



---

**WE'RE BETTER  
TOGETHER**



**UNIVERSITY LAKES, LLC**

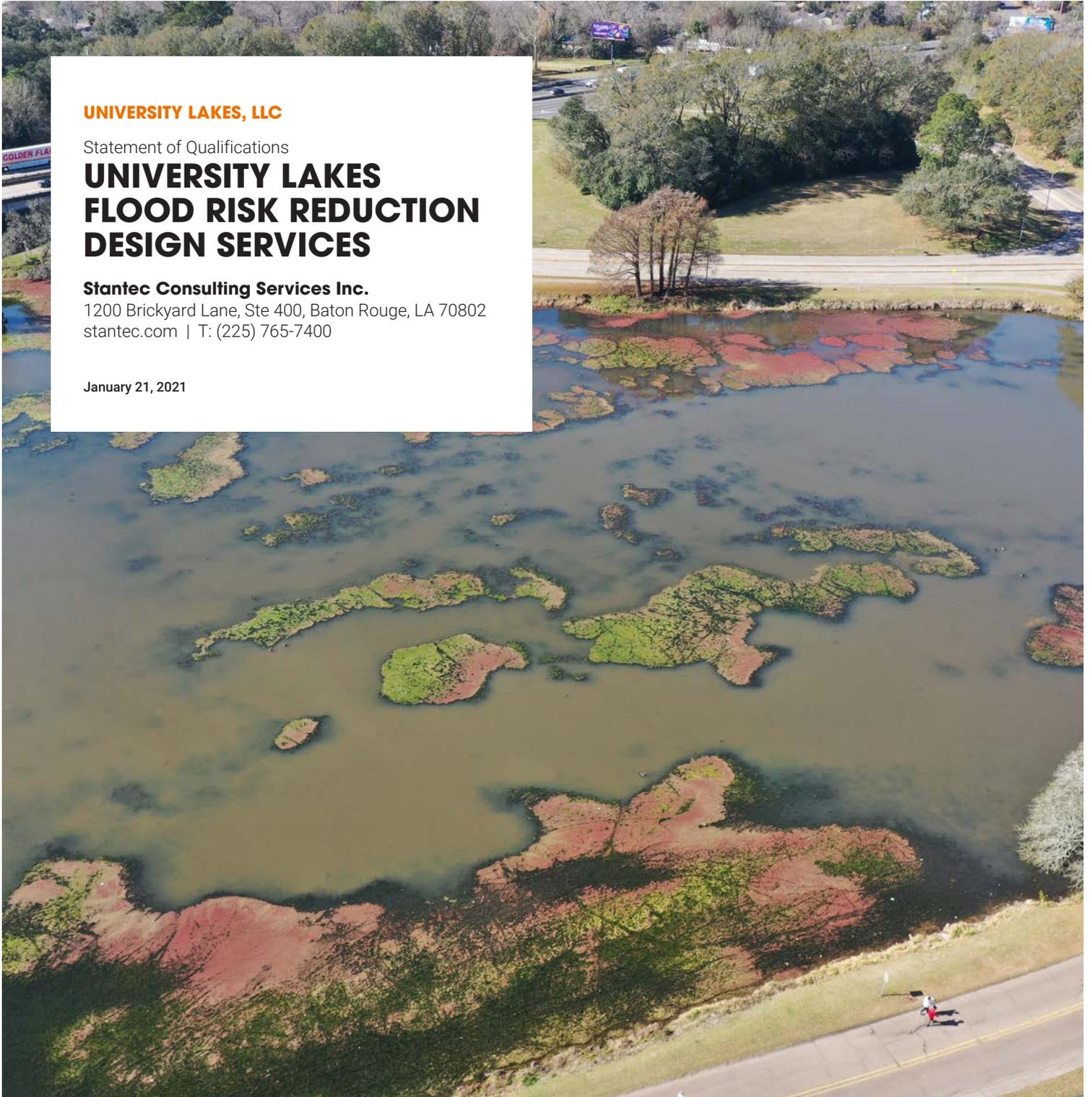
Statement of Qualifications

**UNIVERSITY LAKES  
FLOOD RISK REDUCTION  
DESIGN SERVICES**

**Stantec Consulting Services Inc.**

1200 Brickyard Lane, Ste 400, Baton Rouge, LA 70802  
stantec.com | T: (225) 765-7400

January 21, 2021



## RESPONDER COVER SHEET

### Section A. Proposer Information

<b>Legal Name:</b> Stantec Consulting Services Inc.	
<b>Main Administrative Address:</b> 1200 Brickyard Lane, Suite 400	
<b>City &amp; State:</b> Baton Rouge, LA	<b>Zip Code:</b> 70802
<b>Telephone Number:</b> (225) 765-7400	<b>Fax Number:</b> (225) 765-7244
<b>E-mail Address:</b> hilary.thibodeaux@stantec.com	<b>Web Site:</b> stantec.com/en
<b>CEO/Executive Officer:</b> Gord Johnston	<b>Office Phone Number:</b> (780) 917-7077
<b>Chief Financial Officer:</b> Stuart Lerner	<b>Office Phone Number:</b> (646) 490-3873
<b>Contact Person's Name:</b> Hilary Thibodeaux, PE	<b>Phone Number Including Area Code:</b> (225) 765-7400
<b>Mailing Address, City, State, Zip Code, Email:</b> 1200 Brickyard Lane, Suite 400, Baton Rouge, LA, 70802; hilary.thibodeaux@stantec.com	
<b>Type of Entity (check all that apply):</b> <input checked="" type="checkbox"/> Private-for-Profit Entity <input type="checkbox"/> Nonprofit	

### Section B. Certification of Accuracy and Compliance

I do hereby certify that all facts, figures, and representations made in the Proposal Response(s) are true and correct. Furthermore, all applicable statutes, terms, conditions, regulations, and procedures for program compliance and fiscal control, including but not limited to, those contained in the Proposal Package will be implemented to ensure proper accountability of contracts. I have been duly authorized to act as the representative for this Proposal.

Hilary Thibodeaux, PE	Principal
	Authorized Official's Title
Authorized Official's Signature	1/21/2021
	Date

Figure 1



# Table of Contents

➔	<b>Proposer Cover Sheet</b>	2
➔	<b>Letter of Transmittal</b>	4
➔	<b>Organizational Background + Overview</b>	5
	Organizational Chart	
	Team Composition	
➔	<b>Firm + Key Staff Experience</b>	7
	Firm Experience	
	Team References for Comparable Scope of Work	
	Key Team Members	
	Relevant Projects	
	Select Team Resumes <i>(Full Team resumes available on request)</i>	
➔	<b>Project Understanding + Work Plan</b>	22
	Project Understanding	
	Work Plan	
	Signature Solutions	
	Proposed Schedule	
➔	<b>Current Backlog + Ability to Conform to Schedule</b>	30

**Stantec Consulting Services Inc.**

1200 Brickyard Lane, Ste 400,  
Baton Rouge, LA 70802

**JANUARY 21, 2021****RE: UNIVERSITY LAKES FLOOD RISK REDUCTION DESIGN SERVICES**

Dear University Lakes Project Advisor and Selection Committee,

We are pleased to submit our statement of qualifications for the Flood Risk Reduction Design Services for the University Lakes Project.

The Lakes have long been an iconic destination serving the citizens of Baton Rouge, the people of LSU, and adjacent communities. Across the US, many urban water bodies face similar challenges related to water quality, flood risk, nutrient recycling, urban contaminants, and equitable access to the public realm—For the past decade-plus, our core team of **Stantec, Baird, Neel-Schaffer, Adaptive Management and Engineering** and **Sustainable Design Solutions** have worked with a variety of clients on large-scale recreation and restoration projects that advance tailored, implementable design solutions to these issues. We are excited by the opportunity to work with B&D/CSRS, LLC; University Lakes LLC (UL); and the extensive list of stakeholders and invested parties to advance a cohesive and restored design for the Lakes and related amenities. With attention to both the ecosystem and human scale, the Lakes can continue to be a point of pride for the University—and when complete will provide a marked improvement to the quality of life for all of Baton Rouge.

Our team is prepared to tackle the complexities of this project in stride, working closely with the existing and future team of consultants on simultaneous contracts in an integrated fashion to ensure that parallel work on Flood Risk Reduction and related efforts inform the progression of the design from the earliest stages forward. As a nimble firm that excels at large-scale ecological challenges, we are adept at occupying the ‘integrator’ role on multi-disciplinary teams, bringing together subject matter experts and distilling input into cohesive, implementable design solutions on the ground.

