargements, junction and pipe invert elevation alterations, and/or road raising in the project area.

ORANGE BEACH WATERFRONT PARK, AL. *Stormwater modeler* conducted a water level analysis between four different water level gauges around the Lower Perdido Islands in the Gulf of Mexico. Julia produced a synthetic time series of water level data through a series of temporal and spatial interpolations, as well as analyses of tidal harmonic constituents. This synthetic time series is to be used as an input for a MIKE 21 wave model to aid with breakwater design for the Orange Beach waterfront park in AL.

JAPHET CREEK, HOUSTON, TX. *Stormwater modeler* using HEC-RAS modeling to support bridge design and ensure compliance with floodway regulations. This project involves creek restoration and the design of elevated trails and a signature bayou pedestrian bridge. The project consists of easement negotiations with homeowners to industrial recycling facilities, six cohesive crossings, roughly a half mile of multi-use trail adjacent to delicate ecosystems and steep slopes, H&H studies of existing and proposed conditions for both the 300' wide bayou and Japhet Creek: the last remaining spring fed creek of the region, and balancing creek rehabilitation efforts with user occupancy and placemaking objectives.

H&H MODELING //

NICK SCALFANO, EIT

YEARS OF EXPERIENCE: 4

OFFICE LOCATION: New Orleans, LA

EDUCATION:

» BS, Civil Engineering, University of Louisiana, Lafayette, 2020

REGISTRATION:

» Engineer-In-Training: LA, Civil, #34538, 2020

Nick is a water resources associate with four years of experience specializing in hydrologic and hydraulic modeling and studies, watershed management, and master drainage plans for urbanized areas, as well as project management and construction administration. For several years, Nick worked on 1D and 2D models for various riverine and urban drainage systems throughout Louisiana as a result of regional flooding after major storm events over the last decade.

LOUISIANA WATERSHED INITIATIVE, UPPER CALCASIEU RIVER, LA. *Engineering intern* for Region 4 and Calcasieu Parish Regional Watershed Planning responsible for creating existing 1D/2D Hydrologic and Hydraulic (H&H) models for the upper Calcasieu River in HEC-RAS and HEC-HMS, and conducting extensive research on the area's soil conditions, land development, and meteorological patterns.

WATERSHED DRAINAGE MODELING, CALCASIEU PARISH POLICE JURY, LA. *Engineering intern* who produced a 2-D hydrologic and hydraulic model of the Ward 1 watershed in Calcasieu Parish using HEC-HMS 4.7.1 and HEC-RAS 6.2 with additional simulations on sensitivity, calibration, model stability and performance assessments.

ST. CHARLES PARISH MASTER DRAINAGE PLAN, ST. CHARLES PARISH, LA. *Engineering intern* who developed existing and consequence 2D Hydrologic and Hydraulic (H&H) models for the areas of Montz, Ormond, New Sarpy, and Norco, in order to create Master Drainage Plans for the Parish, as well as presenting these models to residents on behalf of the Parish at public meetings.

OZONE WOODS DRAINAGE, ST. TAMMANY PARISH, LA. *Engineering intern* who developed existing and consequence models of the Ozone Woods neighborhood outside of Slidell, Louisiana, using EPA SWMM, and suggested new culvert sizes and channel cleaning in the neighborhood.

JIRR PROGRAM CONSTRUCTION ADMINISTRATION, NEW ORLEANS, LA. *Engineering intern* who performed construction administration work such as reviewing invoices, daily inspections, and coordinating on-site roadway construction issues from design plans to construction for the City of New Orleans Joint Infrastructure Recovery Request (JIRR) program projects in the neighborhoods of Central City, Lower Ninth Ward, and Gentilly.

CITY OF ALEXANDRIA WATER SYSTEM DIGITALIZATION, ALEXANDRIA, LA. *Engineering intern* who digitized physical plans of the entire drinking water system (including pipe types/sizes, reservoirs, pumps, and water towers) of Alexandria, Louisiana using Civil3D and Bentley's WaterCAD and calibrated using typical water pressures along different pipes in Alexandria.

H&H MODELING //

BROOKE MORRIS, PE, PLA

YEARS OF EXPERIENCE: 9

OFFICE LOCATION: New Orleans, LA

EDUCATION:

- MLA, Landscape Architecture, Louisiana State University, 2015
- BS, Biological Engineering, Louisiana State University, 2011

REGISTRATION:

- Professional Engineer: LA, Civil, #PE0045513, 2021; TX, Civil, #144794, 2022
- Professional Landscape Architect: LA, Landscape, #0743, 2017; TX, Landscape, #3948, 2024; AL, Landscape, #951, 2023

Brooke Morris is both a licensed Civil Engineer and Landscape Architect working from Moffatt & Nichol's creative studio: Waggonner & Ball. She specializes in Gulf Coast urban stormwater management planning, modeling, designing, detailing, and planting to produce multi-functional infrastructure and spaces. She is leading the collaborative design process for the Japhet Creek project and advocated for park updates in conjunction with a bulkhead replacement in Mobile. Brooke is accustomed to identifying and filling gaps on design teams to ensure that interdisciplinary design processes move smoothly and that all elements of a project are coordinated. Brooke served as a stormwater modeling subconsultant with Waggonner & Ball on the New Orleans based Stormwater Opportunities study, City Park Green Infrastructure project, the Gentilly Resilience District, and the Tulane University Stormwater Master Plan.

JAPHET CREEK PHASE II & PEDESTRIAN BRIDG, HOUSTON, TX. Brooke helped develop the winning proposal for this $20.8M construction budget creek restoration, elevated trail, and signature bayou bridge design project. She is now serving as project manager for the project managing client needs, a large interdisciplinary internal team, and nine subconsultants. The project consists of easement negotiations with homeowners to industrial recycling facilities, six cohesive crossings, roughly a half mile of multi-use trail adjacent to delicate ecosystems and steep slopes, H&H studies of existing and proposed conditions for both the 300' wide bayou and Japhet Creek: the last remaining spring fed creek of the region, and balancing creek rehabilitation efforts with user occupancy and placemaking objectives.

COOPER RIVERFRONT PARK, MOBILE, AL. *Landscape architect* responsible for site layout, grading, drainage design, site furnishings, and planting design. She coordinated extensively with structural, civil, and electrical. The project began as an emergency bulkhead replacement but expanded to include an update to the city's premier park abutting the Mobile River.

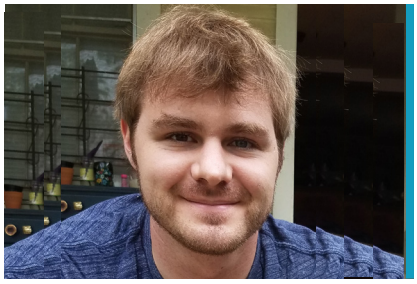
ST ROCH HGMP DRAINAGE UPGRADES & GREEN INFRASTRUCTURE, NEW ORLEANS, LA. *Project designer and landscape architect* for this combination green and gray infrastructure drainage upgrades design project which aimed to reduce flooding in the St. Roch neighborhood. This project had a construction budget over four million dollars. The green infrastructure elements of the project included 106 rain gardens, 17 blocks of pervious parking lanes, and planting of over 120 street trees. As Project Designer, Ms. Morris drew all aspects of the landscape plans, created typical sections for the rain gardens, collaborated with Parks and Parkways to lay out the location of the street trees to avoid right of way conflicts, and incorporated proposed green and gray design elements into the city wide SWMM hydrologic and hydraulic model.

BATTLESHIP NORTH CAROLINA, WILMINGTON, NC. *Landscape architect* responsible for planting design in and around the parking lot. The project's goal is to elevate the re-design the parking lot at the USS NC Battleship to eliminate flooding due to normal tides utilizing natural and green technologies which improves water quality and provides educational opportunities to their visitors.

FIRST VIEW STREET HYDROLOGIC AND HYDRAULIC MODELING STUDY, NORFOLK, VA. *Hydraulic and hydrologic modeler* for the conceptual design of the relocation of a drainage outfall. Ms. Morris collaborated with senior M&N engineers to efficiently build and calibrate a stormwater model capable of testing the feasibility of an outfall relocation under a condensed project timeline.

HAMPTON BOULEVARD DCIP DESIGN STUDY, NORFOLK, VA. Ms. Morris mentored a junior hydraulic and hydrologic modeler to determine the feasibility of tide gates, pipe enlargements, and/ or road raising of Hampton Blvd in Norfolk, VA. This involved building a PCSWMM model and calibrating it based on compound flooding.

CASTILLO DE SAN MARCOS NATIONAL MONUMENT SEA WALL REPAIR, ST. AUGUSTINE, FL. Brooke was responsible for required community engagement as part of the NEPA process for the repair of the sea wall of the oldest masonry fort in the United States. This includes following National Park Service protocol and standards.



H&H MODELING; GRANT WRITING //

TIM NELSON, PG, CFM

YEARS OF EXPERIENCE: 7

OFFICE LOCATION: New Orleans, LA

EDUCATION:

- MS, Earth and Environmental Sciences, University of New Orleans, 2017
- Coastal Engineering Graduate Certificate, University of New Orleans, 2016
- BS, Geological Sciences, University of North Carolina at Chapel Hill, 2013

REGISTRATION:

- Louisiana Board of Professional Geoscientists, Professional Geoscientist, #1395, 2023
- Association of State Floodplain Managers, Certified Floodplain Manager, #US-20-11706, 2020

Tim has seven years of experience in coastal engineering and environmental consulting which includes design of coastal and hydraulic structures, numerical modeling, program management, and resilience and hazard mitigation planning. He has expertise with applications of Delft3D, SWAN, and Xbeach numerical models for analysis of sediment transport and morphology, determination of design conditions, and wave and current analysis for design calculations. He is particularly skilled with process automation including efforts to program geospatial analysis, data processing, reporting, visualizations, and data sharing with Python, ArcPy, SQL, Matlab, and VBA. Additionally, Tim has experience with coastal planning efforts. He has extensive experience with resilience and hazard mitigation plan preparation and has supported numerous efforts to identify coastal hazards, quantify potential losses, and evaluate potential risk reduction solutions. He has provided program management support for master planning efforts, complex risk reduction projects, and funding allocation programs. He has also extensive experience in pursuing grant opportunities and providing funding strategies for state agencies, local governments, and utilities.

COASTAL PROGRAM MANAGEMENT, ST. BERNARD PARISH, LA. *Environmental scientist* supporting management of St. Bernard Parish Government's coastal program. Efforts included advising on matters related to coastal restoration, development of public outreach materials, and pursuit and management of restoration and flood protection funds.

PROGRAM MANAGEMENT FOR THE LOUISIANA WATERSHED INITIATIVE, LA. *Environmental scientist* supporting program management for the Louisiana Watershed Initiative. The program was created following historic flooding in 2016 as a program to coordinate funding, data, and resources across state agencies as a state-wide in an effort to address flood risk and implement mitigation measures on a watershed scale. Efforts included facilitation of coordination between regional and state stakeholders, preparation of program guidance recommendations, and development of tools and resources for public outreach.

NUMERICAL MODELING FOR THE ENVIRONMENTAL IMPACT OF THE MID-BARATARIA DIVERSION, LA. *Environmental scientist* supporting numerical modeling to assess the impact of the proposed Mid-Barataria Sediment Diversion on adjacent water bodies.

PROGRAM MANAGEMENT FOR THE CALCASIEU SHIP CHANNEL SALINITY CONTROL MEASURES PROJECT, CAMERON PARISH, LA. *Environmental scientist* supporting program management for the design of a 5-feature salinity barrier meant to reduce land loss in coastal marshes near Lake Calcasieu. Efforts included project management, information system development, program management plan development, modeling and design review, scoping, risk analysis, and public outreach strategy development while facilitating coordination between multiple design firms, modeling teams, geotechnical subcontractors, and state and local agencies.

COST ESTIMATION AND DATA MANAGEMENT FOR THE 2023 LOUISIANA COASTAL MASTER PLAN, LA. *Environmental scientist* supporting the development of a Python powered PostgreSQL database for cost estimates and preliminary design of several hundred coastal restoration and protection projects to facilitate numeric modeling and prioritization analysis. The program offers guidance for directing $50 billion towards the construction of coastal protection and restoration projects to reduce coastal flood risk, promote sustainable ecosystems, strengthen communities, and support vital coastal industry.

2029 LOUISIANA MASTER PLAN FOR A SUSTAINABLE COAST: ICM IMPROVEMENTS AND INCREASED EFFICIENCY. Supporting effort to update and improve the previously developed statewide Integrated Compartment Model (ICM) for use in the 2029 Coastal Master Plan. Ongoing updates to the modeling approach generally include: development of an idealize model test domain, improvement of model stability and efficiency, updates to model compartments, and updates to model inputs.

SUSTAINABLE RIVERS PROGRAM: ATCHAFALAYA BASIN MODEL UPDATE, BATON ROUGE, LA. Supported development of a state of the art, 2D MIKE 21 FM Hydrodynamic and Salinity Wetland Morphology model of the entire Atchafalaya River Basin, the Wax Lake, and Atchafalaya River Deltas, the Atchafalaya Bay system, and a portion of the Gulf of Mexico to support the USACE and The Nature Conservancy's Sustainable Rivers Program collaboration. Once fully developed, the model will be a state-of-the-art tool for evaluating environmental flows in the Atchafalaya Basin, supporting the transition of Basin management toward environmental and habitat benefits in addition to flood protection.

PERMITTING; GRANT WRITING; OUTREACH EDUCATION & MARKETING MATERIALS //

MEG GOECKER, MS

YEARS OF EXPERIENCE: 21

OFFICE LOCATION: Mobile, AL

EDUCATION:

- Master of Marine Science, University of South Alabama, 2003
- Bachelor of Science, Zoology and Biology, Minor: Chemistry and Mathematics, Michigan State University, 2001

AFFILIATIONS:

- Past Accredited Member, American Association of Underwater Scientists

Meg has 21 years of project management, environmental assessment, and restoration planning experience. She has been a lead planner across a diverse range of projects from watershed planning in Mississippi and Alabama to marine planning and monitoring plan development in Australia and the Gulf of Mexico. As a project manager and senior scientist, she has supported municipalities, NGOs, and state and federal agencies in restoration project development, grant writing, restoration planning, and environmental assessments for projects related to the Deepwater Horizon oil spill. She has taken planning into implementation for numerous large-scale coastal habitat restoration projects including oyster reefs, seagrasses, marsh, and living shorelines projects across the Gulf Coast. These experiences are underpinned by a strong background in marine ecological research including collecting, organizing, evaluating, and reporting on data from coastal and marine ecological ecosystems.

GRANT SUPPORT FOR JEFFERSON PARISH, JEFFERSON PARISH, LA. *Grant writer and environmental scientist* tasked with grant writing for Bucktown Harbor Master Plan implementation funding. Identify appropriate grants, work with the client to assess effort and task breakdown, draft proposals, and coordinate with granting agencies. Successfully co-authored NFWF Coastal Resilience Fund grant to secure engineering and design ($250,000) and construction ($2.5 million) funding. Proposal writing included details on resiliency criteria for the site, budgets, and scope for design and construction.

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION, JEFFERSON PARISH, LA. *QA/QC reviewer* of draft feasibility study reviewing conceptual design, modeling, cost estimating, and overall document formatting. Supported project manager in the development of presentation to client and responses to project alternatives.

LIGHTNING POINT SHORELINE RESTORATION AND LONG-TERM SITE SUSTAINABILITY PLAN, BAYOU LA BATRE, AL. *Project manager* who successfully led engineering and science team for modeling, engineering, permitting support, and design services for a large-scale habitat restoration project. Led the team to design 1.5 miles of segmented, breakwaters to protect against the dominant wind direction and maximize sediment accretion and retention. The impacts of relative sea level rise on wave heights were modeled and used to determine the breakwater dimensions necessary to protect the shoreline. Led team to design 40 acres of marsh habitat to be built between the breakwaters and existing shoreline using dredged material from nearby borrow areas. The marsh was designed with tidal creeks to mimic the nearby natural marsh, provide for flushing, and provide a hydrologic connection between the current and newly created marsh area. Local wildlife experts were consulted to ensure the designed marsh will provide appropriate habitat for desired species. Led engineering team to create managed access features which included design of a 75-spot truck-trailer LID parking lot with green infrastructure elements, (e.g., bioretention cells, pervious parking stalls, and a bioswale). A foot path and integrated overlook were also designed to allow for access to the site. Led science team to secure all federal and state permits with USACE, ADEM, and ADCNR. Provided stakeholder and public meeting support. Led team to provide full construction bid documents as well as assisted in proposals for funding the full project. Leading construction administration, supervision, and inspection for the $14 million construction contract.