We would be honored to be selected by the Project Advisor and Selection Committee to partner on this very exciting and much needed project to deliver a dynamic, within-budget design for the Lakes that will serve the LSU and City of Baton Rouge for generations to come.

*We have no relationship with (1) current or former board members or employees, or their immediate family members, of any Party to the Lakes MOU; (2) any member of the Project Management Committee or their immediate family members; or (3) any other person who is or was significantly involved in the organization, preparation, or administration of this RFQ or otherwise was in a position to significantly affect the RFQ either through a decision-making capacity or through a review process.*

Respectfully,

Stantec Consulting Services Inc.,



**Brian Lennie, Associate**

E: [brian.lennie@stantec.com](mailto:brian.lennie@stantec.com)

T: 262.643.9061

# Organizational Chart

5

## University Lakes, LLC

### B&D / CSRS, LLC

#### Principal-in-Charge

■ Hilary Thibodeaux, PE

#### Project Manager

■ Brian Lennie, CWS

#### Project Technical Lead

■ Gordon Thomson, PE, D.CE

#### Deputy Project Manager

■ Ben Hartman, PE

#### Senior Advisors

■ Dennis Passman, PE\*  
*Civil QA/QC*

■ Jeff Pena, PE\*  
*FRR QA/QC*

■ Glenn Ledet, PE\*  
*Hydrology/Dredging QA/QC*

#### Legend

- Stantec Consulting Services Inc.
- Baird
- Neel-Schaffer, Inc.
- Adaptive Management and Engineering, LLC
- Sustainable Design Solutions, LLC
- \* CMAR Expertise

#### Earthwork & Dredging

■ Cameron Whitmore

#### Hydrology

■ Tadd Henson, PE

#### Water Quality

■ Qimiao Lu, PhD

■ Matt Starr, PE

■ Tom Cancienne, PE\*

■ Rob Nairn, PhD, PE\*

■ Matt Hoy\*

■ Alex Brunton, PhD

■ Steven Elliott

#### Dredging Material Placement

□ Kodi Guillory, PE\*

#### Construction & Implementation

■ Amanda Phillips, PE\*

#### Geotechnical Services

□ Venu Tammineni, PE, LEED AP

■ Ryan Waldron, PE\*

■ Bob Esenwein, PhD, CEP

■ Debby Sheets, PE\*

■ Chris Sanchez, PE\*

□ Michael McKinney

■ Kyle Blakley, PE\*

# Team Composition

6

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That's why at Stantec, we always design, consult, and plan with community in mind. Our flexible, focused team of technical experts stand ready to assist UL and B&D/CSRS with Flood Risk Reduction Design Services for the LSU Lakes by providing the necessary resources and guidance related to every aspect of this solicitation.

We believe we assembled an unparalleled Team that has industry leading experience and captures the three main components of this project:

- 1) Large scale and complex dredging. As shown in our projects and resumes, we have a significant amount of experience and talent related to dredging. Our Project Manager, **Brian Lennie** will lead our Team that includes **Kodi Guillory, Ben Hartman, and Glenn Ledet**, all former employees of the CPRA that have delivered dredging projects successfully for the State of LA, along with **Gordon Thomson and Amanda Phillips** who also have a vast knowledge of dredging methodologies, processes, and construction.
- 2) Water quality and flood risk reduction projects in urban environments. Both Stantec and Baird are leading experts on this subject matter and have this experience across the nation.
- 3) Alternative delivery (CMAR and Design-Build). Stantec has lead and is currently leading the two biggest alternative delivery projects in the State; the Permanent Canal Closures and Pumps (PCCP) in New Orleans, and the Mid Breton Sediment Diversion (CMAR) project in Plaquemines Parish. Team members **Kodi Guillory** and **Glen Ledet** also have experience with the CMAR Program while at CPRA, and **Jeff Pena** and **Hilary Thibodeaux** both worked on the IHNC, a \$1.5B Design-Build project.

Stantec is committed to growing talent and sharing our experience with disadvantaged and small businesses. We strongly believe that helping these businesses learn and grow makes our community stronger and more resilient. We plan to maximize the use of Section 3 low- and very low-income residents and eligible businesses to the greatest extent feasible. Two of our subconsultants are **certified Hudson Initiative firms**, Adaptive Management and Engineering, LLC (certified small business) and Sustainable Design Solutions, LLC (certified women-owned DBE). With our team, you get experienced professionals who have worked with all parties mentioned in the MOU and who understand the challenges associated with these lakes. Our team has the desire and experience related to the project needs to successfully execute this project for you and our community. This is our home too!



**Centennial Park Pond Dredging**  
Cedarburg, WI





## Firm Experience

### Stantec Consulting Services Inc.

The Stantec community unites approximately 22,000 employees working in over 400 locations across six continents, including 74 LSU alumni company-wide. We're planners, designers, and consultants, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advances the quality of life in communities across the globe.

We take pride in a long history of being part of the communities we serve. We started in 1954 as a one-person firm, and we know the importance of understanding our clients' challenges within the local context. The Stantec team has executed complex, sensitive projects, like the University Lakes, to create and support sustainable and resilient communities throughout the US.

Stantec is a recognized leader in the field of engineering. We have a deep bench in every discipline required to deliver this project successfully. With local offices and staff committed to respond quickly, our team is ready to provide the critical support you need. The Stantec Team also has the technical competence related to the project engineering components such as dredging, drainage and flood protection, water quality, and environmental to better assist you with the selection of a qualified design firm. With our vast amount of dredging experience, we have delivered over 100 dredging projects ranging from massive barrier island hydraulic dredging projects to mechanical maintenance dredging projects in heavily populated areas. This experience will be invaluable as your FRR designer to address the project's complex issues as dredging plans are developed. With this knowledge, practical dredging methods will be evaluated for optimal performance and efficiency along with minimizing impacts and disruption.

### Baird

#### Hydrology

Baird has worked exclusively 'where water meets land' in river, lacustrine, estuary and coastal environments for 40 years. The company was founded in 1981 and has since grown to eleven offices on four continents, which includes their office in Baton Rouge. Baird is made up of approximately 85 engineers, scientists, planners, and landscape architects specializing in professional services exclusively at the land-water interface. Baird is a nationally recognized leader in numerical modeling of hydrodynamics, sediment

transport and water quality. They apply a wide range of commercial and public models including for evaluating hydrodynamic, sediment transport, and water quality processes: SWMM, InfoWorks, HEC-HMS, HECRAS1D-2D, EFDC, Delft3D, MILKE21/3, TELEMAC, FLOW-3D, various in-house models and many others. Baird has extensive experience in all facets of engineering design where water meets land including dredging and wetland creation for restoration projects. Baird is responsible for the design and bidding, and will lead construction management, of the largest restoration project by dredging ever in Louisiana, the Spanish Pass project for CPRA.

One of Baird's unique characteristics is their dedication to integrating the scientific components of a project with excellence in design and engineering. Their niche modeling expertise is applied frequently, they are experienced and efficient at doing the work, they understand the limitations and uncertainties associated with these techniques, and how to translate them into decisions on the ground. This blend of expertise provides Baird with the ability to deliver innovative and cost-effective solutions on very complex and challenging water quality and water resource projects. Their success is founded on their ability to communicate each other in a clear and open manner. They embrace the discipline to listen to, and to understand, the needs and views of their clients and of stakeholder groups.

As demonstrated by the sample projects, Baird has a reputation of undertaking large, complex work with similar challenges as the LSU Lakes system. Professional relationships are important; Baird has a successful history teaming with Stantec to deliver quality work in a timely fashion. Baird also has an excellent working relationship with Sasaki, together undertaking the Lakeview Village project on Lake Ontario, Northwestern University Shoreline Project on Lake Michigan, Sarasota Bayfront Master plan, and winning the Louisiana based Changing Course Design Competition.

### Neel-Schaffer, Inc. (NSI)

#### Construction & Implementation

NSI is a multi-disciplined engineering and planning firm that was founded in 1983 and is today one of the largest private, employee-owned engineering firms in the South, with 500 employees working out of 36 offices across nine states. NSI has established a strong presence in Louisiana, with offices in Lafayette, Baton Rouge, New Orleans, Mandeville,

and Shreveport. The firm's location in Baton Rouge, over two decades, has grown with relationships and experience working for numerous State and Local City-Parish entities in and around the City.