UPPER MOBILE BAY WETLANDS CREATION PROJECT MOBILE, AL. *Environmental scientist/outreach task leader* contracted by the Alabama State Port Authority to conduct an EA for beneficial reuse of dredged material to create a 1200-acre wetland. Led scientific team in analyses for/drafting of an EA to determine project's environmental consequences on physical, biological, and human resources. Lead scientist for USACE individual permit application including federal coordination on project environmental benefits. Supported design task to verify environmental compliance for permit application & habitat restoration project components. Outreach Plan Team Leader to engage entities on project benefits through website, letters, fact sheets, emails, social media, and one-on-one and public meetings with concerned groups.

ALOE BAY LIVING SHORELINE, DAUPHIN ISLAND, AL. *Client and project manager* who led team in grant writing for both Gulf of Mexico Energy Security Act and National Fish and Wildlife Foundation Emergency Coastal Resilience Grant to secure $5.5M in engineering and design and construction funding for this shoreline restoration project. Coordinated sub-consultants for field investigations and led team in data analyses, outreach, plan development, cost estimating, and project management.

GRANT WRITING //

JESSICA McINTYRE, PE

YEARS OF EXPERIENCE: 25

OFFICE LOCATION: Raleigh, NC

EDUCATION:

» ME, Civil Engineering, University of Florida, 1999
» BS, Civil Engineering, Cum Laude, North Carolina State University, 1996
» BA, Environmental Ethics, Policy & Science, Cum Laude, North Carolina State University, 1996

REGISTRATION

» Professional Engineer: Florida, #58695, 2002

AFFILIATIONS

» PIANC USA Commissioner
» Urban Land Institute

Jessica is a waterfront structural engineer specializing in the planning and design of recreational and waterfront development projects. Her 25 years of experience comprises concept development and feasibility, market and economic studies, grant application and implementation, environmental permitting, evaluation and repair of existing facilities, design of new facilities, and bid phase and construction support services. She provides these services on a wide range of marina, boat launch facilities, waterfront parks, and other types of waterfront development projects primarily in the U.S. Her grant experience spans 18 years providing grant investigation, application, and implementation support for more than ten distinct projects along the eastern seaboard and Gulf Coast. In addition to her project experience, Jessica has been actively involved in PIANC for more than 18 years, specifically in the Young Professional and Recreational Navigation Commissions, and currently as Commissioner for PIANC USA.

BUCKTOWN HARBOR VISION PLAN, JEFFERSON PARISH, NEW ORLEANS, LA. *Waterfront engineer and grant specialist* for the master plan for the redevelopment of the historical Bucktown Harbor into a recreational destination for the local community and visitors to the New Orleans area. Developed a grant implementation strategy for project components identified during the master planning efforts. Prepared grant application for the FWS Boating Infrastructure Grant Program for FY21 (awarded) for a new dock for transient, commercial, and recreational boater use.

NEW ORLEANS MUNICIPAL YACHT HARBOR, NEW ORLEANS, LA. *Waterfront engineer* for the replacement of a slip marina severely damaged during Katrina in 2005. The city received FEMA funding for the replacement of the more than 30-year-old concrete and timber fixed docks with a floating dock system. Dock design included attenuator floats at the outer edges to mitigate long period wave energy overtopping the breakwater and entering the basin. Other design features included dredging of the entrance channel, a new elevated comfort station at the East Entry and arched gateway at the West Entry, replacement of a portion of the bulkhead, and site improvements in the parking lots. Removed concrete pier sections and dredge material are planned to be used for the breakwater improvements project, also in receipt of FEMA funding. Construction is expected to commence fall of 2017 and be completed in two phases so existing tenants may remain at the marina during construction.

HARBOR EAST MARINA, BALTIMORE, MD. *Project engineer* responsible for grant application services and preparation of Design-Build Request for Bid Proposal package and regulatory permit application packages for proposed marina replacement and dredging project in the inner harbor of Baltimore. Worked with the city and marina to identify potential funding sources for the project and prepared grant application packages for the State Waterway Improvement Fund and FWS Boating Infrastructure Grant Program – a total of four grant applications totaling $3 million in requested funds, more than 50% of the estimated project costs. The city was awarded a total of $2.5 million from both programs.

LYNNHAVEN MUNICIPAL MARINA RENOVATION PLAN, VIRGINIA BEACH, VA. *Project engineer* for concept development of rehabilitation of Lynnhaven Municipal Marina owned and operated by the City of Virginia Beach. Tasks included identification of potential funding (grant) opportunities and development of a concept for replacement of marina to better meet the needs of the local boating community.

ROBINSON TERMINAL SOUTH MARINE ENGINEERING, ALEXANDRIA, VA. *Project engineer* responsible for grant application services for proposed waterside improvements at the existing Robinson Terminal South. For the proposed multi-use waterfront redevelopment project along the Potomac River, prepared a grant application package for FWS Boating Infrastructure Grant Program funding for transient docking at a historical pier. The project was awarded $665,000 in the FY16 funding cycle.

TAMPA CONVENTION CENTER DOCKING FACILITY, TAMPA, FL. *Project manager and urban waterfront engineer* for new transient docking facility in downtown Tampa. Provided permit application, design, construction document preparation, grant application, bid assistance, and construction support services for a transient docking facility at the Tampa Convention Center for vessels 26 feet to 60 feet long. Assisted the city in the preparation of the U.S. FWS grant application for the transient dock facility; the city was awarded Boating Infrastructure Grant Program funding in 2002.

OUTREACH EDUCATION & MARKETING MATERIALS //

AMANDA ZULLO

YEARS OF EXPERIENCE: 13

OFFICE LOCATION: Charlotte, NC

EDUCATION:

- MUD, Urban Design, University of North Carolina, Charlotte, 2011
- BArch, Architecture, University of North Carolina, Charlotte, 2008
- BA, Architecture, University of North Carolina, Charlotte, 2007

AFFILIATIONS:

- American Planning Association (2019-present)

Amanda's 13 years of public outreach and design experience culminates at the intersection of architecture, planning, urban design, and real estate development. Her passion to work with communities to plan for their future and create spaces with a sensitivity to cultural, historical, and environmental contexts has led her work on an array of local and global project types. Amanda crafts and implements outreach strategies for projects focused on resiliency, hazard mitigation, economic development, and urban revitalization, using both virtual (including Americans with Disabilities Act compliance) and in-person approaches to ensure social and equitable inclusion of the respected community. Additionally, her breadth of work incorporates the facilitation of community outreach in the strategic planning and visioning of public and private urban waterfronts, tourism destinations, mixed-use developments, streetscape revitalization, recreation and greenway facilities, and public open space projects.

BUCKTOWN HARBOR VISION PLAN, JEFFERSON PARISH, NEW ORLEANS, LA. *Designer and community outreach analyst* for the renewal of Jefferson Parish's Bucktown Harbor Marina vision plan, rejuvenating Bucktown's 30-acre parcel along Lake Pontchartrain into an active, public, and vibrant recreational destination. Project responsibilities involve varied community outreach engagements to establish a program and framework for the design development of recreationally based upland concepts, in-water, and associated commercial facilities.

BAYOU LA BATRE CITY DOCKS REDEVELOPMENT PROJECT, CITY DOCKS, AL. *Community outreach analyst* for the feasibility study, economic analysis, and master plan. Most of the of engagement was done online extracting public input via tools such as a website and online survey. The website garnered 5,959 views, 499 survey participants produced 17,325 responses and 1,170 comments. 222 subscribers tuned in to project updates. This input will help shape the future for City Docks and secure grant funding for phase two's engineering and design.

CITY OF ELIZABETH CITY - WATERFRONT MASTER PLAN AND CHARLES CREEK FLOOD MITIGATION PLAN, ELIZABETH CITY, NC. *Designer and community outreach analyst* for area-wide vision and master planning for the enhancement of the downtown, waterfront precinct, and Charles Creek areas. Project responsibilities involve a rigorous review of community engagement, economic and environmental analysis to establish current site context, natural environment, resident culture, user needs, and project metrics. Based on the review of site analysis results, follow on planning and design work involves the assemblage of a long range, actionable conceptual vision plan for the city's 1.2 miles of the downtown waterfront.

CITY OF NEW BERN RESILIENCY AND HAZARD MITIGATION, NEW BERN, NC. *Public outreach lead* for the resiliency plan effort. Project responsibilities include developing a Public Involvement Plan and series of deliverables inclusive of website, social media campaign, public survey, public and stakeholder meetings, as well as authorship and editor of the Plan.

NORTH CAROLINA RESILIENT COASTAL COMMUNITIES PROGRAM, NC. *Public outreach lead* for the resiliency plan effort to support the towns of Leland, Navassa, and Sunset Beach. Project responsibilities include developing a Public Involvement Plan and series of deliverables for each of the towns inclusive of website, social media campaign, public survey, public meeting, and outreach material.

PORT OF FORT PIERCE MASTER PLAN, PENSACOLA, FL. *Designer and community outreach analyst* for the Port of Fort Pierce Master Plan. Successfully secured public input at the beginning of the pandemic using mostly virtual methods obtaining 8,940 views; 624 participants; 7,513 responses; 702 comments; and 356 subscribers across two engagement periods. Reached nearly 95,361 households. This input will help shape the plan for Port of Fort Pierce that will provide a truly diverse working waterfront vision for the future.

PORT OF PENSACOLA – VISION PLAN & REINVESTMENT STRATEGY, PENSACOLA, FL. *Designer and community outreach analyst* for the Port of Pensacola vision planning. Successfully secured public input within 24 hours after open house meetings on June 26, 2018 with some 116 participants, 3,848 views, 220 participants, 1,922 responses, 210 comments, and 100 subscribers. Reached nearly 123,500 households. This input will help shape the plan for Port of Pensacola that will provide a compelling, community-driven vision for the future.

OUTREACH EDUCATION & MARKETING MATERIALS //

SCOTT LAGUEUX,

AICP, LEED AP, ENV SP

YEARS OF EXPERIENCE: 39

OFFICE LOCATION: Charlotte, NC

EDUCATION:

- MA, Urban and Regional Planning, University of Florida, 2002
- BS, Business Administration, University of Florida, 1991

REGISTRATIONS:

- American Institute of Certified Planners, #95533, 1998
- LEED AP, #10042951, 2011
- Envision Sustainability Professional, 2020

AFFILIATIONS:

- American Planning Association
- USGBC, Charlotte Region
- Urban Land Institute
- Our Towns Habitat for Humanity (Charlotte)
- University of Florida Professional Advisory Council, College of Design + Construction and Planning, Board Member

With 39 years as a planner, designer, and advisor, Scott has led a broad spectrum of project engagements, from feasibility and strategic planning initiatives to spearheading multi-disciplinary design and engineering teams involved in large scale destination development and coastal transformations. Scott embraces his role as a translator of client need and inherent site value into clear, compelling visions of the future underpinned with actionable plans for achievement. His work spans the U.S. and over 80 countries, with clientele ranging from cities, ports, water dependent industries, and developers.

BUCKTOWN HARBOR VISION PLAN, JEFFERSON PARISH, LA. *Project manager and lead planner* for the renewal of Jefferson Parish's Bucktown Harbor Marina vision plan, revitalizing a 30-acre parcel along Lake Pontchartrain into an active, public, and vibrant recreational destination. Project responsibilities involve varied community outreach engagements to establish a program and framework for the design development of recreationally based upland concepts, in-water, and associated commercial facilities.

LIGHTNING POINT SHORELINE RESTORATION AND LONG-TERM SITE SUSTAINABILITY PLAN, BAYOU LA BATRE, AL. *Lead planner* for the development of a 7.5-acre parking lot to accommodate 65 truck/boat trailer parking spaces. The parking lot design features pervious interlocking pavers to filter and direct stormwater underground and green infrastructure stormwater bioswales to filter stormwater run-off before entering Mississippi Sound. Project responsibilities included the planning and design of upland facilities along the existing marina edge, namely, the study and design of LID treatments, points of managed access, and movement of pedestrian and vehicular circulation into and within the site limits.

INCREASE ATCHAFALAYA FLOW TO TERREBONNE PROJECT, BATON ROUGE, LA. *Public outreach support expert* associated with stakeholder outreach for communities, residences, business owners, and other stakeholders associated with the 30% design phase of infrastructure associated with the installation of a diversion gate structure along the Tiger Island Levee and dredging of the Gulf Intracoastal Waterway (GIWW) from the Bayou Boeuf Lock to the intersection of the GIWW and Bayou Chene.

MOBILE DOWNTOWN RIVERFRONT DEVELOPMENT, MOBILE, AL. *Lead planner* of a conceptual Master Plan for the Waterfront Gateway to Downtown Mobile. The project aims to promote increased access to active greenspace for recreational and passive leisure activities. Incorporating green infrastructure, and passive stormwater Best Management Practices into the design, the project serves to enhance a creative combination of greenscaping and landscape design.

PORT OF FORT PIERCE MASTER PLAN, ST. LUCIE COUNTY, FL. *Lead planner* for master planning and public engagement efforts for the Port of Fort Pierce. As a sub-consultant, M&N assisted the port in updating its long range plan to identify and guide investment to ensure alignment with local comprehensive planning and other regional initiatives. The result was a multifaceted vision for the port that advances long-term initiatives such as creation of the Treasure Coast's premier center for yacht, shipbuilding, and related marine repair, overhaul, and maintenance facilities; investment in county-owned Harbour Pointe Park to emerge as a public marina, boat ramp, and upgraded park; and advancement of a new wharf and surrounding uplands dedicated to supporting small import/export marine-dependent businesses.

LONG RANGE LAND USE PLAN UPDATE FOR THE TOWN OF NEW BERN, NC. *Project manager and lead planner* responsible for the 2021/22 Land Use Plan Update, focused on identifying and framing issues and reviewing key locations requiring update or preservation. Ensuring the foundation of services are in place—or planned for—which allows community growth and innovative land use arrangements to be contemplated.

CROWN BAY AND THE SUB BASE DISTRICT VISION PLAN, ST. THOMAS, U.S. VIRGIN ISLANDS. *Project manager and lead planner* responsible for renewal of the more than 92-acre (37.2 HA) Crown Bay Center and related uplands and cruise facilities. The plan seeks to improve the arrangement of commercial areas, expand public access and recreational corridors, rethink mobility flows, and set the stage for incremental expansion of cruise, marina, and other water dependent uses. Included extensive public and cruise guest engagement.

PORT OF PENSACOLA VISION PLAN & REINVESTMENT STRATEGY, PENSACOLA, FL. *Lead planner* responsible for preparation of a comprehensive waterfront master plan and reinvestment strategy for the Port of Pensacola and adjoining waterfront parcels, recasting the 50-acre (20.2 HA) Port as a hybrid of maritime activities alongside City and other compatible public uses. Work included extensive case study research to inform the Port as to how other waterfronts have evolved to take greater part in the blue economy and "future-proof" key land parcels. Extensive public outreach underpinned all stages of master plan shaping and assembly.

OUTREACH EDUCATION & MARKETING MATERIALS //

DELANEY MCGUINNESS, PLA, NGICP

YEARS OF EXPERIENCE: 6

OFFICE LOCATION: New Orleans, LA

EDUCATION:

» BA, Landscape Architecture, Louisiana State University, 2018

REGISTRATIONS:

» Registered Architect: LA, Landscape Architect, #M-329; VA, Landscape Architect, #0406002296
» National Green Infrastructure Certification Program (NGICP), Certified Professional, #1239, 2021

Delaney is a licensed landscape architect with primary experience in stormwater management, coastal planning, and public engagement. Delaney draws on her fine arts background to connect with people in her community and beyond to cultivate an actionable, shared understanding of our role in climate adaptation. Her experience includes implementing pragmatic resilience projects across multiple phases and scales in her hometown of New Orleans. Practicing landscape architecture locally, she created an accessible stormwater management planning strategy with the Tangipahoa Parish Government that could be applied across watersheds throughout the region and leveraged to obtain impactful funding. She completed park projects ranging from a beloved one-acre neighborhood park to a master plan of a 500-acre regional park.

MOBILE RIVERFRONT REDEVELOPMENT, MOBILE, AL. *Landscape architect* assisting with design and construction documentation of a riverfront park rennovation. Identified opportunities to capitalize on an emergency river bulkhead renovation by enhancing the adjacent public space, reusing materials, planting a native landscape, and improving a community event space. Created a native plant palette and planting design drawings, integrated large-scale event considerations into site design, and assisted with sequencing of construction plans between heavy marine contractors and landscape contractors.

TANGIPAHOA PARISH STORMWATER MANAGEMENT PLANNING STUDY, LAND DEVELOPMENT REGULATIONS UPDATE, AND STORMWATER MANAGEMENT SITES DESIGN, TANGIPAHOA PARISH, LA. *Project manager and landscape architect* on multiple stormwater management efforts for the Tangipahoa Parish Government. Project manager of an initial stormwater management study on which Moffatt & Nichol was a subconsultant. The study created an efficient, pragmatic approach to a vulnerability assessment, stormwater management plan, and stormwater monitoring network design via GIS modeling. The study yielded funding for additional projects to make updates to the Parish development code and to a site design project of pilot stormwater storage sites. Served as PM on these subsequent projects working toward funding for stormwater management plan implementation.