NSI is comprised of technical and professional resources with extensive experience completing hundreds of infrastructure projects throughout the Gulf Coast that include dredging design & construction; fill placement and containment; shoreline protection and environmental restoration.

NSI has also extensive experience in a variety of Alternative Delivery projects throughout the Southeast US, including current engineering and design work in Baton Rouge, LA on the Design Build College Drive Flyover project. NSI has also served on the numerous successfully completed Design Build teams in various capacities such as the I-20/220 Interchange Improvements, BAFB Access Program in Bossier Parish, LA, I-65 Buckner Road Project for TXDOT, GDOT FY16 Design-Build Bridges, GDOT FY-2018 Bridge Replacements, Macon Design-Build Bridge Replacements, and TDOT I-75/I-24 Design-Build Owner's Representative. These projects involved significant infrastructure construction around the South US with significant quantities of earthen excavation and embankment similar to the University Lake Project.

**Adaptive Management and Engineering, LLC. (AME)**

**Geotechnical**

AME is a small business and a Hudson Initiative firm located at the LSU Innovation Park, Louisiana Business & Technology Center in Baton Rouge, Louisiana. AME provides geotechnical, instrumentation and monitoring services to various public and private sector clients. AME's staff have a combined experience of 40 years working in soft soils in Gulf Coast and around the nation. They are 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 has considerable experience working with various national and local dredgers during design and construction to ensure that the dredge material is placed efficiently and also meets the design requirements. AME has provided solutions during construction for various dredging projects where material variations increased the project costs through change orders from the dredgers. Mr. Tammineni with AME has helped bridge the gap between the design team and the dredging contractors by providing live monitoring using instrumentation and adjusting the design during dredge fill placement to complete the dredging.

AME has developed innovative methods and revived/ updated previous methods that have been used for upland disposal sites (UDS) and applied the lessons learned to marsh restoration and other BUDM projects. It is crucial to understand the various inputs into programs like Primary Consolidation, Secondary Compression, and Desiccation of Dredged Fill (PSDDF) and other geotechnical programs to estimate the consolidation of dredged fill and foundation soil.

**Sustainable Design Solutions, LLC. (SDS) Dredging & Placement; DBE**

SDS is a Woman-Owned certified DBE Engineering Firm and a certified Hudson Initiative firm. Sustainable specializes in the design and implementation of civil works projects. Our company focuses on Municipal, State, and Federal infrastructure development, and maintenance. Sustainable prides itself on implementation of projects related to the environmental and infrastructure sectors. Understanding a client's needs and mapping a path to a finished product in a cost-effective manner is our specialty. Our experience has given us the tools to think creatively about complex problems and create sustainable solutions.



**Team References for Comparable Scope of Work**

Client	Contact	Project	Firm
<b>Coastal Protection and Restoration Authority</b>	Brad Barth, Project Manager, CPRA (225) 342-9417   bradley.barth@la.gov	Mid-Breton Sediment Diversion	Stantec Prime
<b>C. Reiss Coal Company</b>	Christian Zuidmulder, Operations Manager (920) 436-7600   christian.z@thecreiss.com	C. Reiss Dock Terminal	Stantec Prime
<b>The Nature Conservancy</b>	Matthew Kovach, Lake Erie Coastal And Islands Projects Manager (419) 707-0668   matthew.kovach@TNC.org	H2Ohio Sandusky Bay Restoration Initiative Nutrient Reduction Wetlands	Baird Prime



## Key Team Members



**Hilary Thibodeaux, PE**  
Principal-in-Charge

As **Principal-in-Charge, Hilary** will oversee the contractual obligations. He brings 23 years of experience in both engineering and managing erosion and sediment control projects. His experience focuses on state and levee districts' coastal issues. Hilary has successfully delivered projects to his clients, including the Coastal Protection and Restoration Authority, requiring design and construction management of dredging, flood gate structures, braced floodwalls, earthen levees, and wetland mitigation/restoration. He also has experience in environmental compliance (NEPA) and storm disaster response, recovery, and hazard mitigation. As the St. Mary Levee District's Executive Director, Hilary gained experience in a leadership role in managing flood protection systems along with the understanding how to effectively utilize government programs to assist in flood protection missions. Levee districts call upon Hilary to attend update meetings in their Emergency Operation Centers and to assist in operations. He brings a tremendous value by contributing perspectives of both the consultant and the owner.



**Brian Lennie, CWS**  
Project Manager

As **Project Manager, Brian** will be your single point of contact and will be overseeing all aspects of the design process. He joined Stantec in 1994 and currently serves as a Senior Scientist and Project Manager. His responsibilities include managing other staff scientists; conducting resource management studies, lake studies, wetland studies, dredge studies, environmental policy and ordinances; and preparing designs for stormwater ponds, dredging plans, streambank stabilization, landscape plans, wetland creations and mitigation, and wetland and waterway permitting. He also plans and completes field investigations such as wetland delineations, erosion control plans, waterway and natural resource inventories, and manages the construction of natural resource related projects. Brian has completed numerous inland waterway dredging projects throughout Wisconsin; including Kinsey Park Pond, Lake Park Ponds, and Lamplighter Park Pond.



**Ben Hartman, PE**  
Deputy Project Manager

As **Deputy Project Manager, Ben** will support Brian and assist with the daily activities and coordination of team members. He has 10 years of civil engineering experience specializing in design, construction, and maintenance of coastal and ecological engineering projects ranging from the Gulf of Mexico to the Great Lakes, but primarily in Louisiana. He has experience designing and overseeing hydrologic restoration and water quality enhancement projects which included the removal and disposal of large quantities of cypress and tupelo stumps. He has performed design work to create man-made wetland systems and quiescent water environments that decrease turbidity via sedimentation while providing nutrient assimilation to meet water quality targets and reduce algal blooms. This design work included designed dredge material containment, beaches, breakwaters, and marsh that have incorporated features such as woody habitat mattresses, wood aggradation structures, and submerged root wads.



**Gordon Thomson, PE**  
Project Technical Lead

As **Project Technical Lead, Gordon** will support the Design Team Leads and provide technical guidance throughout the design process. He leads Baird's Shoreline and Coastal Restoration Sector. He has experience with the design, permitting and construction oversight of major beach and marsh restoration projects along and with coastal structures to stabilize the shoreline. His focus is sediment transport through the analysis of waves, storms and tides relying on both analytic and advanced numerical models. He has been responsible for the construction of projects totaling over \$500M in construction costs, 40M cy of sediment and the creation and restoration of over 4,500 acres of beach and marsh habitat.



## Relevant Projects

10

### Mid-Breton Sediment Diversion

---

<b>LOCATION:</b>	Plaquemines Parish, Louisiana
<b>CLIENT:</b>	Coastal Protection and Restoration Authority
<b>REFERENCE:</b>	Brad Barth, Project Manager, CPRA bradley.barth@la.gov (225) 342-9417
<b>START/END:</b>	2018 - Ongoing
<b>BUDGET:</b>	\$660M
<b>TEAM MEMBERS:</b>	Hilary Thibodeaux, <i>ITR</i> ; Dennis Passman, <i>Transportation Lead</i> ; Tom Cancienne, <i>Task Lead Engineer</i> ; Jeff Pena, <i>ITR</i> ; Debby Sheets, <i>Civil Engineer</i> ; Ryan Waldron, <i>Coastal Engineer</i> ; Chris Sanchez, <i>Civil Engineer</i> ; Rob Nairn, <i>Hydrology/Modeling</i>

---

The CPRA is working on an unprecedented \$50 billion Coastal Master Plan to reduce the rate of land/wetland loss and to reduce risk to its communities and economy from erosion and flooding by addressing its environmental infrastructure (EI). As part of the Master Plan, the Mid-Breton sediment diversion project will reconnect the Lower Mississippi River with the adjacent land and wetlands, restoring the land building potential by delivering sediment from the Mississippi.

As Prime Consultant, Stantec, is providing engineering, geotechnical, surveying, and other technical services for the Mid-Breton Sediment Diversion project. Phase 1 of the project involves field investigation, modeling, and engineering analysis to prepare a 15% level conceptual design culminating in a Basis of Design Report. A primary goal of the 15% Design is to determine the appropriate location of the inlet and the horizontal corridor through which the diversion will be developed.