BAYOU METAIRIE PARK, METAIRIE, LA. *Project manager and landscape architect* for a stormwater management neighborhood park in Jefferson Parish Council District 5. Lead engagement efforts to educate the community on green infrastructure and build consensus on site design. Developed a design that addresses localized flooding and preserves open greenspace by utilizing bioretention areas, native trees, and permeable paving to increase stormwater storage capacity. Bayou Metairie Park serves as a precedent project for nature-based solutions and multi-benefit stormwater infrastructure for the Parish—it is the first of its kind and has already catalyzed multiple green infrastructure projects that constituents now advocate for.

NEW ORLEANS CITY PARK WETLAND EXPANSION, NEW ORLEANS, LA. *Project manager and landscape architect* on a constructed wetland expansion project to increase stormwater storage capacity from the New Orleans City Park festival grounds and clear invasive plant species. Improvements increased the wetland footprint by an additional 4,000 square feet, vastly increased site access by removing invasive planting, repairing pedestrian circulation, and adding over an acre of native pollinator meadow around the existing wetland perimeter. Also served as an organizer of a volunteer-based planting effort.

COMMUNITY ADAPTATION PROGRAM, GENTILLY RESILIENCE DISTRICT, NEW ORLEANS, LA. *Landscape architect and community engagement team member* on a New Orleans Redevelopment Authority residential stormwater management project implementation program. The U.S. Department of Housing and Urban Development distributed five million dollars of funding via the National Disaster Resilience Competition to install stormwater management interventions in owner-occupied single family homes with household incomes at or below 80% of area median income located within an identified resilience district in the City of New Orleans. The average project covered an installation of $10,000-25,000 at no cost to the homeowner. Worked on a design team that assessed, designed, and oversaw construction of interventions on over 100 properties.

RETREE LAKE CHARLES CITYWIDE REFORESTATION PLAN, LAKE CHARLES, LA. *Project manager and landscape architect* on a citywide urban forest and park restoration project. Performed assessments of five City of Lake Charles Parks to determine the extent of hurricane damage and potential to maximize investment of available recovery funds, local commercial business mitigation funds, and capital funds to improve the parks and thus biodiversity, future storm resilience, and to better serve the community. Created conceptual project priorities for each park and order of magnitude cost estimates to assist the city and the public in prioritizing improvements and understanding actionable steps to implementation.

OUTREACH EDUCATION & MARKETING MATERIALS //

ANDY STERNAD, AICP, AIA

YEARS OF EXPERIENCE: 11

OFFICE LOCATION: New Orleans, LA

EDUCATION:

- MArch, Architecture, Yale University, 2016
- BA, Architecture, Washington University in St. Louis, 2009

REGISTRATIONS:

- Registered Architect: LA, Architect, #10110, 2024; FL, Architect, #AR101610, 2021; SC, Architect, #10797, 2021; CT, Architect, #ARI.001560, 2023
- AICP Planner, #381223

Andy leads Waggonner & Ball's environments practice at the intersection of architecture, landscape, and urban design. He focuses on urban- and building-scale solutions that reveal the character of a place and integrate issues of climate, nature, economy, and people. Andy works to build long-term collaborative partnerships between clients, communities, designers, and technical experts. Andy has played an integral role in developing and refining the firm's Dutch Dialogues™ and Living With Water® approaches to integrated, adaptive design in New Orleans, Houston, and Charleston, efforts that have set a national standard for collaborative practice and have inspired similar programs across the country, from Rebuild by Design to Resilience by Design. He was a lead author of the Greater New Orleans Urban Water Plan, which catalyzed a regional shift towards sustainable and resilient water management. Andy led the firm's Water As Leverage project in Chennai, India, a Dutch government program in partnership with the Asia Infrastructure Development Bank (AIDB) to build local knowledge around resilient infrastructure. At home, he has overseen the firm's work from planning to construction on the Isle de Jean Charles community-led resettlement, the first of its kind in the U.S., and the 80-acre Gretna City Park resilient stormwater redesign, the first built pilot project of Louisiana's LA SAFE adaptation strategy.

LOUISIANA WATER PLANNING PROJECTS, STATE OF LOUISIANA, SIX COASTAL PARISHES AND GRETNA, LA. Helped lead a multi-disciplinary team in resilience planning, community engagement, and long-term visioning for six parishes plus conceptual design of multiple pilot projects for NDR-funded Louisiana's strategic adaptations for future environments (LA SAFE) strategy, a 50-year vision for resilient urban development corresponding to the state's coastal master plan.

GRETNA CITY PARK, GRETNA, LA. Led the concept development and construction oversight of the Gretna City Park resilient stormwater redesign, the first LA SAFE pilot project to break ground. The Park's appearance and function are defined by water, and upgrades are designed to celebrate this important asset. The landscape design approach starts with stormwater and layers on improvements to access, passive recreational opportunities, and habitat & water quality. Space is created in the Park for stormwater storage now, with capacity that serves as an enabling project for future flood mitigation.

ISLE DE JEAN CHARLES RESETTLEMENT, TERREBONNE PARISH, LA. Leads the firm's design, engagement, and construction administration work on the Isle de Jean Charles resettlement (2017-ongoing) to help residents of a vulnerable historic coastal community reestablish their social and cultural fabric together on higher, safer ground. Described as America's first climate refugees by the New York Times, a label the community disputes, the project serves as a successful and cautionary prototype for future managed retreat programs.

GREATER NEW ORLEANS URBAN WATER PLAN & PROJECT IMPLEMENTATION, NEW ORLEANS, LA. After co-organizing the firm's final Dutch Dialogues New Orleans design charrette (2010), organized 22 national and international firms, co-authored the vision, urban design, and implementation documents, and coordinated two dozen reports for the Greater New Orleans Urban Water Plan (2013), awarded the APA National Planning Excellence Award for environmental planning. Currently helps lead overall district planning for the Gentilly Resilience District (2018-ongoing), the first implemented program of the water plan, working with the city to guide the development and integration of concurrent projects with a total $141 million construction value.

CHARLESTON WATER PLANNING PROJECTS, CHARLESTON, SC. Led the WB team for Dutch Dialogues Charleston, a series of collaborative design workshops and stakeholder engagements, and co-authored the final report and presentation to the city (2019). Led the city plan 2020 land & water analysis to develop the underlying data and planning recommendations for the city's comprehensive plan update (2021). Then led the firm's perimeter protection analysis of the U.S. Army Corps Of Engineers (USACE) coastal risk management plan, a proposal to encircle the historic peninsula with a storm surge flood barrier to help the city articulate and advance multiple goals, including integrated stormwater management, green infrastructure, and historic and cultural preservation (2021). Currently preparing to lead a 10+ firm team to develop the Charleston water plan, an effort to shape design and decision-making for the city's future climate-resilient infrastructure.

RESILIENT READY TAMPA BAY PROGRAM, METRO TAMPA, FL. Served as lead consultant for Resilient Ready Tampa Bay Program (2022), a charrette-based series to prototype integrated methods of climate-adaptive infrastructure development for regional governments and municipalities. Assembled the consultant team, organized and led an intensive two-week design charrette across three study areas, and authored the program report.

OUTREACH EDUCATION & MARKETING MATERIALS //

KELLI CUNNINGHAM, AIA, ASLA, PLA

YEARS OF EXPERIENCE: 8

OFFICE LOCATION: New Orleans, LA

EDUCATION:

- M. ARCH, Architecture, Louisiana State University
- MLA, Landscape Architecture, Louisiana State University
- BA, Economics, University Of South Florida

REGISTRATIONS:

- Registered Architect: LA,Architect, #9096, 2019; LA, Landscape Architect, #70130, 2021; TX, Architect, #31404, 2023; CT, Architect, #0015602, 2023

AFFILIATIONS:

- American Institute of Architects
- American Society of Landscape
- NCARB Certified
- CLARB Certified

Kelli is a leader in Waggonner & Ball's resilience practice, working across disciplines and scales to create holistic design strategies to anticipate and mitigate the effects of climate change on coastal urban environments. She works to build long-term client and collaborators relationships and is involved in the project definition phase, helping clients identify their needs and set the course for Waggonner & Ball to deliver layered, particular design strategies and solutions. Kelli is spearheading the firm's efforts in Coastal Connecticut on the Resilient Bridgeport project comprised of the Rebuild by Design funded stormwater park and the National Disaster Resilience funded flood risk reduction program. The ongoing Resilient Bridgeport project improves the resilience of a historic coastal neighborhood through the integration coastal flood defense system into the historic, Olmsted designed Seaside Park. She has participated in many of the office's CDBG-DR & CDBG-MIT funded projects. She served as landscape team lead for the BCIS Wangjing Campus and Banbidian Park in Beijing. Kelli has also directed local landscape projects and is currently stewarding Mirabeau Water Garden to implementation as part of the firm's work in the Gentilly Resilience District.

MOBILE CITY-WIDE RESILIENCE ASSESSMENT & PLAN, MOBILE, AL. Working with The Water Institute to facilitate multiple working sessions with City leadership, City staff, approximately 60 stakeholders and subject matter experts across four Advisory Groups.

NORFOLK NDR OHIO CREEK WATERSHED PROJECT, NORFOLK, VA. *Designer* for participation in resilience planning workshops during the project definition phase. Facilitated stakeholder engagement conversations and created renderings of preliminary project designs for the living shoreline, levee alignments, green infrastructure, stormwater park and pump station components.

RESILIENT BRIDGEPORT, REBUILD BY DESIGN STORMWATER PARK, BRIDGEPORT CT. *Project manager* for the Rebuild by Design HUD CDBG-DR funded stormwater park and pump station. Beginning with a pilot project identification phase, Kelli has been involved in all project planning, design and management tasks including development of design alternatives, stakeholder and public engagement, and final design and detailing. This project is expected to go into construction in 2025.

MIRABEAU WATER GARDEN, NEW ORLEANS, LA. *Interim project manager* for the Mirabeau Water Garden, a 25-acre stormwater park and pump station in the Gentilly Neighborhood of New Orleans. This project, funded through FEMA Hazard Mitigation Grant Program is currently under construction and once completed will be the first built project from the Greater New Orleans Urban Water Plan and the cornerstone project of the NDR funded Gentilly Resilience District. Assisted the City in bid document coordination with ongoing stormwater projects and finalizing Bid Documents. This project is currently under construction, completion expected fall 2025.

GENTILLY RESILIENCE DISTRICT, NEW ORLEANS, LA. *Architect and landscape architect* assisted with the district design and stakeholder outreach for the Gentilly Resilience District. This CDBG-DR funded project, centered on the concept of "blue and green networks," the Gentilly Resilience District is the implementation process of innovative design concepts that Waggonner & Ball developed during the Dutch Dialogues and Greater New Orleans Urban Water Plan. In this 4,500 acre, primarily low-lying urban neighborhood, the vision is a focused, holistic, and multi-layered investment in green infrastructure and public spaces to encourage infill development.

RIPPLE EFFECT: RIPPLES TO WAVES CURRICULUM, NEW ORLEANS, LA. *Architect and landscape architect* supporting the collaborative design, testing of curriculum for two standards-aligned water literacy courses to localize OpenSciEd curriculum for 9th grade environmental science courses. Support activity development and served as an expert in teaching training workshops.

OUTREACH EDUCATION & MARKETING MATERIALS //

SOPHIE RIEDEL, PLA

YEARS OF EXPERIENCE: 7

OFFICE LOCATION: New Orleans, LA

EDUCATION:

» BA, Architecture, Carnegie Mellon University, 2017

REGISTRATIONS:

» Professional Landscape Architect: LA, 24-0838, 2024

Sophie is a landscape architect and a project leader in Waggonner & Ball's resilience practice, with a focus on research-driven design, from regional scale planning through to construction. She has over five years' experience working on a range of award-winning projects, and she is spearheading emerging design research efforts with a focus on the intersection of landscape, architecture, and engineering of water systems. Sophie recently completed the Louisiana Master Naturalist of Greater New Orleans training program.

COASTAL PROTECTION AND RESTORATION AUTHORITY 2023 MASTER PLAN, LOUISIANA GULF COAST, LA. *Senior designer* producing and overseeing the translation of technical, large-scale interventions to the public through drawing of coastal project types, the creation of project, parish and regional fact sheets, and the development of the print masterplan layout and graphic design. For the 2023 Coastal Master Plan, SCAPE collaborated with CPRA to develop an overarching visual communications strategy and graphic identity underpinning the document, as well as collateral for outreach and engagement, including model output maps, aerial regional views, explanatory diagrams, data visualizations, and fact sheets for each project, parish, community, and region.

BROOKLEY BY THE BAY, MOBILE, AL. *Project manager and senior designer* of 98-acre waterfront park masterplan, Brookley by the Bay. The final plan presents a collective vision guided by input from a diverse coalition of community members, local stakeholder organizations, and project partners. The future waterfront park presents an opportunity for people to reconnect with the water's edge and immerse themselves within the rich, bio-diverse ecosystems that once defined and sustained the region.

CARPENTER CREEK & BAYOU TEXAR WATERSHED MANAGEMENT PLAN, PENSACOLA, FL. *Senior designer and later project manager* collaborating with team lead, Escambia County, and the City of Pensacola to develop a long-term watershed management plan. Lead the later phases of the project engagement with interactive multi-media online tools during COVID-19 and oversaw the design and coordination of landscape components of the plan recommendations and catalytic site development to reflect community input. The plan addresses key risks affecting the watershed today—pollution, erosion, flooding, and disconnection from adjacent communities—funded primarily through the post-Deepwater Horizon RESTORE Act. Following an extensive in-person and virtual engagement process with residents and stakeholders, the team developed a series of recommendations for 15 potential restoration sites. The recommendations ground each of these sites in the Creek's cultural legacy and enhance its open space potential through trails, water access, and other programming opportunities throughout its length. The plan includes three catalytic projects, including the site of Jenny's Swimming Hole, a social hub for Black Pensacolans during the Jim Crow era, where interpretive features, installations, and other engaging landscape elements can educate visitors about the site's history and lead them down to the restored creek edge.

ST. PAUL'S BLUE/GREENWAY, NORFOLK, VA. *Project architect* managing the design team with a focus on the architecture and architectural water elements, in collaboration with the site planning and stormwater management. The project daylight an historic creek and creates a multi-benefit, stormwater park in the heart of the HUD Choice Neighborhoods Initiative St. Paul's Transformation Area.

THE CHATTAHOOCHEE RIVERLANDS, ATLANTA, GA. *Landscape designer* working with a large and complex set of stakeholders to develop unique public engagement opportunities, leading the development of interactive tools for participatory storytelling, and collaborating on designs for destinations along the river that reflect community feedback. The Chattahoochee River Lands is a vision to reunite the river with the Metro Atlanta Region and link suburban, urban, and rural communities into a continuous public realm along a proposed 125-mile greenway, blueway, and network of destinations that centers the River as a regional resource.

RESILIENT BY DESIGN: PUBLIC SEDIMENT FOR ALAMEDA CREEK, BAY AREA, CA. *Landscape designer* assisting with public engagement for phase II of the Resilient by Design proposal for the Bay Area Challenge. Public Sediment for Alameda Creek is a watershed-scale climate adaptation and open space vision that addresses sea-level rise, drowning bayland ecosystems and sediment scarcity along the edges of Fremont, Union City, and Newark, California.

APPENDIX B. REPRESENTATIVE PROJECTS

Gretna Resilience District Gretna City Park Kickstart, Gretna, LA

APPENDIX B //

REPRESENTATIVE PROJECTS

BUCKTOWN LIVING SHORELINE FEASIBILITY, ENGINEERING AND DESIGN, AND CONSTRUCTION ADMINISTRATION // JEFFERSON PARISH, LA

The armored shoreline on the south shore of Lake Pontchartrain is subjected to erosive wave action, leaving the adjacent levee, coastal community, and infrastructure vulnerable. The Jefferson Parish Ecosystem and Coastal Management department retained M&N to perform a feasibility study and engineering and design (ongoing) for an integrated approach to:

- Enhance shoreline protection and reduce erosion
- Rebuild the previously existing riparian habitat as the natural first line of defense against wave activity and rising sea levels
- Improve the resilience of the Jefferson Parish Lake Pontchartrain and Vicinity (LPV) Hurricane Storm Damage and Risk Reduction System (HSDRRS)

M&N performed a feasibility study on approximately 7,800 LF of the south shoreline of Lake Pontchartrain. M&N characterized the site wave climate using a regional spectral wave model capable of simulating the wind generation, offshore propagation, and nearshore transformation of waves. Statistical analysis of model results and input boundary conditions determined the wave conditions at the project site associated with different frequencies of occurrence. Additional advanced Boussinesq wave modeling and analysis was used to determine the wave-structure interaction at the breakwater features for both operational and extreme conditions and characterize the breakwater wave transmission and wave runup reduction performance. The modeling aided in the determination of the approximate breakwater crest elevation and armor stone sizing, which together informed the schematic design so that approximate quantities and costs could be determined.