During Phase 1, workshops were conducted with CPRA resulting in Draft Project Design Criteria, with particular focus on parameters that influence inlet location and diversion corridor. The Design Criteria will be updated and further refined for future use in Phase 2 of the project. The 15% deliverables will include technical memoranda summarizing numerical modeling, field investigations (geotechnical explorations and river sampling), design options considered, Draft Project Design Criteria, and workshop outputs.

Stantec is responsible for coordination of fieldwork and numerical modeling (in addition to physical modeling on the project). The extensive field program will include multibeam surveys of the river bed and the receiving basin, ADCP transects and bottom-mounts to monitor river flow velocities, 500+ water samples to determine suspended sediment concentrations, extensive bed sediment sampling, and a UAV to track sediment plumes.

An extensive numerical modeling program has been implemented consisting of a series of integrated components. Three of the five model components include the 3D version of the Delft3D model of hydrodynamics, sediment transport (fines and sand), and morphodynamics. On the basin side, the SWAN model will be applied to consider waves in addition to the flows from the conveyance channel. We are also applying an in-house 3D MISED model in parallel with Delft3D, and this has proven very beneficial in highlight limitations of each model. Extensive model runs have been completed to simulate existing conditions and a series of proposed alternatives for the diversion, spanning prototype time periods from 5 days to 10 years (with plans to extend to a 50-year simulation in the coming months).

## Spanish Pass Marsh and Ridge Restoration Project (Baird)

<b>LOCATION:</b>	Louisiana
<b>CLIENT:</b>	Coastal Protection and Restoration Authority
<b>REFERENCE:</b>	Brad Miller, Project Manager, CPRA brad.miller@la.gov (225) 342-4122
<b>START/END:</b>	2018 - Ongoing
<b>BUDGET:</b>	\$3.475M
<b>TEAM MEMBERS:</b>	Ben Hartman, Gordon Thomson, Qimiao Lu, Alex Brunton, Rob Nairn

This project is seeking to create and/or restore over 1,538 acres of marsh habitat and 132 acres of ridge habitat extending west from Venice, LA. The project requires over 15M cy of sediment with a construction cost of \$86.8M and is considered the largest single dredging prism the state of Louisiana has ever designed. The project is being funded under the Deepwater Horizon Oil Spill NRDA. Baird was responsible for the planning and management of geotechnical, geophysical, cultural, and topographic survey investigations which Baird subsequently used to develop project layout, construction permits, and bid documents. The team organized and hosted several industry workshops to incorporating feedback from dredging, navigation, oil & gas, and USACE stakeholders.

The team developed up to six borrow areas, two offshore and four within the Mississippi River. This was a combination of developing new borrow areas as well as using data from previously permitted borrow areas. Geophysical surveys and borings revealed plentiful sources of sand and clay. Hydrodynamic and morphodynamic modeling was performed to alleviate

concerns of the river pilots and to avoid project induced flooding, hypoxia, and velocity channelization. Baird revised borrow area layouts per USACE direction to avoid maintenance dredge interruptions and slope stability concerns of the adjacent levee system. A HTRW investigation was performed to ensure dredge material would not discharge pollutants. Two potential cultural resources of significance are being avoided in the borrow areas.

The project footprint was broken into 69 fill areas in order to optimize the project layout to fulfill the acreage requirements and provide flexibility during bidding. In the development of the footprint, Baird considered constructability and access given the maze of pipelines and access. Multiple options for dredge material containment were developed based on Baird's understanding of industry equipment and soil strength recommendations from GeoEngineers, who performed extensive geotechnical investigations within the fill area. The survey and soil data was combined with Baird's water level and subsidence analysis determine the marsh platform elevation and ensure that the project is providing suitable and sustainable wetland habitat. The constructed elevation will consider primary consolidation of the fill material, compaction of the existing ground due to the weight of the fill, background subsidence, and eustatic sea level rise.

Baird's design was summarized in Basis of Design Report and submitted to the Trustee Implementation Group to ensure compliance with NEPA under the Programmatic EIS. Baird will be providing construction phase engineering services including aerial photography collection, daily construction inspection, and project reporting.





## C. Reiss Dock Terminal Superior, Wisconsin

**CLIENT** C. Reiss Coal Company

**REFERENCE** Christian Zuidmulder, Operations Manager  
(920) 436-7600 | christian.z@thecreiss.com

Stantec is assisting the C. Reiss Coal Company to re-establish shipping activity at the Superior Port. C. Reiss Coal Company owns docks in both Duluth and Superior Ports. They have currently only operated out of the Duluth Seaway Port. However, due to increasing water levels that cause annual flooding at the Duluth Port, C. Reiss needs to relocate its operations from Duluth, MN to Superior, WI. The facility in Superior has been unused for the last 30 years; much of the needs to be rehabilitated. A Wisconsin Department of Natural Resources assured wetland delineation was completed for the site as well as wetland and waterway permitting for this project including wetland filling, stormwater pond construction, sea wall repair, dredging, an artificial wetland exemption request, construction site notice of intent permitting, and cultural and endangered resources reviews. Habitat assessments for the state threatened sea-side crowfoot were also conducted. Additionally, grant funding application submissions and phasing plans have been completed for the project's re-development.

## New York State Harmful Algal Bloom Action Plans New York

(Baird)

**CLIENT** NYSDEC

**REFERENCE** Tony Eallonardo, PhD, PWS  
(315) 956-6602 | tony.eallonardo@ramboll.com

Baird was retained as a key subconsultant on a team assigned to prepare action plans for 12 lakes in the State of New York Dept. of Environmental Conservation to address Harmful Algal Blooms (HABs). The smallest, Putnam Lake, is 258 acres in size which is similar to the scale of the 300 acre LSU system. This work involved describing the physical and biological conditions leading to algal bloom development and developing specific recommendations to minimize the frequency and duration of HABs to protect the health and livelihood of New York State's residents and wildlife. These were incorporated into an action plan for each lake to document contributing factors fueling HABs and immediate actions that can be taken to reduce the sources of pollution that spark algal blooms. Baird's responsibilities on this project included collection, review and analysis of data and numerical models of watersheds, rivers and lakes (including water and sediment quality and nutrient cycling processes in anoxic/hypoxic conditions) in addition to extensive remote sensing analysis to identify potential algal bloom coverage for each of the lakes.



13

## Centennial Park Pond Dredging

Cedarburg, Wisconsin

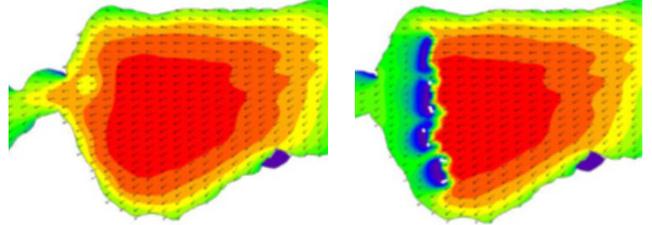
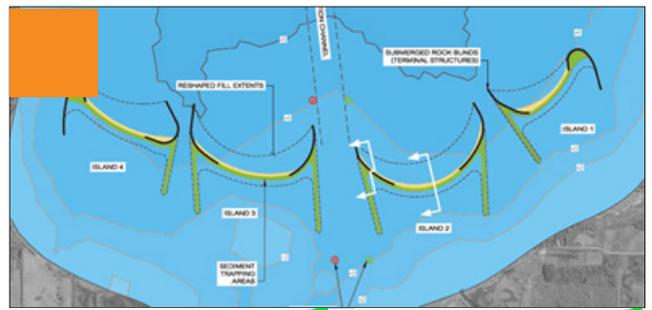
**CLIENT** City of Cedarburg

**REFERENCE** Tom Wiza, PE, Director of Engineering & Public Works  
(262) 375-7610 | twiza@ci.cedarburg.wi.us

The City of Cedarburg selected Stantec to resolve water quality problems at the Centennial Park Ponds. The solution was dredging and restoring the native shoreline of the two ponds and permitting by the Wisconsin Department of Natural Resources (DNR) and U.S. Army Corps of Engineers. Stantec designed a restoration plan that included removing 25,000 C.Y. of sediment and recommended using native root stock and a seed mixture that is well suited to wetland environments with native Wisconsin species.