CLIENT

Jefferson Parish

RELEVANT FEATURES

- Jefferson Parish project
- Coastal planning and design
- Permitting
- Marsh & ridge restoration
- Shoreline stabilization and protection
- Living shoreline design
- H&H Modeling
- Biological/environmental assessment of wetlands
- Design analysis and reports
- Technical evaluations
- Cost estimates
- Field investigations
- Coastal grant writing
- Outreach & education
- Survey
- Geotechnical engineering

Several alternatives were evaluated by the project team and Jefferson Parish. The selected alternative currently being constructed is a living shoreline project that incorporates marsh creation and shoreline protection which will:

» Construct approximately 4,500 LF of breakwaters to attenuate wave activity and protect the existing shoreline and levee from erosion due to typical lake tidal and wave action
» Create approximately 33 acres of heterogeneous marsh and tidal creek habitat shoreward of the breakwaters
» Include a kayakable blueway situated on the leeward side of the breakwaters, providing a protected recreation area for paddling activities.

The project introduces approximately 33 acres of habitat, including 19 acres of intertidal marsh and 14 acres of upland scrub-shrub, tidal creeks, and protect aquatic habitat. The design of the habitat includes nature-based features that mimic the characteristics of natural features, such as designing tidal creeks to simulate natural systems. To create this habitat, approximately 250,000 CYDS of material from an offshore borrow site will be hydraulically dredged and pumped to the project site. The borrow site is approximately 2-2.5 miles from the project site and is composed of lake bottom material. The borrow area is approximately 100 acres, 3,250-feet-long and 1,300-feet-wide. The total volume of material within the borrow site was calculated to be 1,420,301 CYDS. This borrow area includes more material than is needed for this project and could be used for future marsh creation projects in the area.

Nine curvilinear breakwaters aligned at approximately 5 to 6 feet contour will protect the habitat. Following the feasibility study, wave conditions at the site were monitored and the site-specific data were used to update the existing mike21 hydrodynamic model. Results of the modeling were used to further evaluate and determine the appropriate breakwater sizing. The breakwaters have been designed with a crest elevation of more than 3.5 feet, which will settle to a design crest elevation of more than 2 feet NAVD88. The annual probability of exceedance of the breakwaters is expected to be 5%. Breakwaters will be constructed with a crest width of 5 feet, 3:1 (horizontal:vertical) front slopes, and 2:1 rear slopes using approximately 20,000 tons of recycled concrete and 40,000 tons of armorstone. Containment dikes using approximately 50,000 CYDS of material would be constructed, allowing for the blueway between the breakwaters and the marsh creation area.

Fully constructed, this project will act as an important buffer in typical lake tidal and wave climates, reducing erosion that threatens the shoreline and levees. The created habitat will also increase ecological functions by providing needed habitat for waterfowl, shorebirds, and other coastal fauna; improve Lake Pontchartrain's water quality; and create nursery habitat for juvenile fish, crab, and other lake species.

M&N proposed an effective breakwater and marsh creation configuration for the Bucktown to Bonnabel shoreline (currently underway)—M&N anticipates approximately 4,500 LF of breakwaters and 33 acres of marsh, upland, tidal creek, and protected aquatic habitat will be engineered and designed.

PROJECT CHALLENGES AND UNIQUE DESIGN REQUIREMENTS

This project is being constructed in a highly-visible, culturally-important area, adjacent to both the levee system, a recreational green space, and a historic neighborhood. Programmatic outreach for the Bucktown shoreline was completed to determine the residents' preferred outcomes for the site. Outreach was facilitated by M&N and directed by a 19-member steering committee. Two multi-day community work sessions were held and a website was created to disseminate materials and offer feedback. One outcome of the vision planning effort was a high-level design concept for the living shoreline. To ensure the project met community expectations, a charette was held with local experts and stakeholders to discuss alternatives. The result of the charette was a living shoreline with curvilinear breakwaters, marsh, tidal creeks, and a kayak blueway.

Because the project is being constructed adjacent to the levee, permitting and coordination was a particularly important aspect of the project. In addition to a Section 10/404 permit, Section 408 permission was required and granted. Coordination with the South Louisiana Flood Protection Authority was required to ensure that the project complies with their requirements and to obtain the necessary permits.

The breakwaters were challenging to design due to environmental conditions. The geotechnical properties of the sediment required a construction crest elevation high enough to account for primary and secondary settlement and still achieve the required design elevation. Additionally, to include a kayak blueway, containment was included in the design, with many containment options evaluated before the final containment was selected.

The breakwaters were challenging to design due to environmental conditions. The geotechnical properties of the sediment required a construction crest elevation high enough to account for primary and secondary settlement and still achieve the required design elevation. Additionally, to include a kayak blueway, containment was included in the design, with many containment options evaluated before the final containment was selected.

Furthermore, the material properties of the substrate were highly variable along the line of the breakwaters, resulting in significant differential settlement. Settlement was closely monitored for each breakwater and differential construction elevations were incorporated. Construction in an open water environment with a prevailing wave fetch in excess of 25 miles presents challenges, as the active construction site remains exposed until the project is complete and vegetation succession is mature. This has required an adaptive approach to ECD design, operation and maintenance including additional lifts to provide a greater level of structural integrity of these features. Storms have placed pressure on the earthen containment dikes, requiring adjustment to dredging production rates to enable appropriate material dewatering and consolidation.

GRANT SUPPORT FOR JEFFERSON PARISH // JEFFERSON PARISH, LA

M&N assisted Jefferson Parish in completing grant proposals for the National Fish and Wildlife Foundation's (NFWF) National Coastal Resilience Fund Grant in 2018 and 2019. Two grants were successfully procured amounting to $2.75 million in funds from NFWF. These funds, matched with funds from the parish, provided $5.5 million for the feasibility study, engineering, design, and construction. The task order was issued on an as-needed basis not to exceed $30,000.

The NFWF National Coastal Resilience Fund is a competitive grant program that funds projects that restore and strengthen natural infrastructure to protect coastal communities while also enhancing habitats for fish and wildlife. M&N assisted Jefferson Parish in completing and submitting both the 2018 and 2019 NFWF National Coastal Resilience Fund Grant proposals for the Bucktown Living Shoreline project. M&N researched and drafted the proposal narratives, tracking metrics, and monitoring plan for both grant proposals. Draft versions were provided to Jefferson Parish officials for comment, which was incorporated into the final versions. The 2018 award secured $500,000 for engineering and design of the project, $250,000 from the NFWF grant, and a $250,000 match from Jefferson Parish Gulf of Mexico Energy Security Act (GoMESA) funds. The 2019 award secured $5 million for construction, $2.5 million from the NFWF grant, and $2.5 million from Jefferson Parish GoMESA funds.

The Bucktown Living Shoreline project was one of 20 projects across the country selected for construction funding. The NFWF NCRF national announcement for all 2019 awards was held at the future site of the Bucktown Living Shoreline project, currently being designed by M&N. M&N further supported Jefferson Parish in successfully procuring a U.S. FWS Boating Infrastructure Grant (BIG) Tier One grant for $200,000. M&N researched and drafted the proposal narrative, determined the project budget, and provided preliminary drawings and location maps. The BIG program is a competitive grant program that funds construction, renovation, and maintenance for facilities for transient boaters. This funding will be matched with $100,000 from the parish to construct a multi-use dock at the Bucktown Harbor Marina.

CLIENT

Jefferson Parish

RELEVANT FEATURES

- Jefferson Parish project
- Coastal planning and design
- Coastal grant writing
- Outreach & education

LARGE SCALE BARATARIA MARSH CREATION: UPPER BARATARIA COMPONENT (BA207) // JEFFERSON & PLAQUEMINES PARISH , LA

The Large-Scale Barataria Marsh Creation: Upper Barataria Component (BA-207) was originally conceived as a single system to deliver sediment sustainably mined from renewable sources in the Mississippi River then transported via pipeline to restore marsh habitat at multiple strategic locations along the critically degraded Barataria Landbridge. M&N served as the Engineer-of-Record for this $120M Deepwater Horizon NRDA-funded project. Utilizing the Mississippi River Borrow sites previously permitted as part of the BA43-EB Mississippi River Long Distance Sediment Pipeline Project (MRLDSP) project, the project dredged an estimated 12 mcyds of Mississippi River sediment and restored approximately 1,300 acres of critically degraded Barataria Land Bridge marsh and intertidal habitat (as identified in the LA TIG Draft Restoration plan). The Large Scale Barataria Marsh Creation: Upper Barataria Component Project (BA207) was the logical next phase of the Barataria Land Bridge restoration and fully leveraged the MRLDSP approach to deliver this project. M&N provided full restoration planning services for the BA-207 project.

As part of the first phase of the restoration of the Barataria Land Bridge Project (BA43-EB), M&N provided full engineering and design of the original 13.5-mile sediment delivery corridor and ~400-acres of intertidal marsh habitat, which when combined with the NFMS sponsored BA-48 CWPPRA, into a single bid package, such that they could be advertised for construction as a single project, added an additional ~400-acres of intertidal marsh and 10,000-LF miles of ridge habitat to the project and saving the BA-48 project ~$8-M in construction costs. Additionally, the EPA sponsored BA-164 CWPPRA project was delivered using the same mobilization and added a further 100 acres and 10,000 LFT of earthen terraces. Prior to the BA-207 project, to date more than 1,200 acres of intertidal marsh habitat, with maximum production rates achieving 100-acres per month and over 9,600 linear feet of ridge habitat had been restored using 8 mcyds of Mississippi River sediment for the 3 projects. This single delivery system provided a savings of more than $14 million in mobilization/demobilization costs over the 3 conventional project-by-project sediment delivery strategies. M&N provided construction administration, supervision and inspection for the $102M construction contract.

CLIENT

Coastal Protection and Restoration Authority

RELEVANT FEATURES

- In Jefferson Parish
- Coastal planning & design
- Permitting
- Marsh & ridge restoration
- Shoreline stabilization & protection
- Beneficial use of dredged material
- Living shoreline design
- H&H modeling
- Biological/environmental assessment of wetlands
- Design analysis & reports
- Technical evaluations
- Cost estimates
- Field investigations
- Coastal grant writing
- Outreach & education
- Survey
- Geotechnical engineering

Because of M&N's experience on the previous MRLDSP project, M&N could provide a programmatic approach to marsh restoration along the Barataria Land Bridge. As part of the design process, M&N developed all key project features, marsh placement site location and geometry, sediment budgets, and has established project delivery borrow site sequencing scenarios. M&N's in-house dredging industry expertise provided for in-house Early Contractor Involvement (ECI) Capabilities, which fundamentally improved project implementation success, particularly when designing and specifying both the dredge depth, and sequencing of both Mississippi River borrow areas. This ensured that the maximum amount of material was practically removed to achieve maximum restored acreage.

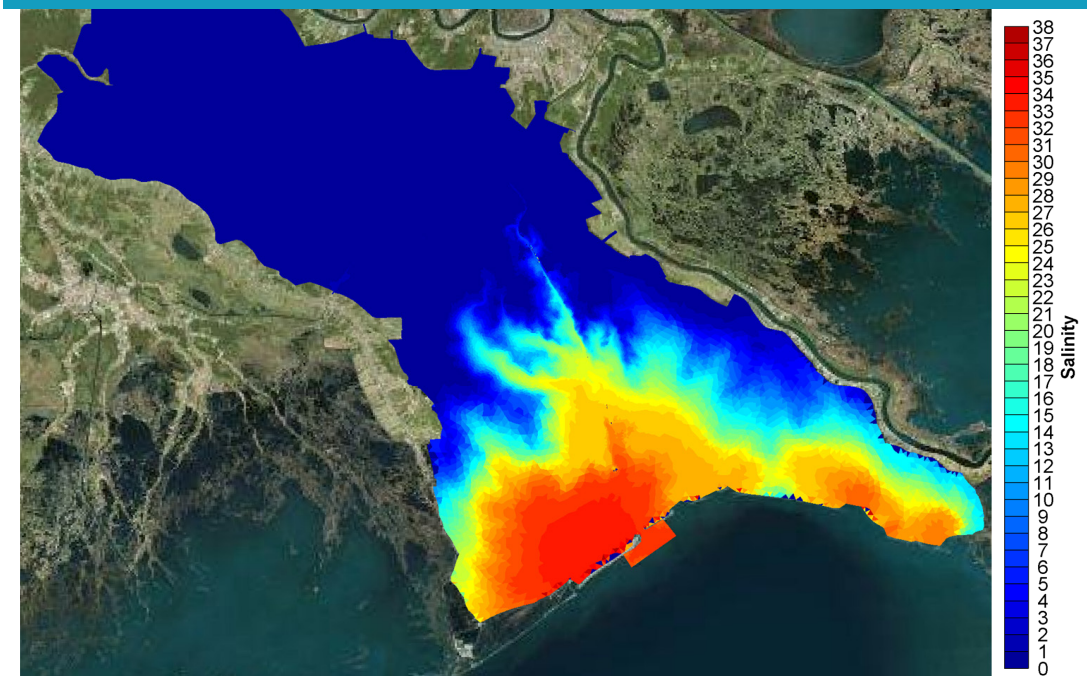
Engineering and design services provided by M&N included coastal and geotechnical engineering, hydraulic, hydrodynamic and morphological modeling, dredging engineering, and cost estimating. To provide levels of confidence in the ability to deliver the project features within the available for construction budget of $150M, M&N performed over 1,0000 Monte Carlo type simulations of the DELFT 3D hydrodynamic model of the Mississippi River to provide probabilistic calculation of predicted borrow site (Wills Point and Alliance Anchorage) infill rates under a range of dredging scenarios. This enabled M&N to develop available sediment budgets for a range of implementation sequencing scenarios, scalable to available funding options. The analysis proposed a sediment budget of 15 mcyds (cut volume) placed at the identified marsh creation areas, located approximately 13 miles from proposed borrow site(s). It was also determined that increasing borrow site depth from -70ft to -90 feet effectively doubled the volume of available borrow material at each site. M&N provided full dredging engineering, design and permitting of the borrow sites and worked closely with the USACE on levee slope stability issues, and with the USCG and MNSA to develop an approved dredging plan that would not impact navigation interests on the river during construction.

Dredge production modeling, performed by M&N's in-house dredging engineers, determined optimal pumping rates and of booster pump location alternatives. Analysis of geotechnical borings and settlement rates calculated with the PSDDF model, in coordination with a projection of future relative sea level rise, was utilized to determine the appropriate marsh elevations required to provide a sustainable and resilient project design for the 20 years project design life. A detailed cost estimate was developed for each design stage (preliminary, 30% and 95%) as part of the 30% and 100% Engineering and Design report.

M&N pursued an expedited permitting strategy that requested a permit modification the original BA43 project to include the proposed marsh creation areas of the BA-207 project and provided full permitting and environmental compliance documentation along with inter-agency coordination between the CPRA and NOAA project sponsors, to ensure project consistency with the LA TIG and State of Louisiana Coastal Master Plan. As part of the original Permit package M&N prepared the permit application documents, including LDNR CUP, USACE Section 10/404 permits. M&N prepared the final plans, specification and construction document packages.

BARATARIA PRESERVE FUTURE CONDITIONS MODELING

// JEAN LAFITTE NATIONAL PARK, BARATARIA PRESERVE, JEFFERSON PARISH, LA



This project addresses the Barataria Preserve Unit of Jean Lafitte National Historical Park and Preserve in Jefferson Parish, Louisiana. The Barataria Preserve protects 26,000 acres of primarily freshwater deltaic wetlands in the Mississippi River delta's Barataria Basin. These wetlands are among the most biologically productive ecosystems in North America, and they sustain some of the richest fisheries on the planet. The preserve's floating marshes are one of only four large estuarine floating freshwater marsh systems in the world. Jean Lafitte National Park aims to protect and conserve the natural landscape, its biological diversity, its human history, and the diverse cultural traditions it has inspired and nurtured.

The objective of the Barataria Preserve Future Conditions Modeling project is to provide National Parks Service managers with scientifically rigorous projections of key coastal environmental conditions across the Barataria Preserve landscape over the next decades. The park will use these projections to inform and guide park planning and to prioritize management endeavors over this interval. The park seeks a sound scientific understanding of key factors influencing the Barataria Preserve landscape, its natural, cultural, and historical resources, and park facilities (buildings, trails, road/boat access), over the next 25 to 50 years. For these purposes, the most important 'key factors' are flooding depth and salinity, followed by vegetation cover and type.

CLIENT

National Park Service

RELEVANT FEATURES

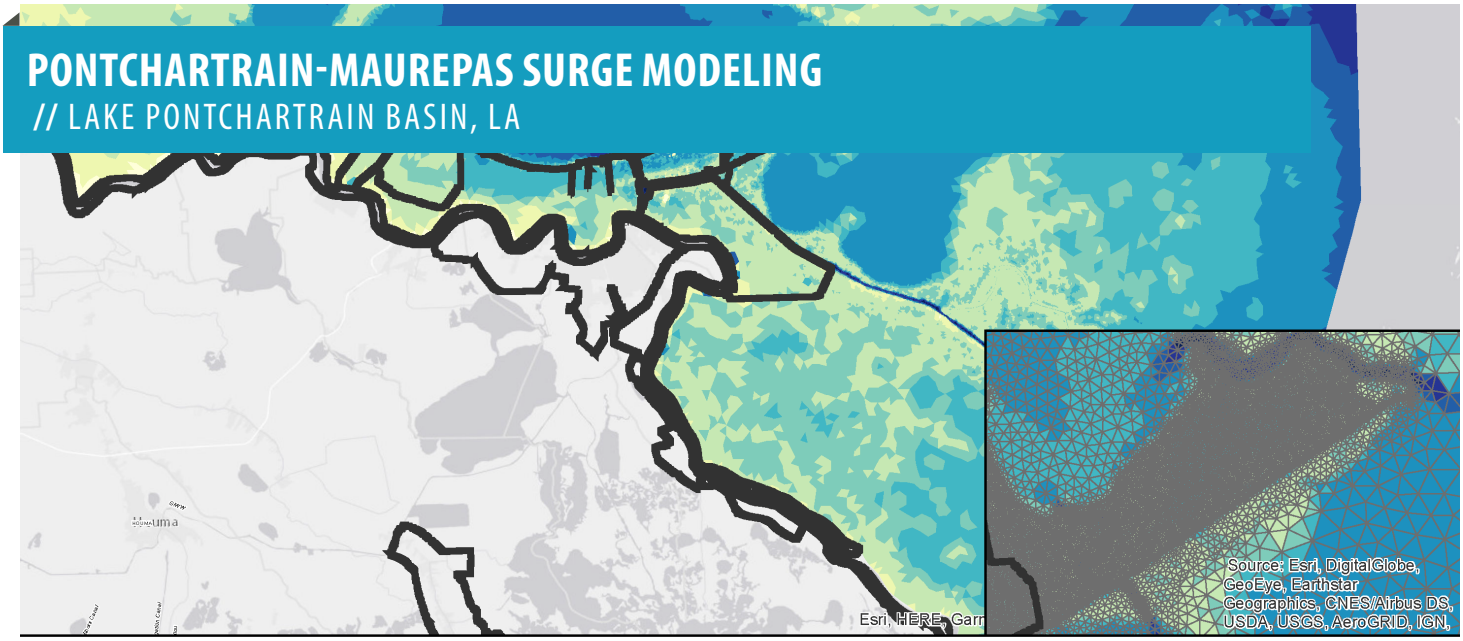
- In Jefferson Parish
- Coastal planning & design
- Permitting
- Marsh & ridge restoration
- Living shoreline design
- H&H Modeling
- Design analysis & reports
- Technical evaluations
- Outreach & education

To meet the park's objectives, M&N is "downscaling" the State of Louisiana's 2023 Coastal Master Plan ICM hydrodynamic and ecosystem for the Barataria Basin including the Preserve vicinity to simulate water levels, salinities, vegetation cover, and landscape evolution 50 years into the future under multiple future climatic and restoration project scenarios. The ICM model from the 2023 Master Plan effort was refined and recalibrated so that conditions across the preserve landscape could be simulated in greater detail.

Additionally, a complementary Mike21-FM hydrodynamic and salinity model of Barataria Basin was developed to simulate water levels, flows, and salinities at very high spatial resolution across the Barataria Preserve Landscape for specific points (10-year intervals) during the 50-year planning horizon. As part of this model development, an innovative method was developed for estimating urban freshwater runoff volumes that can be important for conditions at the preserve. An automated nesting scheme was also developed to update the detailed model bathymetry, wetland vegetation type, hydrodynamic roughness, and boundary conditions based on ICM simulation inputs and results. Results from both models provide the park with valuable information to make resource management decisions in the face of uncertain future conditions and impacts.

PONTCHARTRAIN-MAUREPAS SURGE MODELING

// LAKE PONTCHARTRAIN BASIN, LA



Model Mesh

Levee System Align Line

Elevation [m, NAVD88]

-27.9 - -10.3
-10.2 - -6.2
-6.1 - -3.6
-3.5 - -2.2
-2.1 - -0.9
-0.8 - 0.0
0.1 - 1.1
1.2 - 3.3
3.4 - 14.2

In support of coastal sustainability and hurricane protection, the Lake Pontchartrain Basin Foundation (LPBF) founded the Pontchartrain-Maurepas Surge Consortium (PMSC)—a group of state and local water management and flood protection officials to facilitate a regional approach to storm risk management within the Lake Pontchartrain Basin. PMSC's efforts have culminated in a series of reports investigating both the nature of the hurricane surge hazard and lines of defenses in the Pontchartrain-Maurepas region. The purpose of the PMSC Surge Modeling project was to perform an initial, feasibility-level test of the effectiveness of four proposed projects in reducing storm surge. The evaluated projects consisted of the proposed West Shore Lake Pontchartrain Levee and Rigolets/Chef Menteur Surge Barriers structural projects.

M&N developed a local MIKE-21 Flexible Mesh, hydrodynamic model, analyzed project impacts, and evaluated the full reforestation of the Maurepas Landbridge as well as a series of jetty-type marsh creation features along the hardened New Orleans East shoreline for their impacts on surge. While project performance and impacts will differ depending on the strength, track, forward speed, etc. of a particular surge-producing storm, the scope included project analysis for two representative storms with eastern and western tracks. Hurricanes Katrina (2005) and Isaac (2012) were chosen as the two simulation cases as they offer the most recent, well-documented instances of surge impacts to the Pontchartrain-Maurepas region.

CLIENT

Pontchartrain Conservancy

RELEVANT FEATURES

- In Jefferson Parish
- Coastal planning
- Marsh & ridge restoration
- Shoreline stabilization & protection
- Living shoreline design
- H&H modeling
- Design analysis & reports
- Technical evaluations
- Cost estimates
- Field investigations
- Outreach & education

M&N calibrated the PMSC Surge Model by comparing simulated water levels to measurements located throughout the basin for Hurricane Isaac, with an additional model validation performed using Hurricane Katrina. M&N then used the model to test the effectiveness of the proposed projects in reducing storm surge. Each project was run using boundary conditions and wind forcings corresponding to both Hurricanes Isaac and Katrina, which drive typical regional surge dynamic patterns associated with a storm passing to the west and the east of the PM region, respectively.

M&N analyzed the results by comparing both the surge propagation around the basin and the spatially varying maximum surge levels with the evaluated project for the base case of current conditions. In general, the four analyzed projects had similar patterns of impact to maximum surges for both western and eastern storm tracks, with some variations in the magnitude of increases or reductions based on the project location relative to the storm track. M&N's analysis concluded which projects were most effective in reducing surges in the region without increased surges elsewhere and recommended them for additional study.

GRAVELINE BAY MARSH CREATION PROJECT // DAUPHIN ISLAND, LA

This first-of-its-kind "marsh mound" project in Alabama restored 60 acres of lost back-barrier marsh habitat on the north side of Dauphin Island, enhancing edge habitat and bird nesting habitat. M&N provided engineering and design services, secured a Nationwide-26 permit, oversaw the contractor procurement process, and provided construction administration and inspection services.

The project goals were to enhance the existing marsh ecosystem of Graveline Bay while increasing the resilience of Dauphin Island to storm events. With habitat goals in mind, the project objectives were defined to maximize and linear feet of fringe (edge) habitat and area of subaerial marsh habitat. These objectives were accomplished by constructing 55 total intertidal marsh mounds (10 large and 45 small) to attenuate wave activity and create critical marsh edge habitat over the 20-year project life span.

The project design consisted of sacrificial 10 large marsh mounds (approximately 1 acre each) that served to attenuate wave energy in order to provide protection to the smaller leeward marsh mounds. The funder, Town of Dauphin Island, and engineering team collectively decided to forego traditional shoreline protection in favor of sacrificial marsh, concluding that the ecosystem services the large mounds provide over the project lifetime out weighed the cost of hardened protection. The 45 small marsh mounds maximize fringe habitat to the benefit of fish, shellfish, and bird species. The marsh mound design allows for tidal exchange between the marsh mounds. The marsh mounds were vegetated with a series of marsh plants that are native to Graveline Bay. Completed in 2023, the project resulted in 60 acres of total submerged and emergent estuarine back-barrier island habitat: 26 acres of subaerial intertidal marsh habitat, five acres of high marsh habitat, and 29 acres of protected shallow water fisheries habitat. M&N continues to monitor the project for structural and biological criteria.

Careful consideration of construction methodologies while developing the construction drawings and specifications resulted in low bid prices such that the project was constructed $2M under budget. This was accomplished by reducing risk on the contractors, minimizing the amount of mechanical reworking of material, and well written specifications. The winning bid for this project had a unit cost for dredging and placement of $7/cubic yard, whereas a similar project in the region at the time resulted in $23/cubic yard.

CLIENT

Town of Dauphin Island

RELEVANT FEATURES

- Coastal planning & design
- Permitting
- Marsh ridge & restoration
- Shoreline stabilization & protection
- Beneficial use of dredged material
- Living shoreline design
- H&H modeling
- Design analysis & reports
- Technical evaluations
- Cost estimates
- Field investigations
- Coastal grant writing
- Outreach & education
- Survey
- Geotechnical engineering

ST. CHARLES PARISH HURRICANE PROTECTION LEVEE SHORELINE PROTECTION & ENHANCEMENT PROJECT // ST. CHARLES PARISH, LA

The Pontchartrain Levee District (PLD) retained M&N on a task order-based contract to develop and implement an integrated approach to the protection and enhancement of St Charles Parish Hurricane Protection Levee at the Lake Pontchartrain shoreline, combined with the restoration of the interior LaBranche Wetlands.

The 19,000 feet of currently unprotected sections of St. Charles Parish shoreline have been retreating at an average rate of 12 to15 feet/year due to the continued erosive forces of wave action. Saltwater intrusion into interior wetlands combined with subsidence has resulted in significant deterioration and the loss of more than 6,000 acres over the past 75 years. To provide a sustainable solution to the protection and enhancement shoreline of the St. Charles reach of the LPV Hurricane Protection Levee, an integrated three-part restoration approach was developed.

1. PROTECTION AND STABILIZATION OF THE SHORELINE OF LAKE PONTCHARTRAIN AGAINST FURTHER EROSIVE WAVE ACTION (PO42 & PO43)

M&N performed a feasibility-level study to determine the preferred project alternatives and develop an approach to integrate the proposed features with the existing shoreline protection measures into a single unified strategy for the shoreline. M&N subsequently completed engineering, design, and construction oversight of the stabilization, protection of the St. Charles Parish CIAP funded 1,200 LF LaBranche West (PO42) and 3,400 LF LaBranche East (PO43) enhancement projects. The design consists of a more than 5-foot elevation, 6-foot-wide crown with 3:1 slope, offshore, curvilinear, segmented perched breakwater located at the -2.5-foot NAVD88 contour. The use of a low-density aggregate core achieved required design heights to effectively protect the shoreline from wave action, but without the over-burden resulting in excessive settlement. Additionally, to prevent unequal settlement during construction and distribute the load of the structure over a larger area, the riprap will be placed upon a geotextile fabric.

CLIENT

Pontchartrain Levee District

RELEVANT FEATURES

- Coastal planning & design
- Permitting
- Marsh & ridge restoration
- Shoreline stabilization & protection
- Beneficial use of dredged material
- Living shoreline design
- H&H modeling
- Biological/environmental assessment of wetlands
- Design analysis & reports
- Technical evaluations
- Cost estimates
- Field investigations
- Outreach & education
- Survey
- Geotechnical engineering

M&N provided detailed engineering and design of the selected alternative, including detailed geotechnical field investigation, bathymetric/topographic surveying, development of opinions of probable cost for construction, CIAP/MMS permit application, interagency environmental compliance, development of construction bid documents, and construction administration support in coordination with the St. Charles Parish CIAP program.

PO42 is complete and extends 8,700 LF of existing shoreline protection projects installed in 1987 and 1993 by a further 2,000 LF. Construction of 3,400 LF of PO43 was completed using available CIAP funding. M&N provided construction administration, supervision, and inspection for the combined $5.6 million construction contract for both the LaBranche West (PO42) and LaBranche East (PO43) projects. Since the completion of the construction of PO42, the shoreline has advanced more than 150 feet.

Since completion of construction of PO42, the shoreline has advanced over 150-ft. PO42 is complete and extends 8,700-LF of existing shoreline protection projects, installed in 1987 and 1993, by a further 2,000-LF. Construction of 3,400-LF of PO43 was completed using available CIAP funding. M&N has subsequently retained M by CPRA to provide engineering, design, permitting and Construction S&I (Task Order pending) for a maintenance lift of the previously constructed 3,400-LF PO-0043 project that had experience excessive settlement below its design crest elevation. As part of this Task Order M&N was also tasked to update the design for the 13,000-LF of the permitted but unconstructed portion of the project. As part of the project design update, M&N revisited the GIS based Digital Shoreline Analysis System (DSAS) that recommended an original -2.5 ft NAVD88 contour project alignment. An update to the original 2012 bathymetric survey revealed an average of 150-LF of additional shoreline retreat, with some areas experiencing several hundred linear feet of erosion, amounting to a land loss of approximately 130 acres over the last decade. As such, the breakwater alignment was revised to the -1.5 ft NAVD88 contour to bring the project cost within the available for $13-m cost of construction budgets and balance avoidance of upland land-rights conflicts.

M&N provided detailed engineering and design of the selected alternative, development of land rights strategy, environmental compliance and permitting and Stakeholder engagement and also performed a review of original geotechnical field investigation and in collaboration with CPRA developed settlement curves to confirm anticipated settlement levels. An updated bathymetric/topographic survey was also collected. An AACE Class I opinion of probable cost for construction and development of construction bid documents were developed. The design consists of a +4-ft elevation (as determined by the previously applied ADCIRC and M&N developed STWAVE models that established design wave height criteria), 5-ft wide crown with 3:1 front slope, 1.5:1 rear slope (to conserve rock quantity), offshore, perched breakwater that includes several fish dips for passage and tidal circulation, and situated at the -1.5-ft NAVD88 contour. As with the previous projects, the design included the use of a light-weight aggregate for construction of the breakwater core to achieve design heights while minimizing over-burden and mitigating against excessive settlement. The breakwater design includes a rock armor layer composed of LADOTD Class 440-lb riprap. While more expensive than standard riprap, light-weight aggregate does require less rock to meet the same design height and results in significantly less settlement. Approximately 200,000 CY of material excavated from the flotation access channel will be used beneficially and placed immediately landward of the breakwaters to form an earthen ridge. This earthen ridge feature has proven effective for the PO-0042 project, where the stable earthen ridges constructed in 2014 are covered with healthy upland vegetation and trees, adding an additional layer of defense for the vulnerable marsh habitat it borders. In order to capitalize upon the availability of State Budget Surplus funds, the Engineering and Design of the project update was completed within approximately 6-months. When complete, the entire 30,000-LF of the LaBranche wetlands shoreline will be protected from further shoreline erosion, through the implementation of this multiple lines of defense strategy.

Through the implementation of this multiple lines of defense strategy, upon completion of the latest updates, the entire 30,000 LF of the LaBranche Wetlands St. Charles Parish shoreline will be protected from further shoreline erosion while at the same time providing habitat enhancement.

2. DEVELOPMENT OF A HYDRODYNAMIC NUMERICAL MODEL FOR THE EVALUATION OF PROPOSED RESTORATION OF THE PROTECTIVE WETLANDS BETWEEN THE SCHPL LEVEE AND THE LAKE PONTCHARTRAIN SHORELINE

As part of the development of a comprehensive restoration strategy for the entire LaBranche Wetlands, M&N developed a fully calibrated 2-D hydrodynamic (RMA2) and salinity (RMA4) model of the entire 16,000-acre wetlands. The numerical model was used to evaluate the feasibility and effectiveness of proposed protection, preservation, and hydrologic restoration/freshwater reintroduction strategies into the interior of LaBranche Wetlands, including the assessment of the rehabilitation and/or replacement of existing water control structures and their strategic operation. The freshwater reintroductions scenarios currently being evaluated were:

- **Opportunistic use of the Bonnet Carré Spillway:** Under a PAS agreement between the PLD and the USACE, M&N assessed the potential benefits and project features associated with freshwater and sediment reintroduction using the Bonnet Carré Spillway.
- **A conveyance structure from the Mississippi River:** As an alternative to the opportunistic use of the Bonnet Carré Spillway project, in association with the EPA and the PLD, M&N developed preliminary project features of a more frequently operated freshwater/sediment conveyance CWPPRA project, either out of the Bonnet Carré Spillway or associated with a conveyance structure from the Mississippi River into southeast LaBranche.
- **Assessment of the increased capacity of stormwater pump discharges into the LaBranche Wetlands:** M&N also assessing potential benefits associated with the increased capacity of stormwater pump discharges into the LaBranche Wetlands along Airline Highway canal. This assessment focused on the potential of existing forced drainage into the wetlands (as well as proposed pump station improvements) in meeting historic salinity regimes. M&N is assessed for potential salinity reduction benefits because of the Cross Bayou pump station upgrade. Initial results indicated a net area of benefit of more than 1,000 acres.