Stantec completed a topographic survey of the pond areas, collected and performed sediment testing, provided construction plans and specifications and permitting for the project. The project also included hard access points to the ponds for pedestrian access and fishing. Stantec also assisted the City by performing construction administration, construction staking, inspection services and completed an as-built survey for the project.

STANTEC // UNIVERSITY LAKES FLOOD RISK REDUCTION SERVICES  
FIRM + KEY STAFF EXPERIENCE



## H2OHIO SANDUSKY BAY RESTORATION INITIATIVE NUTRIENT REDUCTION WETLANDS

Ohio (Baird)

**CLIENT** The Nature Conservancy

**REFERENCE** Matthew Kovach, Projects Manager  
(419) 707-0668 | matthew.kovach@TNC.org

Sandusky Bay is a unique Great Lakes bay ecosystem, with one of the largest extents of coastal wetland systems (now mostly bermed) in the Ohio Lake Erie basin. However, Sandusky Bay wetlands and aquatic habitat have been negatively impacted by high lake levels, local land use practices, changing watershed land uses, and nutrient loadings from Sandusky River, Muddy Creek, and other smaller contributing watersheds. A decrease in biodiversity and increase in harmful algal blooms (HABs) have resulted. One of the key design principles developed in this \$200M project was the need to create both nearshore and bay wetlands that route flow across the surface to achieve sedimentation and nutrient assimilation to the greatest extent possible.

The design team, led by Baird, was responsible for the planning and management of geotechnical, geophysical, cultural, and topographic survey investigations which are being used to develop dredge material containment, access and staging areas, submerged+emergent marsh, cobble beaches, breakwaters, and woody habitat structures (similar to cypress root wads) across six different Bay locations. The team has been following an aggressive one year design schedule and submitted 30% documents (design reports, cost estimates, plans) at the end of 2020. The ongoing design process includes hydrologic and hydrographic modeling to determine the impact of various design alternatives on runoff, wave energy, turbidity, and nutrient assimilation. The \$200M dollar scope will be separated by Baird into smaller projects to be more easily constructed as funds become available.



## Mandeville Lakefront Wetlands Restoration

Mandeville, Louisiana

(Neel-Schaffer)

**CLIENT** City of Mandeville

**REFERENCE** Louissette Scott  
(985) 626-1082 | lscott@cityofmandeville.com

Neel-Schaffer is the prime and engineer of record for this restoration and Mandeville lakefront project. Situated between two “hardened” shorelines, a mature cypress forest is rapidly eroding. The project will prevent further degradation of the existing wetlands and restore a functioning wetlands ecosystem within the area. The design included re-directing storm water from the Galvez and Massena outfalls through the wetlands to improve water quality that enters Lake Pontchartrain. The project established a best practice for creation of new wetlands, provided engineering concepts in support of multiple storm water routing alternatives, and design of a storm-resistant shoreline closure that included a bike path and pedestrian link between Old Mandeville and Sunset Point Park.

Neel-Shaffer’s responsibilities included: complete Engineering and Design of all aspects of the project (Dredging/Excavation, Bridge Design, Bike and Pedestrian Path, Landscape Arch., etc.); survey and geotechnical engineering; complete Hydrologic and Hydraulic analysis and model for Galvez and Massena drainage basins utilizing hydrologic (HEC-HMS) and multiple hydraulic (HEC-RAS) models; coordination with federal resource agencies (USACE, USF&WS, and NRCS); preparation of USACE Section 10 and LADNR Coastal Use Permits; management of Biological Resources, coastal modeling and coastal engineering concepts; construction documents for designed improvements.



## Buena Vista Grassy Point System

Charlotte County, Florida

**CLIENT** Charlotte County

**REFERENCE** Charles Mopps, Coastal Projects Manager  
(941) 575-3685 | chuck.mopps@charlottefl.com

The Buena Vista Grassy Point System serves to convey stormwater runoff and connects recreational watercraft to Charlotte Harbor. It was beginning to experience excessive sediment accumulation from aggressive storm activity. Tasked with all engineering surveying and permitting responsibilities associated with the maintenance dredging, Stantec made certain the surrounding ecological community was taken into consideration by carrying out an entire environmental assessment of the project area prior to dredging. The Stantec team used state-of-the-art field equipment, computer software, and technologically integrated offices to deliver the project on schedule and within budget.

## Hilary Thibodeaux, PE

### Stantec

Principal-in-Charge

Hilary brings 23 years of experience in both engineering and managing erosion and sediment control projects. He has focused his experience on state and levee districts' coastal issues. Hilary has successfully delivered projects to his clients, including the Coastal Protection and Restoration Authority, requiring design and construction management of dredging, flood gate structures, braced floodwalls, earthen levees, and wetland mitigation/restoration. He also has experience in environmental compliance (NEPA) and storm disaster response, recovery, and hazard mitigation. As the St. Mary Levee District's Executive Director, Hilary gained experience in a leadership role in managing flood protection systems along with the understanding how to effectively utilize government programs to assist in flood protection missions.

### EDUCATION

BS, Civil Engineering

### REGISTRATIONS

Professional Engineer: LA

### PROJECT EXPERIENCE

- **Morganza to the Gulf Projects, Terrebonne, Louisiana**  
Client Program Manager who worked closely with both Terrebonne Levee and Conservation District and the Morganza to the Gulf Program Manager to find solutions to aid in the success of providing flood protection for Terrebonne Parish. He provided assistance in emergency actions to levee districts and attended briefing meetings at Emergency Operations Centers and provides insight on any unexpected operational issues. Hilary has a Tier 1 badge that allowed first responders back into impacted areas to expedite assessments in disaster recovery situations. Hilary provided emergency solutions in unwatering of inundated areas impacted by storm surge produced by Hurricane Ike and in preparation of the 2011 Atchafalaya River Flooding.
- **St. Mary Levee District, Louisiana**  
Executive Director of the newly formed St. Mary Levee District immediately after the 2011 Atchafalaya River Flooding. One of his accomplishments was clearing the bottleneck of reimbursable funds from FEMA. The levee district inherited over 135 miles of federalize main line river levees and backwater protection levees. He was responsible for overseeing operations and maintenance of these levees to ensure compliance. He worked closely with multiple drainage districts throughout the protection systems and assisted with recommendations for improvements. Hilary coordinated the quarterly inspections, compiled inspection data, provided quarterly reports, and addressed any questionable out-of-compliance findings.
- **Mid-Breton Sediment Diversion, Louisiana**  
Independent Technical Reviewer of the dredging requirements and marsh nourish areas.



## Brian Lennie, CWS

### Stantec

Project Manager

Brian serves as a Senior Scientist and Project Manager. His responsibilities include managing other staff scientists; conducting resource management studies, lake studies, wetland reviews, dredge studies, environmental policy and ordinances; and preparing designs for stormwater ponds, dredging plans, streambank stabilization, landscape plans, wetland creations and mitigation, and wetland and waterway permitting. He also plans and completes field investigations such as wetland delineations, erosion control plans, waterway and natural resource inventories, and manages the construction of natural resource related projects.

#### EDUCATION

BS, Environmental Studies & Geography

#### REGISTRATIONS

Certified Wetland Scientist #C-10

#### PROJECT EXPERIENCE

- **C. Reiss Dock Terminal, Superior, Wisconsin**  
Project Manager for this 52-acre redevelopment site. Wisconsin Department of Natural Resources assured wetland delineation was completed for the site as well as wetland and waterway permitting for this project including wetland filling, stormwater pond construction, sea wall repair, slip dredging and disposal planning, an artificial wetland exemption request, construction site notice of intent permitting, and cultural and endangered resources reviews. The project also included grant application preparations and securing \$1.5M in funding for dredging and sea wall repair for the project.
- **Deer Creek Trail North Segment, Brookfield, Wisconsin**  
Project Manager for this new Greenway Trail Segment for the City of Brookfield that included wetland identification, wetland, floodplain and waterway permitting with the Wisconsin Department of Natural Resources and U.S. Army Corps of Engineers. Box culvert and erosion control plans and specifications were included in the project scope. The new trail segment links the existing Parks and connects with north residential neighborhoods. The new box culvert was designed for fish and aquatic organism passage without affecting existing floodplain conditions.
- **Greenway Trail Master Plan Permitting Work Group, Brookfield, Wisconsin**  
Project Manager of group that included members from Greenway Trail Committee, City staff, Wisconsin Department of Natural Resources, U.S. Army Corps of Engineers, and Southeastern Wisconsin Regional Planning Commission. Planning efforts were undertaken to have a cohesive, holistic approach to the permitting of the remaining environmentally sensitive greenway trail segments. This 30-mile trail system, located along environmental and utility corridors, offers residents and visitors an opportunity to experience the City's natural resources with an interconnected off-road and partial on-road trail system linking parks, schools, neighborhoods, and the City Center.