Under an FY 2012 State Conservation and Restoration Partnership Grant to the Coalition to Restore Coastal Louisiana, M&N also investigated the replacement of the existing dilapidated water control structures with Self Regulating Tide Gates. These fully automated structures would benefit the wetlands by increasing freshwater retention times from proposed freshwater reintroduction projects and reducing saltwater intrusion.

3. DEVELOPMENT OF AN INTEGRATED A MASTER PLAN FOR THE ENVIRONMENTAL RESTORATION OF LABRANCHE WETLANDS

M&N, in partnership with the USACE and PLD under a PAS agreement, developed a planning level master plan that integrated the shoreline protection measures, with interior marsh restoration & hydrologic restoration into a comprehensive restoration master plan for the LaBranche Wetlands as part of a multiple lines of defense strategy. Specifically, the master plan:

- Proposes water control structures to optimize freshwater retention and minimize saltwater intrusion
- Recommends the project features and components required to restore and sustain the historic salinity regime in the LaBranche Wetlands
- Recommends the "what-when-where-how-how much" details of freshwater/sediment/nutrients reintroduction
- Addresses the ecological and physical constraints to wetland restoration and creation projects in LaBranche

DAUPHIN ISLAND CAUSEWAY SHORELINE RESTORATION // MOBILE COUNTY, AL

M&N was retained by Mobile County to perform an Independent Technical Review (I TR) of all design efforts performed to-date on the project. The project had stalled and was not implementable under the previous contractor's lead. As part of this Phased approach, Phase I recommend a path forward, with a commensurate design, and schedule necessary to issue the project for bid with all supporting design, construction and permitting documents in alignment with Federal cost-share partners procurement schedules.

Phase I also included a review of all documents developed to date, a data gap analysis in order to develop a supplemental field data campaign required to complete the design.

Upon obtaining consensus on the approved path forward with the project owner and other project partners, Mobile County issued a NTP, from which M&N completed the 30,60,90 and 100% design, permit and issue for bid documents within a very aggressive 6-month design schedule, imposed on the project by the USACE Mobile District Federal sponsor of the project.

The project, funded by a $300-M grant secured by Mobile County, represented a local (Mobile) and Federal (USACE-Mobile District) cost share partnership for the construction of an integrated living shoreline. The project consists of 3.5-miles of offshore segmented breakwaters (sponsored by the local cost share partner) and the creation of 100-acres of intertidal marsh (sponsored by the Federal cost share partner), constructed through the beneficial use of ~ 1-mycds of dredged material from the USACE Mobile Harbor Deepening and Widening project. The project, the largest restoration project to date undertaken in Alabama is to provide a greater level of resilience and protection for Alabama State Highway XX, a vital transportation infrastructure element and the only hurricane evacuation route for Dauphin Island.

CLIENT

Mobile County

RELEVANT FEATURES

- Coastal planning & design
- Permitting
- Marsh & ridge restoration
- Shoreline stabilization & protection
- Beneficial use of dredged material
- Living shoreline design
- H&H modeling
- Biological/environmental assessment of wetlands
- Design analysis & reports
- Technical evaluations
- Cost estimates
- Field investigations
- Outreach & education
- Survey
- Geotechnical engineering

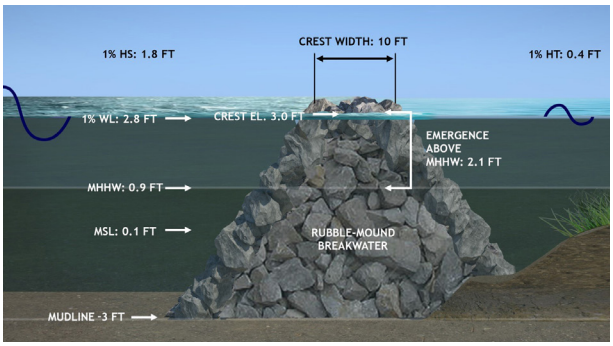
M&N's responsibilities included:

- Independent Technical Review of previous project's work;
- Hydrodynamic and wave modeling to establish prevailing environmental conditions and establish design criteria.
- Further required field data investigations, including supplemental topographic, bathymetric surveys and geotechnical investigations.
- Coordination with the permitting and regulatory agencies for issuance of permit.
- Full engineering, design (30, 60, 90 and 100% design), plans, specifications, engineers estimate of opinion of probable cost, bid support, and construction administration of the breakwaters;
- The agency technical review package for the beneficial use of ~ 1-mycds of dredged material (from the USACE sponsored new work for the deepening and widening of the Theodore turning basin) and
- Coordination with the USACE Mobile District throughout design by providing draft dredged material placement specifications, collaborating on the design of the borrow area, and ensuring all project partners were confident in the technical aspects of design and construction. Such was the quality of the PS&E documents, that the USACE Mobile District adopted M&N documents verbatim in their Issue for Bid Documents.

To date, several winter and spring storms have shown reduced wind/wave effects on the causeway. Coordination and collaboration with USACE Planning and Operations Branch were key to the project's success, and required the expedited establishment of trust between the cost share partners, building consensus amongst project stakeholders and establishing funding agency trust, enabling the ability to deliver the design packages on schedule. Additional coordination with Alabama Dept. Conservation and Natural Resources (AL DNCR MRD) Marine Resources Division was key to implementing agency approved construction techniques that would maintain protection to extensive nearby oyster reefs through close drone monitoring of Turbidity Plumes. The project was completed under a very aggressive 6-month schedule for engineering, design, and bidding. This was necessary in order to secure a contractor for the construction breakwaters, such that the breakwater construction schedule would align with the USACE contractor procurement process for the beneficial use of material generated from the USACE sponsored deepening and widening of the federal Mobile Ship Channel. Construction of Phase 1 of the project, the breakwaters, was completed June 2024. Construction of Phase 2 of the project, placement of dredged material by the USACE's contractor, will occur in the summer, fall, and winter of 2024. Phase 3 of the project, installing vegetative plantings, will commence in Spring of 2025.

LIGHTNING POINT SHORELINE RESTORATION AND LONG-TERM SITE SUSTAINABILITY PLAN // BAYOU LA BATRE, AL

M&N developed a living shoreline approach to address critical levels of storm-induced erosion at the ecologically important shoreline in Bayou La Batre. A multifaceted and innovative living shoreline design was developed, incorporating lessons learned into the design from past living shoreline efforts in the region. The final design included 1.5 miles of segmented containment (51,000 tons of rock), 40 acres of marsh and scrub-shrub habitat (240,000 [CY] of beneficial use dredged material), and 10,000 LF of tidal creek. Advanced spectral and Boussinesq wave modeling was used to determine design criteria and configure the breakwaters' geometry. A state-of-the-art hydrodynamic modeling approach was used to configure the tidal creeks so they would provide the required flushing times to promote ecological benefits. Using ecological guiding principles of order, the tidal creeks were designed to mimic natural tidal creek systems. M&N secured all federal and state permits, successfully responding to multiple stakeholder inquiries and providing follow-up support for stakeholder and public outreach. Full construction plans and specifications, bid support, contractor interviews, construction administration, supervision, and inspection were provided for the $11 million construction contract completed in August 2020. Project breakwater design has protected the site from five high water storm events this season.



This restoration project combines an innovative approach to traditional shoreline protection through adaptive breakwaters; restoration of multiple habitats, including not only marsh, but intertidal oyster reef, shell-hash beach, scrub-shrub, and tidal creeks; and complementary green infrastructure amenities to allow for managed community access to the restored site.

CLIENT

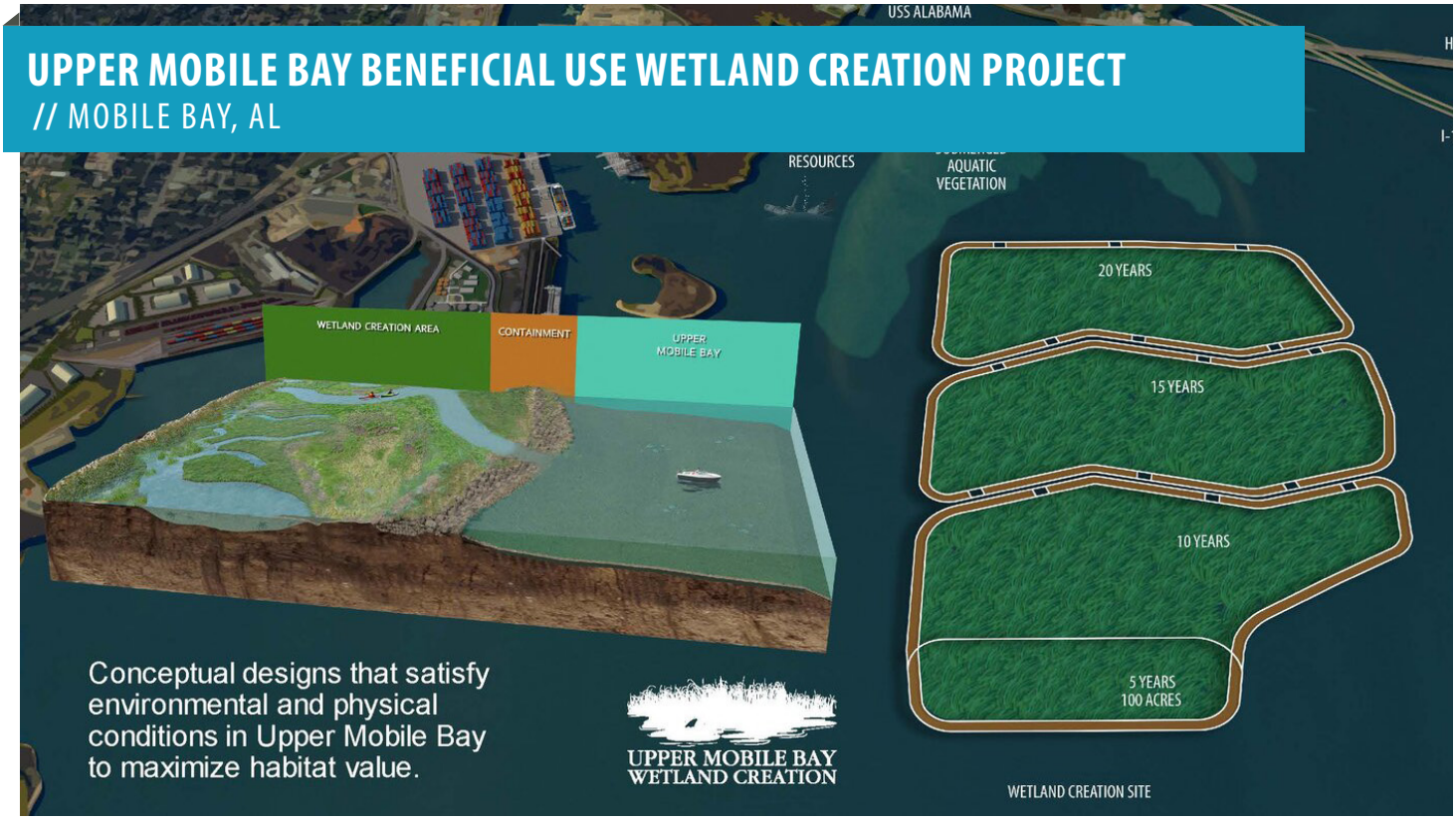
The Nature Conservancy

RELEVANT FEATURES

- Coastal planning & design
- Permitting
- Marsh & ridge restoration
- Shoreline stabilization & protection
- Beneficial use of dredged material
- Living shoreline design
- H&H modeling
- Biological/environmental assessment of wetlands
- Design analysis & reports
- Technical evaluations
- Cost estimates
- Field investigations
- Coastal grant writing
- Outreach & education
- Survey
- Geotechnical engineering

UPPER MOBILE BAY BENEFICIAL USE WETLAND CREATION PROJECT

// MOBILE BAY, AL



The Upper Mobile Bay Beneficial Use Wetland Creation Site (Planning) project is proactively planning to create 1,200 acres of wetlands through the BU of dredged material. Each year the USACE and the Alabama State Port Authority remove approximately 6 MCYDS of sediment from Alabama's Mobile Harbor federal navigation channel and adjacent public berths, placing dredged material in permitted open water or upland management areas. Leveraging these valuable sediments to create wetlands and habitats, this project will ensure dredged sediments are used to help restore our coastal wetland habitats in Upper Mobile Bay for living coastal and marine organisms, improve water quality, and improve dredging practices that support navigation-related commerce and the region's economy.

Highlighting the benefits of leveraging sediment management practices into regional environmental enhancement, the Upper Mobile Bay Wetland Creation Project capitalizes on the beneficial use of dredged materials by prioritizing 1,200 acres of wetland habitat creation while supporting the local navigation industry. By comprehensively managing sediment resources, the project meets the enhancement goals of multiple stakeholders including the Alabama State Port Authority and USACE.

M&N worked with the USACE and the Alabama State Port Authority to identify renewable resources from required maintenance dredge material for wetland creation. Engineering with Nature approaches were applied to design wetland habitat and sediment containment options that create multiple aquatic habitats to enhance Alabama's estuarine ecosystems. The 1,200-acres project was advanced for permitting and construction planning. Containment features will be designed in detailed and constructed incrementally for the 1,200-acre site over the next 20 years. The completed project would allow for the overall placement of up to 9.5 million cubic yards of material dredged from the Upper Mobile Bay area within three wetland creation areas protected by rock breakwaters or revetments with softer containment methods where feasible.

CLIENT

Alabama State Port Authority

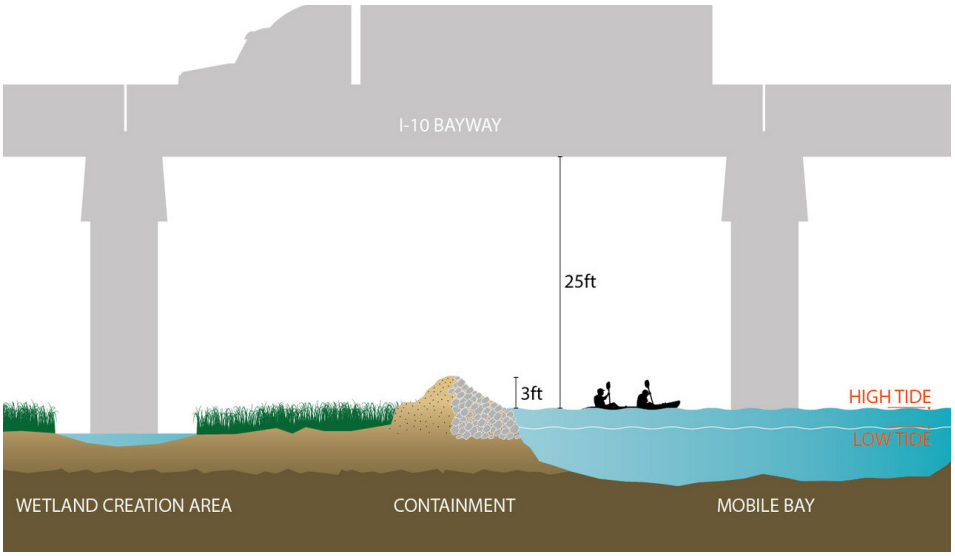
RELEVANT FEATURES

- Coastal planning & design
- Permitting
- Marsh & ridge restoration
- Shoreline stabilization & protection
- Beneficial use of dredged material
- Living shoreline design
- H&H modeling
- Biological/environmental assessment of wetlands
- Design analysis & reports
- Technical evaluations
- Cost estimates
- Field investigations
- Coastal grant writing
- Outreach & education
- Survey
- Geotechnical engineering

The initial construction phase is being advanced to full design and would construct 100-acres consisting of two wetland creation cells providing over 800,00 cubic yards of capacity. It is anticipated the initial construction phase will accommodate 3 years of maintenance material for the Port by alternating placing material in the internal cells. Initial construction will also include constructing the material offload facility and staging area that will support the construction, maintenance, and operation of the full project. Over 250,000 cubic yards of in-situ material would be used for containment construction which reduces construction cost and increases capacity of future phases. Containment design accommodates land-based access for equipment and includes a higher elevation sand bench which further protects the site and provides additional habitat diversity.

To maintain the designed habitat and protect the investment made by the Alabama State Port Authority and the RESTORE Council, M&N will develop a Long-Term Sustainability Plan. The plan will provide the Alabama State Port Authority with a playbook for future wetland creation development, schedule, and containment types, and will guide flexibility in beneficial use applications accounting for differing material properties throughout the project. M&N will manage and refine the plan throughout construction to account for measured settlement rates. The design will be adjusted to provide a greater level of certainty on the material to be placed during future maintenance dredging cycles.

As part of this project, M&N conducted an EA including a thorough discussion of the affected environment for the physical, biological, and human use and socioeconomic resources. M&N then conducted an environmental consequences analysis for each resource for all project activities over the 20-year lifespan of the project to support NEPA determinations with their federal agency partners.



The wetland's long-term success will be dictated by the vertical relationship between the wetland platform and the high- and low-water surface over the project's life. The wetland platform is designed to settle to an intertidal elevation such that during low water periods the wetland platform is dry and, alternately, during high water periods the wetland platform is flooded. This vertical relationship depends on several variables—settlement of the hydraulic dredge fill, settlement of the in-situ foundation materials, relative sea level rise, and the high- and low-water datums.

TANGIPAHOA PARISH RESTORE ACT BREAKWATER PROJECT // TANGIPAHOA PARISH, LA

To move forward several projects in Tangipahoa Parish's multiyear plan under the RESTORE Act, which dedicated oil spill funds to restoring the Gulf Coast region, ELOS was contracted to complete a feasibility study for dredging the bar channel at the mouth of the Tangipahoa River and restoration of a boat launch. The study included a summary of economic and environmental benefits, a mitigation plan and its costs, a permitting plan, and other regulatory requirements.

ELOS also updated prior Geographic Information System (GIS) analysis of sediment and land accretion behind a previously built rock breakwater. Land loss between 1989 and 2013 at the shoreline in this area was calculated to be 55 acres. Between 2014, when the first phase of the project was completed, and 2016, approximately 45 acres of land and sediment have been captured behind the breakwater through natural processes. This analysis was not only key to securing additional funding from the U.S. Army Corps of Engineers (USACE), but more importantly, it enabled the parish to use the dredged material beneficially to accelerate the natural land-building process.

During Phase II of the breakwater project, ELOS prepared the and received the complex construction permits, completed cultural resources management services to relocate any existing, submerged, or eroding archaeological sites, and monitored construction and the project's postconstruction, land-building success. The "Lake Pontchartrain Shoreline Protection Project" was given the Best Restored Shores Award for 2023 by the American Shore & Beach Preservation Association.

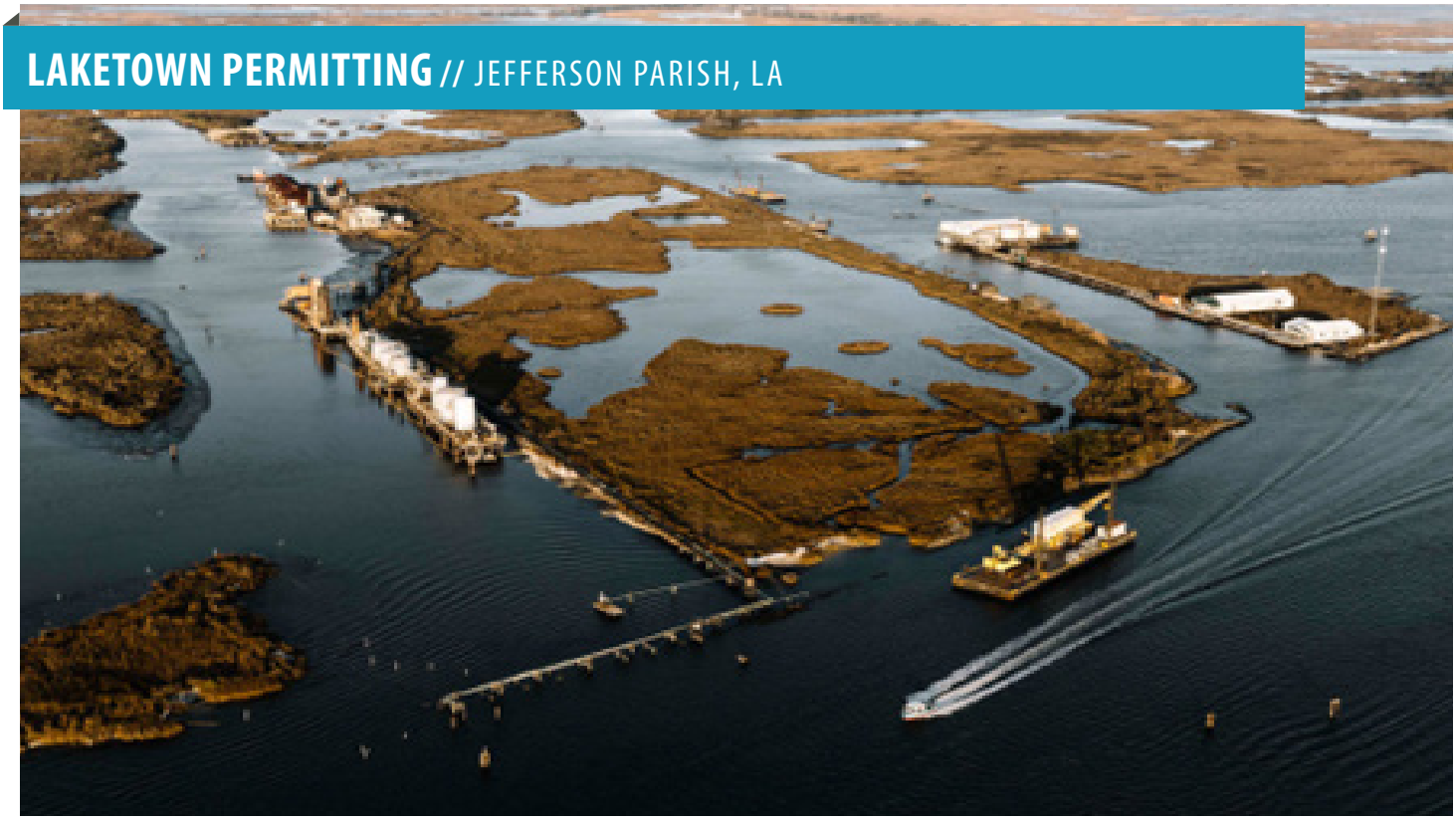
CLIENT

Tangipahoa Parish Government

RELEVANT FEATURES

- Permitting
- Marsh & ridge restoration
- Shoreline stabilization & protection
- Biological/environmental assessment of wetlands
- Design analysis & reports
- Technical evaluations
- Field investigations

LAKETOWN PERMITTING // JEFFERSON PARISH, LA



ELOS was contracted to perform a wetland delineation and submit a joint permit application to the Unites States Army Corps of Engineers and the Louisiana Department of Energy and Natural Resources, Office of Coastal Management for several proposed levee improvements including levee lifts, new levee segments, and corresponding pump stations for those levee systems. ELOS also conducted environmental assessments and cultural resources surveys for several of these sites: Lower Lafitte Orange Street, Goose Bayou, Pen Levee, Goose Bayou Rachel Street Pump Station, Jones Point Levee, Jones Point Carmelite Pump Station, Jones Point Trahan & Jones Point Pump Station, Pailet Levee, Town of Jean Lafitte Gloria Drive Pump Station, Town of Jean Lafitte Highway 45 Pump Station, and Upper LA 45. The scope of work included: wetland delineations, permitting, agency communication, cultural resources surveys, environmental assessments, and section 106 reviews.

Project Sites:

- Lower Lafitte Orange Street
- Goose Bayou Pen Levee
- Goose Bayou Rachel Street Pump Station
- Jones Point Levee
- Jones Point Carmelite Pump Station
- Jones Point Trahan & Jones Point Pump Station
- Pailet Levee
- Town of Jean Lafitte Gloria Drive Pump Station
- Town of Jean Lafitte Highway 45 Pump Station
- Upper LA 45

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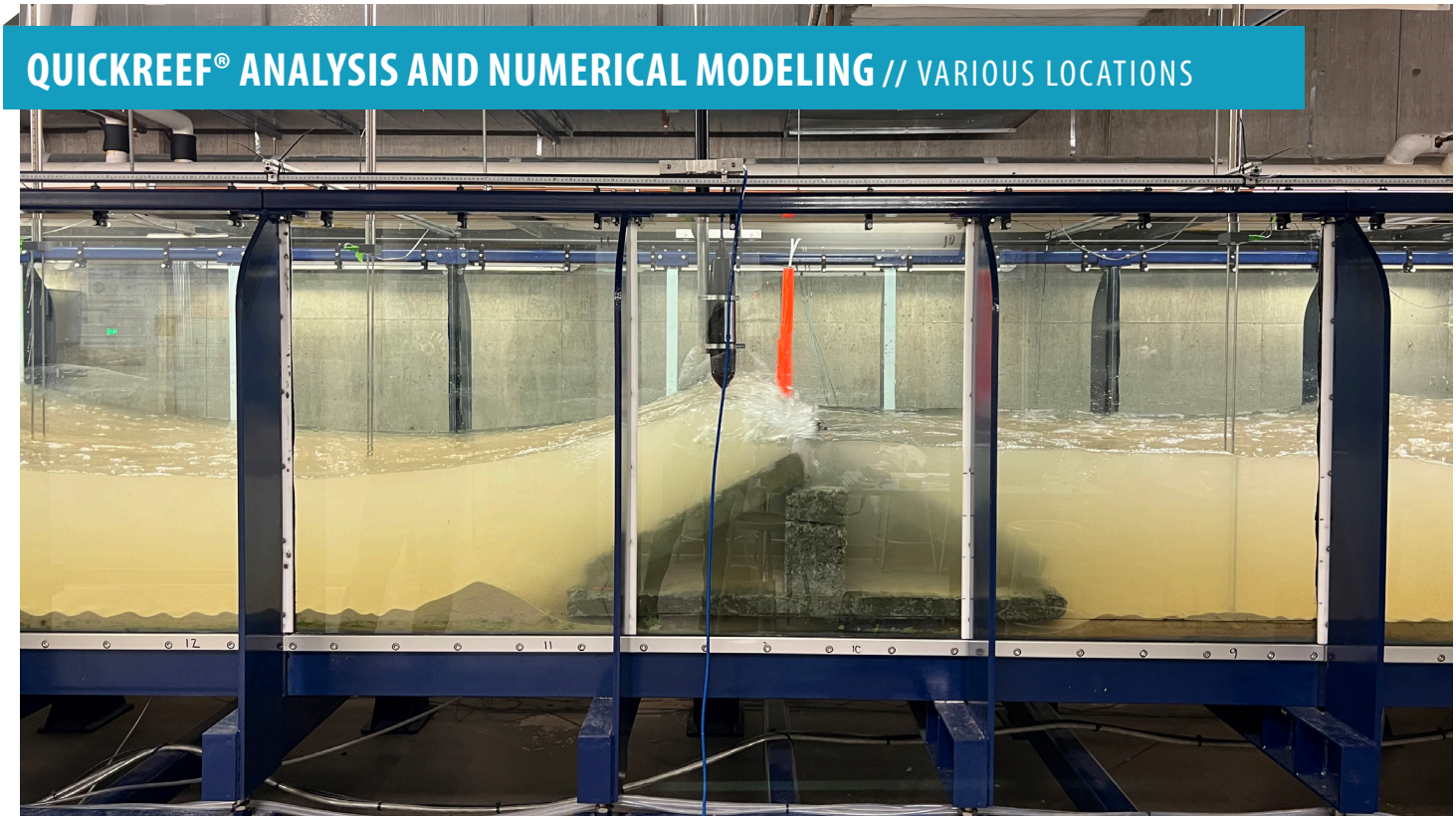
Meyer Engineers

RELEVANT FEATURES

- In Jefferson Parish
- Permitting
- Biological/environmental assessment of wetlands
- Design analysis & reports
- Technical evaluations
- Survey

QUICKREEF® ANALYSIS AND NUMERICAL MODELING // VARIOUS LOCATIONS



Native Shorelines contracted SSE to conduct engineering analyses to optimize QuickReef® living shoreline structures. SSE evaluated wind and wave conditions as well as local tidal datums to determine average conditions for study. A wave flume physical modeling study was then conducted at the University of South Alabama Living Shorelines Lab, with SSE serving as owners' representative. SSE is evaluating results to determine wave attenuation properties of four different structure designs. This data will be utilized in performing computational fluid dynamics modeling via FLOW3D on QuickReef® design variations to evaluate effects of the structures. QuickReef® structures protect emergent marsh habitat while providing habitat and increasing biodiversity.

CLIENT

Native Shorelines, A Davey Company

RELEVANT FEATURES

- Coastal planning & design
- Marsh & ridge restoration
- Shoreline stabilization & protection
- Living shoreline design
- Biological/environmental assessment of wetlands
- Design analysis & reports
- Technical evaluations
- Field investigations
- Survey

BAYOU DULARGE MARSH, RIDGE, AND HYDROLOGIC RESTORATION
// TERREBONNE PARISH, LA

Southern Shores ENGINEERING

SSE is providing engineering and design services for the Bayou Dularge Ridge, Marsh, and Hydrologic Restoration Project. Wetland loss and ecosystem degradation in the project area have been caused by subsidence, erosion, channelization, saltwater intrusion, and storm damage. Funded by the RESTORE Act, the project proposes to use borrow material from Lake Mechant to create and nourish 630 acres of marsh on the south side of Bayou Dularge, restore 21,500 LF of ridge along the southern bank of Bayou Dularge, and reestablish historic hydrologic and salinity conditions by installing a structure that reduces the cross-sectional area and flow through Grand Pass and saltwater intrusion into the project area.

SSE's role is leading dredging and equipment access design as well as performing an independent technical review of marsh and coastal ridge habitat design features. In addition, SSE led the design of shoreline protection features to minimize the impacts of the salinity control structure installation. Shoreline protection features included gabions and riprap for shoreline stabilization along Grand Pass. In addition, a scour apron was designed to protect the toe of the control structure from scour.

Construction plans, specifications, and permit drawings were developed in support of this project as well as an engineer's opinion of probable cost. Construction is anticipated in 2022.

CLIENT

Natural Resources Conservation Service

RELEVANT FEATURES

- Coastal planning & design
- Permitting
- Marsh & ridge restoration
- Shoreline stabilization & protection
- Beneficial use of dredged material
- Living shoreline design
- Design analysis & reports
- Technical evaluations
- Cost estimates
- Field investigations
- Survey
- Geotechnical engineering

THE NATURE CONSERVANCY / NOAA OYSTER REEFS FOR SHORE STABILIZATION // GRAND ISLE & BILOXI MARSHES, LA

CEI was contracted by The Nature Conservancy to design, prepare permit applications, and obtain permits to construct bioengineered oyster reefs in coastal Louisiana to initiate oyster reef growth, reduce edge erosion along existing shorelines, and enhance fisheries habitat. The firm obtained a permit to construct a total of 7.03 miles of linear oyster reefs; 4.54 miles in the Biloxi Marsh, St. Bernard Parish and 2.49 miles behind Grand Isle in Jefferson Parish. Funding for construction of 1.25 miles of reef in Jefferson Parish and 2.15 miles in St. Bernard Parish was provided by the American Recovery and Reinvestment Act through NOAA and managed by The Nature Conservancy, Louisiana Chapter. The total of 3.4 miles of artificial reef protects approximately 350 acres of marshland located behind the reef structures.

CEI was responsible for fabrication and transportation of a total of 3,600 ReefBlk™ units to the four sites; transportation and loading of oyster shell into the ReefBlk™ units; transportation of all heavy equipment, marine vessels, crew quarters, and supplies; and personnel to construct and install the oyster ReefBlk™ units. CEI fabricated the metal frames, fitted plastic mesh oyster bags into the metal frames, filled the bags with oyster shells, and sealed them with stainless-steel hog rings. Nine bags, each about 6-inches thick when filled with oyster shell, were fitted inside a double welded metal frame 2-feet high by 5-feet long. The frame and bags constituted a ReefBlk™ unit. The units were placed on a 12-foot-wide filter fabric that served as a base and minimized subsidence. Specialized equipment used for the installation included one 50-foot-long by 20-foot-wide twin engine shallow draft vessel fitted with a hydraulic crane, one 30-foot twin-engine workboat fitted with a small hydraulic crane on the deck, and four-wheel drive hydraulic front-end loaders. CEI was to monitor the project and prepare annual reports documenting the condition of the bioengineered oyster reef over a four-year period. However, due to project installation delays due to the Deepwater Horizon Oil spill, the need to relocate the staging operation from the designated location on Grand Isle, and repair of a small section of reef damaged by a hurricane shortly after installation, an abbreviated monitoring effort was only performed once.