## Ben Hartman, PE

### Baird

Deputy Project Manager

Ben has performed design work to create man-made wetland systems and quiescent water environments that decrease turbidity via sedimentation while providing nutrient assimilation to meet water quality targets and reduce algal blooms. This design work included designed dredge material containment, beaches, breakwaters, and marsh that have incorporated features such as woody habitat mattresses, wood aggradation structures, and submerged root wads. Ben's management experience includes coordination of multi-discipline teams on habitat restoration and flood protection projects with construction costs in excess of \$300 million.

#### EDUCATION

MS, Coastal and Ecological Engineering

BS, Civil Engineering, Minor - Environmental Engineering

#### REGISTRATIONS

Professional Engineer: LA, TX

Certified Flood Plain Manager #US-19-11334

#### PROJECT EXPERIENCE

- **Spanish Pass Marsh and Ridge Restoration, Near Venice, Louisiana**  
Project Manager responsible for coordinating all technical work, management of six subconsultants and client interaction for a large marsh restoration project. Funded by criminal penalties from the Deep Water Horizon oil spill, at 1,670 acres and 15-20M cubic yards, the Spanish Pass project is considered the largest single dredging prism CPRA and the state of Louisiana have ever undertaken. Baird's design provided an additional 416 acres of marsh for \$25.18M less than originally scoped, with final cost estimates within 6% of the low bid. Ben will be performing construction supervision and inspection services over the two-year construction window.
- **H2Ohio Sandusky Bay Restoration Initiative Nutrient Reduction Wetlands, Sandusky, Ohio**  
Engineer responsible for data collection, analysis, design, cost estimating, and technical writing for a \$200M marsh creation and water quality enhancement project. The project involves numerical modeling and engineering design to create man-made wetland systems and quiescent water environments that decrease turbidity via sedimentation while providing nutrient assimilation to meet water quality standards and reduce algal blooms.
- **Hydrologic Restoration and Vegetative Plantings in the Des Allemands Swamp BA-34-2, South Venice, Louisiana**  
Performed design oversight and construction administration services for a hydrologic and water quality improvement project which involved the excavation and disposal of large quantities of stumps and dredge material.

## Gordon Thomson, PE, D.CE

### Baird

Project Technical Lead

Gordon leads Baird's Shoreline and Coastal Restoration Sector. He has experience with the design, permitting and construction oversight of major beach and marsh restoration projects along and with coastal structures to stabilize the shoreline. His focus is sediment transport through the analysis of waves, storms and tides relying on both analytic and advanced numerical models. He has been responsible for the construction of projects totaling over \$500M in construction costs, 40M cy of sediment and the creation and restoration of over 4,500 acres of beach and marsh habitat.

### EDUCATION

MS, Coastal Engineering  
BS, Civil Engineering

### REGISTRATIONS

Professional Engineer: LA, MS, FL, NC, OH, MI, MA, DE

### PROJECT EXPERIENCE

- **East Sandusky Bay Wetland Restoration Project and Sandusky Bay Restoration Plan, Sandusky, Ohio**  
Engineer of Record for this City of Sandusky project funded by the Ohio DNR. Baird's role includes characterization of the hydrologic, hydrodynamic and sedimentologic processes that are relevant to both the historic disappearance and restoration of the Putnam Marsh complex. Baird undertook field work, developed a numerical model of the watershed and bay, and contributed to concept development and development of design documents for the solution, which included the use of natural materials.
- **Spanish Pass Marsh and Ridge Restoration, Near Venice, Louisiana**  
Sr. Coastal Engineer and Lead Designer responsible for the development of the project with a target acreage of 1,134 acres of marsh and 120 acres of ridge. The work includes developing borrow areas through detailed geophysical and geological investigations of multiple borrow sources within the Mississippi River and Gulf of Mexico. Design of the fill footprint also requires detailed bathymetric and topographic surveys along with geological investigations to determine the settlement of the underlying soils. Avoidance to pipelines and constructability are key challenges of the project.
- **Shell Island West NRDA Restoration Project, Plaquemines Parish, Louisiana**  
Program Manager responsible for the design and permitting of the \$76M reconstruction of Shell Island West. It included the construction of over 2.8 miles of beach and dune habitat and 281 acres of marsh. Originally scoped as part of the Barataria Basin Barrier Shoreline LCA project, it was selected as one of the Phase III Early NRDA projects. It extended the western lobe of Shell Island East and all of Shell Island West. Pipelines crossing the fill area required constructing a portion of the marsh as a sand flat and avoidance of nearby oyster leases.

## Dennis Passman, PE

### Stantec

QA/QC

Dennis has over 27 years of engineering and management experience, and is currently the Water Resources Area Manager for Louisiana and Mississippi, where he has worked closely with key clients including the CPRA, LADOTD, ARBC, the Corps of Engineers, both Vicksburg and New Orleans Districts, and the DPW. Over the years, he has designed and managed numerous civil works and transportation related projects throughout the Southeastern United States. His related work experience includes grade control structures, bank stabilizations, shoreline protection, erosion control, drainage, construction administration, and was the Design QC Manager for several recent large Alternative Delivery (Design-Build) projects as well as Transportation Lead for the Mid-Breton Sediment Diversion Project that was delivered through the CMAR delivery process.

### EDUCATION

BS, Civil Engineering

### REGISTRATIONS

Professional Engineer: LA, MS, AL

### PROJECT EXPERIENCE

- **Mid-Breton Sediment Diversion, Plaquemines Parish, Louisiana**  
Transportation Lead for the realigned LA 39 and bridge over the diversion. His team is tasked to develop the plans, quantities, and cost estimate for this Alternative Delivery Project (CMAR).
- **US 90 at LA 318 Interchange Design-Build, St. Mary Parish, Louisiana**  
Design QA/QC Manager responsible for developing the Design QC Manual, managing the Design QA/QC reviews for the work produced by the design team, design changes, and the completion of the As-Built plans, distributing plan submittals, and documenting quality control records. Responsibilities also included evaluating and assessing the Design-Builder's design QC activities for certification of compliance with the Design-Build's contract and Design QC Plan; reporting non-conformities or non-compliance issues related to design; tracking, monitoring, and reporting on the status of any outstanding design-related non-conformance reports; and, ensuring that comments from all client and QC team reviews are addressed and if necessary, schedule and conduct meetings to coordinate and clarify any outstanding issues or comments as a result of these reviews.
- **I-12 Design-Build, Livingston Parish, Louisiana**  
Design QA/QC Manager responsible for developing the Design QC Manual, managing the Design QA/QC reviews of all work produced by the design team, QC related to design support during construction, design changes, and the completion of the As-Built plans, distributing plan submittals, and documenting quality control records.

Jeff Pena, PE

Stantec  
QA/QC

Jeff brings 23 years of experience in the engineering and management of complex waterway and flood control projects. He was been responsible for program and project management, quality control, budget and cost control, project staffing, client management, scheduling, technical reviews, and account management. Projects under his direction have included levees, pump stations, floodwalls, saltwater and flood control structures, major canal improvements, coastal and erosion protection, bridge design, and construction management. His primary focus has been federal, state, and local clients throughout the Gulf Coast region on large and small scale projects involving civil, structural, mechanical, and electrical design.

#### EDUCATION

BS, Civil Engineering

#### REGISTRATIONS

Professional Engineer: LA, TX, MS, AL, GA, FL

#### PROJECT EXPERIENCE

- **Houma Navigation Canal (HNC) Lock Complex, Terrebonne Parish, Louisiana**  
Program Manager responsible for providing program management for the engineering and design of an 800-foot lock structure with 110-ft wide sector gates; design of upgrades to the existing 250-ft wide swing gate, receiving structure, and floodwall. Also responsible for design of associated structures constructed to a 100-year annual exceedance probability elevation and design life and adhering to the USACE Hurricane and Storm Damage Risk Reduction System design standards. Construction estimated at 390 million.
- **Bayou Chene Flood Control Structure, St. Mary Parish, Louisiana**  
Program Manager responsible for the study and report phase, preliminary and final design, construction administration and management, coordinating permitting, surveying and geotechnical investigation activities, coordination with the USCG and USACE, and coordinating Rights of Entry and Rights of Way with local landowners and the client. The project consists of 400 feet of braced steel floodwall, a 400-ft steel swing floodgate structure, approximately 9 miles of levees, and 3 water control structures.
- **Inner Harbor Navigational Canal (IHNC) Project, New Orleans, Louisiana**  
Civil Design Lead responsible for civil works, site layouts, dredging of the main access channel, environmental mitigation, coordinating with the USACE and regulatory agencies with respect to NEPA compliance, coordinating all Rights of Entry and Rights of Way with the USACE and local sponsors, coordinating all pipeline crossings with the respective companies and the USACE, coordinating all design surveys including topographic and bathymetric, and reviewing civil design sub-contracting invoicing.