CLIENT

The Nature Conservancy

RELEVANT FEATURES

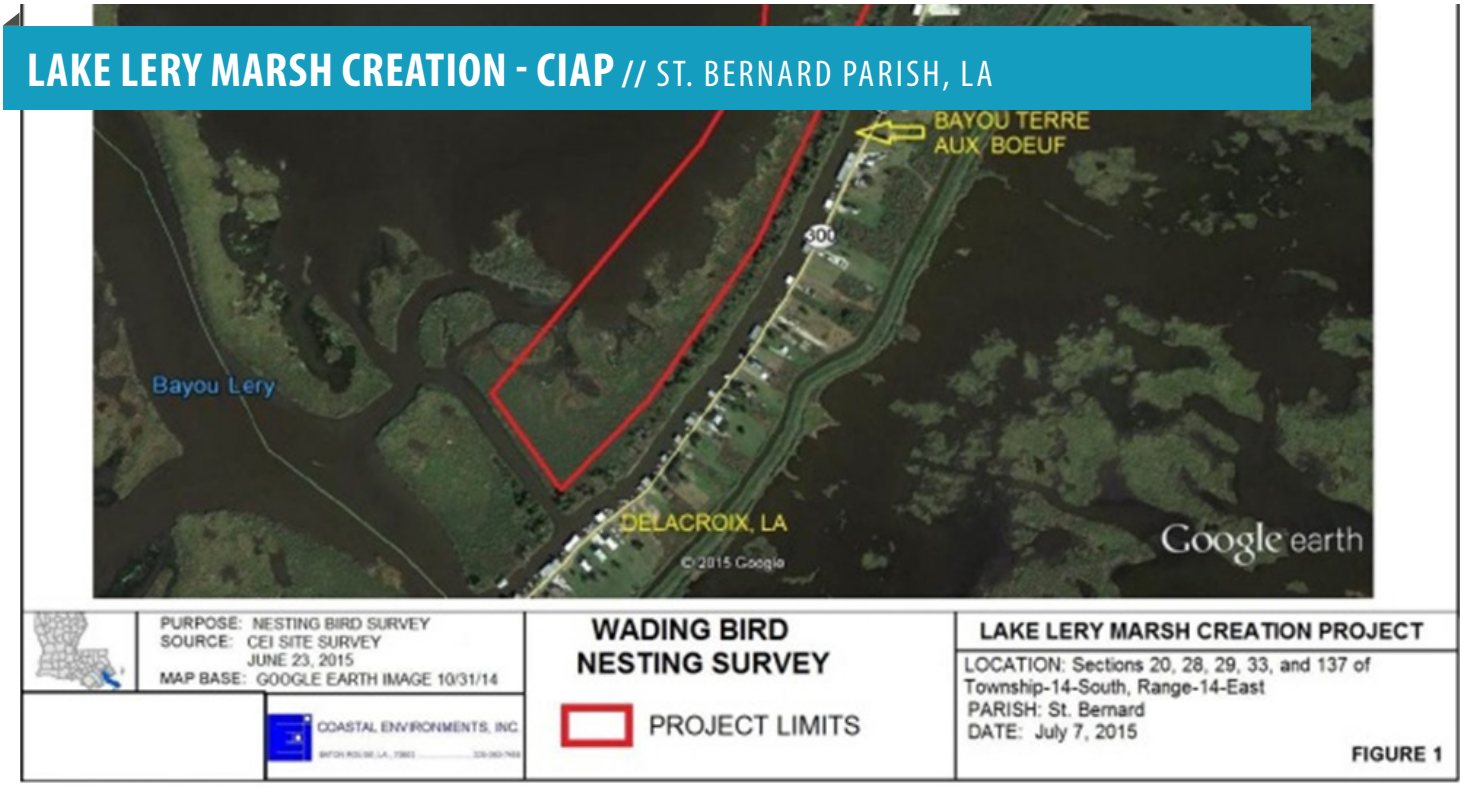
- In Jefferson Parish
- Coastal planning & design
- Permitting
- Shoreline stabilization & protection
- Living shoreline design
- Cost estimates
- Field investigations

ReefBlk™ units function as substrate for oyster spat attachment and allow growth of an intertidal oyster reef that provides both shoreline protection and habitat for estuarine organisms. As oyster growth progresses and the reef unit becomes denser, the bioengineered structure dampens and dissipates wave energy and protects the estuarine marsh from erosion.

Deliverables included Coastal Use permit (CUP), USACE permit (Section 10/404), USCG Private Aids to Navigation Permit, as-built drawings, and 1.25 miles of oyster ReefBlk™ units behind Grand Isle and 2.15 miles of ReefBlk™ in the Biloxi Marsh. CEI installed USCG private aids to navigation at all project locations.

This project was among the earliest of projects demonstrating that a living shoreline constructed of ReefBlk™ units could successfully slow erosion rates along marsh shorelines and be colonized by living oysters. This type of living shoreline enhanced biodiversity within the area; however, heavy predation in the higher salinity environment behind Grand Isle slowed growth of the reefs.

LAKE LERY MARSH CREATION - CIAP // ST. BERNARD PARISH, LA



St. Bernard Parish's proposed Lake Lery Marsh Creation project was accepted for funding under the Coastal Impact Assistance Program (CIAP), one of CPRA's funding sources for coastal restoration. The project proposed to restore intermediate marsh habitat in eroded, open water areas along the west bank of Bayou Terre Aux Boeufs using dredge fill from Lake Lery, to preventing storm surge from breaching the natural levee and exposing the road and communities along the east bank of the river. CEI assisted the prime contractor in preparing a proposal and making a bid presentation to the parish. CEI scientists provided input to the prime regarding the project area's environmental setting, design opportunities/constraints, and project parameters (existing elevation and tidal range, target marsh elevation for fill, salinity ranges and trends, habitat type and potential revegetation species, etc.) that would influence successful establishment of an intermediate marsh.

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St. Bernard Parish Government

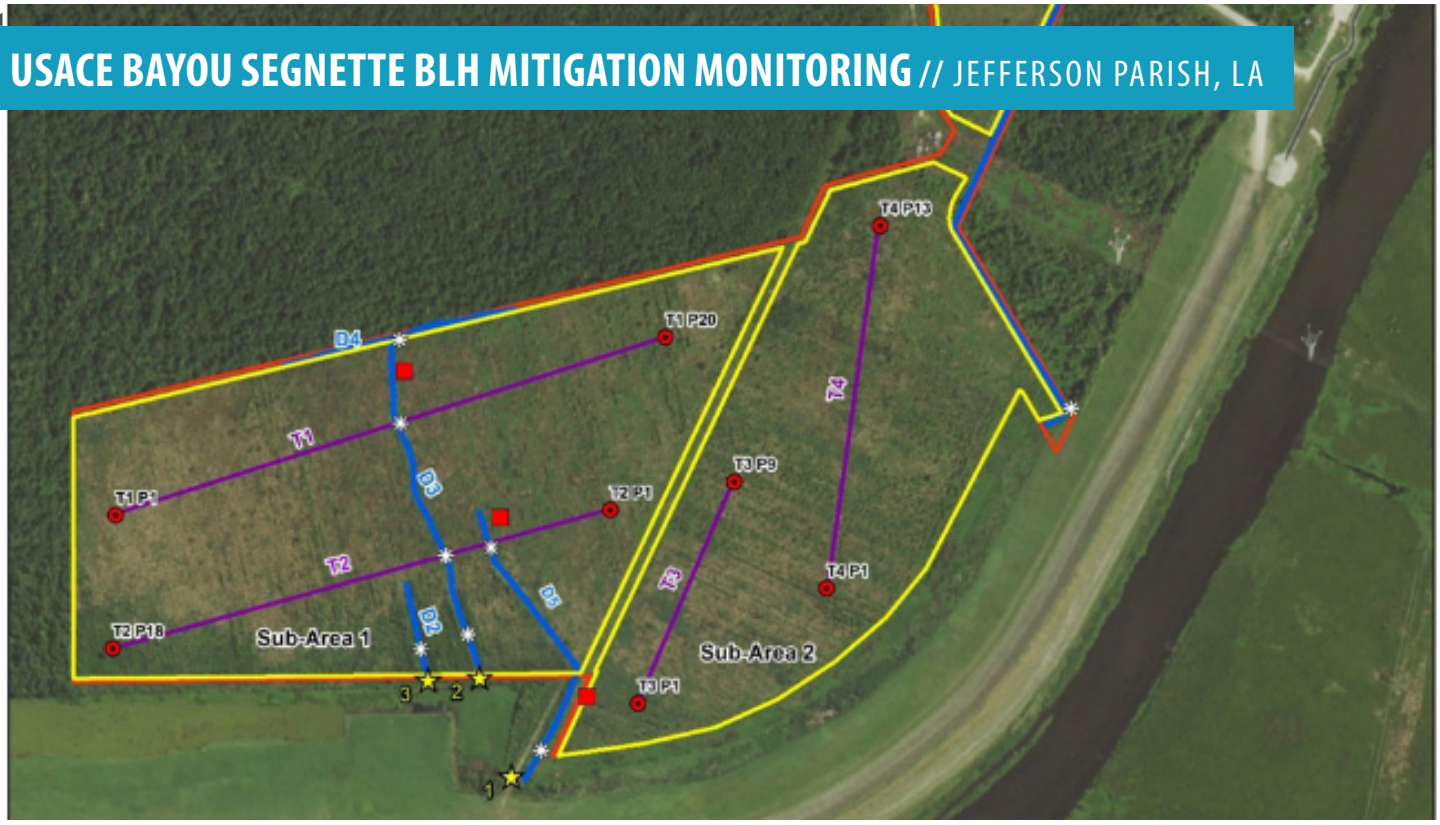
RELEVANT FEATURES

- Coastal planning & design
- Permitting
- Marsh & ridge restoration
- Biological & environmental assessment of wetlands
- Field investigations

The firm assisted in defining the proposed action and construction techniques to facilitate permitting and avoiding adverse effects, obtaining permit application data, coordinating pre-application meeting with USACE, other regulatory agencies, and the prime contractor to identify agency concerns and conditions and define environmental issues and mitigation requirements. CEI prepared, submitted, and tracked the permit applications (Section 404, Section 10, CUP) to the USACE and LDNR and responded to comments. The USCG was consulted regarding navigability of waterways in the project area. CEI prepared a wetland delineation and tracked the submittal until the USACE issued a jurisdictional determination. CEI biologists consulted USFWS and LDWF databases for potential threatened and endangered species in the area and looked for T&E species during the wetland delineation survey. Prior to construction, CEI biologists conducted a nesting bird survey and submitted a report of findings.

The archaeological investigation resulted in the recommendation that the project area be realigned to avoid a previously identified historically significant archaeological site. During the course of project implementation, a previously unrecorded archaeological site was discovered, and CEI archaeologists recorded and delineated the sites and assessed the potential impacts of construction. Site 16SB197 was found to have three intact prehistoric mounds dating to the Bayou Petre Phase of the Mississippi Period (1200-1700 A.D.). With the assistance of the USACE-NOD, recommendations for No-Work areas were established to the satisfaction of the State and interested Tribal entities. CEI monitored the construction phase to ensure avoidance of adverse impacts to cultural resources.

USACE BAYOU SEGNETTE BLH MITIGATION MONITORING // JEFFERSON PARISH, LA



The USACE New Orleans District (MVN) constructed the Bayou Segnette Bottomland Hardwood Mitigation project to mitigate unavoidable environmental impacts from implementation of the West Bank and Vicinity Hurricane Protection project in Jefferson Parish. The USACE contracted CEI to conduct baseline and initial environmental monitoring of the 123-acre mitigation area and prepare a report of findings, under CEI's environmental services contract with the USACE New Orleans District. CEI provided all personnel, equipment, materials, and supplies to perform five tasks:

CLIENT

USACE New Orleans District

RELEVANT FEATURES

- In Jefferson Parish
- Biological & environmental assessment of wetlands
- Field investigations

1. Install field monitoring stations
2. Collect data on vegetation at monitoring stations
3. Process and analyze monitoring data
4. Prepare report documenting methodology, data collection and analysis, and history of previous mitigation activities
5. Construct replacement wood plank bridge to access a sampling area

CEI conducted the investigation, analyzed the data, and prepared the report following protocols established by the USACE. CEI used the Point-Centered Quarter (PCQ) survey method to record and photograph conditions at 86 sampling points along 8,000 feet of transects within three planted sub-areas. Raw data were collected on planted and volunteer canopy and mid-story species, invasive and nuisance species, ground cover (species and percent cover), and wetland indicator status and entered into MS Excel spreadsheet files for generation of various summary tables using USACE approved calculations.

Data collection and analysis were designed to determine whether applicable mitigation success criteria have been achieved. The report also included recommended mitigation management and maintenance activities (e.g., replanting, better water management, eradication of invasive species) to ensure project mitigation success criteria and goals set by the USACE. Access to the mitigation area was delayed due to Bayou Segnette State Park being used as a COVID quarantine area. This resulted in the station installation and sampling being conducted when vegetation was at its maximum growth and daily temperatures and humidity were extreme. Field delays were also encountered due to intense afternoon thunderstorms. Despite these challenges, CEI met the revised deadline and completed the project within budget.

Deliverables included Bayou Segnette Bottomland Hardwood Mitigation Project Baseline and Initial Monitoring Report, Jefferson Parish, Louisiana (2020); digital raw data and analysis data (spreadsheets) and a wood plank bridge constructed over a small drainage canal to provide access to one monitoring site.

CAMINADA HEADLAND BACK BARRIER MARSH CREATION (BA-171) PROJECT
// JEFFERSON PARISH, LA

ADAPTIVE
MANAGEMENT AND ENGINEERING

The BA-171 project involves the creation or nourishment of 1,061 acres of back barrier marsh using hydraulically dredged and placed material from a borrow area approximately 1.5 miles offshore in the Gulf of Mexico. The fill areas will be fully confined with earthen containment dikes (ECDs) along the west, north, and east sides, and to the south by the previously constructed Caminada beach and dune projects (BA-0045 and BA-00143).

CLIENT

CPRA

RELEVANT FEATURES

- In Jefferson Parish
- Beneficial use of dredged material
- Design analysis and reports
- Cost estimates
- Field investigations
- Geotechnical engineering

As part of this project, former employer (same staff) reviewed previously collected data, predicted magnitudes and rates of undrained shear strength gain in the natural ground soils supporting the proposed ECDs and re-evaluated design crest elevations, and collaborated with CPRA on developing an Instrumented Settlement Plate (ISP) Web-based Data Monitoring Program to be utilized during construction of the BA-171 project. AME is working on a key part of the development of the construction monitoring plan, which is the development of a "target vertical effective stress" concept that can be implemented to verify or adjust target marsh fill elevations to improve post-construction performance while maintaining flexibility in terms of the dredging contractor's means and methods.

A full-scale Geotechnical Instrumentation and Monitoring Program was developed and is currently being implemented on the construction phase of BA-171 under Sigma and S&ME. AME had installed the ISPs at 17 different locations throughout the march creation area, but Hurricane Ida caused significant impacts to the project site and overturned several of the ISPs. However, CPRA has been approved additional funds to get the project back on track and AME will be on-site to replace and reinstall any damaged equipment. Once installed, AME will monitor the placement of the hydraulic fill. If possible, the project will be adaptively managed to modify target placed fill elevations.

LAKE VILLA POND IMPROVEMENTS PROJECT // JEFFERSON PARISH, LA

ADAPTIVE MANAGEMENT AND ENGINEERING

The proposed enhancement of the Lake Villa Pond is a compilation of structural, environmental, and recreational improvements which will work together to achieve the project vision and goals. Phase I of the project will achieve the structural and environmental objectives while Phase II will implement the recreational improvements.

Phase I of the project will consist of establishing a hydraulic connection via a channel from Lake Villa Pond to Lake Pontchartrain. The channel from the pond to the lake will provide daily tidal exchange along the western side of the pond and the proposed marsh vegetation along the east side of the pond. The western portion of the pond will be extended by mechanically excavating the upland areas deeper. The excavated material will be utilized to terrace the pond to critical elevations to promote different species of vegetative growth within marsh platforms. Additional fill material could be obtained from Lake Pontchartrain if the cut/fill of the pond was at a deficit.

CLIENT

Jefferson Parish

RELEVANT FEATURES

- In Jefferson Parish
- Permitting
- Design analysis and reports
- Cost estimates
- Field investigations
- Geotechnical engineering

Phase II of the project will consist of educational, recreational, and landscape improvements to the site. A walking path around the pond will be constructed as well as an elevated boardwalk.

AME is awaiting Jefferson Parish/CPRA/USACE permit to conduct the field exploration program. A laboratory testing program and geotechnical analyses will be completed, and a report summarizing the recommendations for the project will be provided. AME will utilize a marsh buggy mounted drill rig to collect the soil borings and analyze the samples in their AASHTO accredited geotechnical laboratory.

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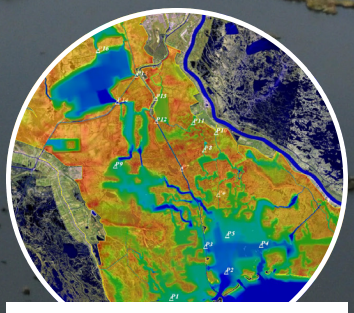
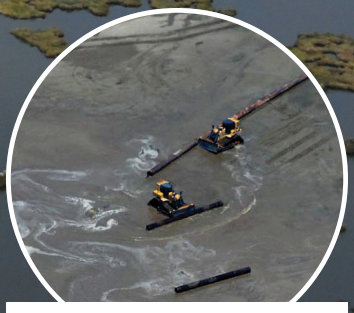
LaBranche Shoreline Protection

Bucktown Living Shoreline Project



Barataria Basin DELFT 3D Modeling



Mississippi River LDSP

Main photograph courtesy Patrick M. Quigley