Glenn Ledet, PE

Neel-Schaffer  
QA/QC

Glenn has 14 years of experience as a program manager, project manager and engineer on a wide variety of civil engineering projects, including comprehensive drainage studies, erosion control, storm-water projects, dam projects, pumping stations, and flood control projects. Most recently, he served as Project Manager for the St. Tammany Parish Coastal Master Plan that includes an analysis of flood risk reduction. Prior to that he served as Assistant Administrator of the Operations Division for the State of Louisiana's Coastal Protection and Restoration Authority (CPRA) managing a regional watershed modeling effort. This entailed the management of CPRA's Regional Offices with more than 40 personnel responsible for constructing, operating, monitoring and maintaining the State of Louisiana's coastal projects.

#### EDUCATION

BS, Environmental Engineering

#### REGISTRATIONS

Professional Engineer: LA, TX, AL

#### PROJECT EXPERIENCE

- **Grand Isle Beach and Dune Restoration and Stabilization Project, Jefferson Parish, Louisiana**  
Project Manager responsible for an independent technical review of coastal engineering analysis including development of design waves, design water levels, design cases for hydraulic loading, and other parameters. The study encompassed beach morphology, nearshore processes, and dune dynamics. Glenn also managed technical reviews of dune design and shoreline revetment design for repair projects.
- **Caillou Lake Headlands and Barrier Island Restoration, Terrebonne Parish, Louisiana**  
Project Engineer Supervisor who performed detailed reviews of coastal design, civil site design, technical specifications, quantity calculations, and estimates of probable construction costs. Glenn worked with a team of engineers to finalize design and administer construction on a large-scale (\$10M - \$60M) beach and back barrier restoration projects.
- **Louisiana's Mississippi River Mid-Basin Sediment Diversion Program, Plaquemines Parish, Louisiana**  
Project Engineer on both large-scale sediment diversions in the Louisiana's first Mississippi River Sediment Diversion Program. The project entailed initiating the engineering and designing two large-scale diversions capable of diverting 75,000 cfs and 35,000 cfs from the Mississippi River into the Barataria and Breton Sound Basins. Glenn participated in a committee to develop the CMAR program for the State's Mid-Basin Diversion projects. Work included developing a framework for the pre-construction and construction phases for the engineering and contractors.

# Cameron Whitmore

## Stantec

Earthwork & Dredging Team Lead

Cameron has over 19 years of heavy-civil/marine construction experience working on a wide variety of projects, from superfund environmental cleanups to harbor deepening's and beach re-nourishments. Cameron has a long track record of safely and efficiently managing field crews to accomplish complex works on high profile projects. His responsibilities have included construction surveying, field engineering, site logistics, quality assurance, and construction management.

### TRAINING

Construction Quality Management for Contractors  
Radiation Safety Officer  
Part 48, MSHA  
U.S. D.O.T. Hazmat Certification  
Training for Portable Nuclear Gauges  
Certified Cost Technician, AACE International  
OSHA 30 Hour Construction Outreach Training Program

### PROJECT EXPERIENCE

- **Charleston Entrance Chanel New Work Dredging Phase 1, Charleston, South Carolina**  
Site Manager responsible coordinating the loading of the scows as well as the tug boats that towed them. The logistical challenge of the operation involved making sure that the loading barge always had a scow allowing the dredges to continuously run. In order to achieve this material placement locations and their distance from the loading barge had to be considered for each trip. Phase 1 of the \$213 million project consisted of removing 7.95 million cubic yards of sand and rock from the entrance channel, deepening the entire channel by 7 feet.
- **Big Bend Channel Deepening, Tampa, Florida**  
Site Manager responsible for overseeing and organizing project logistics from project kickoff to completion, coordinate and manage the different groups within the project with the goal being a safe and successful project. Dredging of 4.2 million cubic yards of clay, sand and rock for channel deepening. Material dredged was placed in upland earthen dammed embankment area which required continuous monitoring of dam stability and effluent quality monitoring.
- **Port of Miami Harbor Deepening, Miami, Florida**  
Site Manager responsible for the filling of the Julia Tuttle borrow area and the sea grass planting operation that followed as well as the overall management of the two mechanical dredges and their support equipment. The \$205 million dollar project consisted of utilization of a Cutter Suction Dredge and two mechanical dredges as well eight bottom dump scows to remove 5 million cubic yards of sand and rock from the entrance channel and the turning basins. A portion of the excavated material was used to fill in a previous borrow area near the Julia Tuttle causeway while the rest was sent to an offshore disposal area.

# Tadd Henson, PE

## Baird

Hydrology Team Lead

Tadd is a hydrologic engineer with over 20 years of experience. He is an expert in hydrology and hydraulics with a focus on flood studies and flood mitigation. He has extensive experience in water resources planning, hydrologic and hydraulic modeling, flood studies, dams and levees, and flood mitigation. He is a proficient user of many hydraulic, hydrologic, and GIS software applications, including HEC-RAS, HEC-HMS, HEC-SSP, HEC-MetVue, SWMM, ArcGIS, and QGIS.

### EDUCATION

MS, Civil Engineering  
BS, Civil Engineering

### REGISTRATIONS

Professional Engineer: OH  
Certified Flood Plain Manager

### PROJECT EXPERIENCE

- **Sabine Pass to Galveston Bay, Coastal Storm Risk Management and Ecosystem Restoration, Orange County, Texas**  
Hydrologic Engineer responsible for producing hydrologic and hydraulic models of interior drainage areas for the Sabine Pass to Galveston Bay Coastal Storm Risk Management (CSRSM) and Ecosystem Restoration for Orange County. The models are two-dimensional rain on grid in HEC-RAS and will be used in identifying gravity drainage structures and pump stations that produce negligible increases in water surface elevation resulting from the 2- through 500-year interior rainfall events when compared to existing conditions.
- **Indian Lake Dam Rehabilitation, Russells Point, Ohio**  
Hydrologic Engineer that completed hydrologic and hydraulic modeling for a spillway replacement of Indian Lake Dam. A detailed HEC-HMS model was created to route flows into and through the large lake. The existing spillway capacity could not safely pass the probable maximum flood (PMF). The existing ogee spillway was replaced with a multi-level labyrinth spillway to efficiently pass flow and provide for additional capacity. The multi-tiered spillway was designed to allow for no flow increases up to and including 100-year event.
- **Probabilistic Flood Modeling, FEMA**  
Hydrologic Engineer managed and supported in development of the methodology to evaluate a probabilistic approach to improve accuracy in calculating flood risk behind levees. The probabilistic modeling uses HEC-RAS two dimensional models and considers some of the uncertainty that inherently exists in H&H analyses including the probability of levee failure. Tad worked closely with Corps of Engineers IWR RMC to implement a method to use USACE Levee Screening Tool, and Semi-Quantitative Risk Assessment data to develop fragility curves for levee systems.

Qimiao Lu, PhD

## Baird

Water Quality Team Lead

Qimiao is a senior technical and project manager in coastal and river engineering. He has over thirty years of international experiences in engineering studies of hydraulics, sediment transport, morphodynamics, numerical modeling, and engineering solution for many kinds of engineering challenges in rivers, estuaries, and coastal zones. Qimiao is a world-recognized expert in the field of hydrodynamics, sediment transport, and morphodynamics. He has developed several 2D/3D models and a world-leading GIS-based animation and analytical tool.

### EDUCATION

PhD, Civil Engineering

MS, Civil Engineering

BS, Marine Geology and Geomorphology

### PROJECT EXPERIENCE

- **Mid-Breton Sediment Diversion Project, Lower Mississippi River, Louisiana**  
Project Manager for this large sediment diversion project on the Lower Mississippi River to divert sediment from the river for land restoration in the Louisiana Coast. Baird is a subconsultant providing engineering consulting services on field surveys, hydraulics, and modelling for design. Dr. Lu lead a team to develop a comprehensive modelling system and successfully managed this project with our consulting fee of multiple million dollars.
- **East Sandusky Bay Wetland Restoration Project, Sandusky, Ohio**  
Technical Advisor for the numerical modelling on this project. Baird was a subconsultant to the City of Sandusky project funded by the Ohio DNR. Baird's role included characterization of the hydrologic, hydrodynamic and sedimentologic processes that are relevant to both the historic disappearance and restoration of the Putnam Marsh complex. Baird undertook field work, numerical modelling, contribution to concept development for the solution.
- **Bayou Lafourche Pump Station and Diversion, Donaldsonville, Louisiana**  
Project Manager for this project to increase the pump station capacity that supplies water from the Mississippi River to Bayou Lafourche. Baird coordinated field surveys and developed a 3D hydrodynamic, sediment transport and morphologic model in the river and a HEC-RAS model of the bayou to support the evaluation of different alternatives for sediment and debris management in the river and on the bayou.
- **Lower Fox River Contaminated Sediment Investigation, Lower Fox River, Wisconsin**  
Technical Leader in developing rebuttals to the analyses and opinions of several expert witnesses by calibrating and validating a fate and transport model to assess resuspension potential for PCB contaminated sediments, PCB plume dispersion and volatilization, wind effects on shear stresses in Fox river.

Kodi Guillory, PE

## Sustainable Design Solutions

Dredging Material Placement Team Lead

Kodi has over 13 years of experience in the design, implementation, and management of civil works projects. For 8 years, she spent time as an Engineering Supervisor at the Coastal Protection & Restoration Authority designing coastal and dredging projects. She also was tasked with direct oversight of the geotechnical, topography, magnetometer, bathymetry, and multi-beam survey data reports for various coastal and dredging projects. She oversaw the dredging of over 15 MCY of dredge material from various water bodies in Louisiana and the placement of the dredge material to create over 2,500 acres of marsh habitat. She coordinated daily with local stakeholders, federal sponsors, and consultant engineering firms to discuss project milestones, the technical merit of the projects, and resolve stakeholder concerns.

### EDUCATION

MS, Civil Engineering

BS, Biological Engineering

### REGISTRATIONS

Professional Engineer: LA, TN

### PROJECT EXPERIENCE

- **Mid-Barataria Sediment Diversion, Louisiana**  
LA Project Engineer who was an integral part of the team that administered one of the State of LA's largest CMAR contracts. Prepared the solicitations for the CMAR contractor, Consulting Engineering Firm, and Independent Cost Estimator. She was also a part of the selection committee for many of these contracts. Kodi coordinated daily with the Engineer and Contractor on the design of a \$1.2B diversion structure. During 30% Design, she identified and selected the placement areas for the dredge material that was a part of the project, which considered disposal at a nearby borrow area and placement of some of the material in shallow water that was adjacent to the diversion structure to create marsh. She calculated quantities and volumes of dredge material and developed the initial dredge plan which included determining the most cost-effective means of placement and/or disposal.
- **Mid Breton Sediment Diversion, Louisiana**  
LA Project Engineer who was an integral part of the team that administered one of the State of LA's largest CMAR contracts. Prepared the solicitations for the CMAR contractor, Consulting Engineering Firm, and Independent Cost Estimator.
- **Mississippi River Long Distance Sediment Pipeline Project and Bayou Dupont Marsh and Ridge Creation, Louisiana**  
LA Project Engineer who managed the dredging and placement of over 7MCY of dredge material from the Mississippi River. In addition, she provided QA/QC of the 13 mile pipeline corridor that was utilized to convey the dredge sediment to the placement area.

## Amanda Phillips, PE

### Neel-Schaffer

Construction & Implementation Team Lead

Amanda has nearly 20 years of design and construction experience on a wide variety of coastal restoration projects. She joined Neel-Schaffer in 2020 and serves as a Senior Project Manager in the Coastal and Engineering department. Amanda owned and operated a multi-million dollar marine and dredging construction company for over 14 years.

#### EDUCATION

BS, Biological Engineering

#### REGISTRATIONS

Professional Engineer: LA, AL

#### PROJECT EXPERIENCE

- **Queen Bess Island Restoration, Grand Isle, Louisiana**  
Engineer of Record who developed the plans and specifications for this \$18 million Louisiana Coastal Restoration & Protection Authority project. Project proceeded from concept to construction within 3 years and construction completed within budget in March 2020. Project included restoration of pelican, terns and skimmer nesting habitat on Queen Bess Island. Design complexities included an accelerated project schedule, limited construction windows, development of project alternatives for various habitat uses, evaluations of various borrow sources, material types, and marine construction methods with a heavy emphasis on the project's overall design and construction schedule.
- **Houma Navigation Canal, Terrebonne Levee & Conservation District, Louisiana**  
Project Manager oversaw the marine construction portions associated with the channel excavation of the Houma Navigation Channel to a depth of -30ft NAVD88 during the installation of the HNC Floodgate by others. The mechanically excavated material was then processed on-site for use in the future levee tie-in construction. Project included the installation of riprap channel liner within the surrounding areas of the Houma Navigation Floodgate. Amanda oversaw construction surveying efforts including topographic and bathymetric efforts for the development of pay quantities, as-builts, and benchmark observations. She developed and maintained construction schedule and managed safety requirements and manuals for the construction project. Construction project size: \$6.5 million (Subcontractor portion)
- **SELA 15 Trapp Canal Improvements, Jefferson Parish, Louisiana**  
Construction Manager for this \$21 million, 4-year project that included the excavation of 7500ft of inland drainage canal and hauling off of wet clay material to appropriate disposal facility. Installation of crushed limestone, concrete slope pavement, marine placement of riprap and vinyl sheet piling for the upgrade of the canal. Complexities included soil sapping failures, excess material settlement and quantity overruns, and limited access corridors. Amanda performed the Quality Control management and oversight for the USACE with respect to the QCS system and EM-385-1 safety controls.

## Venu Tammineni, PE, LEED AP

### Adaptive Management & Engineering

Geotechnical Services Team Lead

Venu specializes in providing geotechnical design in soft soil sediments and is passionate about protecting and restoring the Gulf coast. He has over 15 years of experience working on geotechnical design for beneficial use of dredge material, marsh restoration, beach and dune restoration, shoreline protection, mitigation and other projects. He has successfully completed projects for various public agencies and private sector clients. He is well versed with the Engineering and Design Manual (EM 1110-2-5025) for Dredging and Dredged Material Management and has been in active discussions with the US Army Engineer Research and Development Center (ERDC), Coastal and Hydraulics Laboratory in Vicksburg, Mississippi for coastal research. He has worked with Coastal Protection and Restoration Authority (CPRA) on numerous coastal projects and 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. Venu is involved with the construction and post-construction monitoring of hydraulically dredged and placed fill.

#### EDUCATION

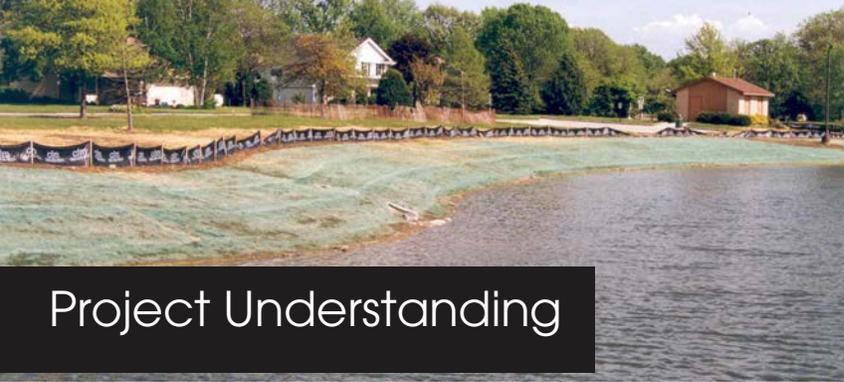
MS, Civil Engineering  
BS, Civil Engineering

#### REGISTRATIONS

Professional Engineer: LA, OH, TX

#### PROJECT EXPERIENCE

- **Golden Triangle Marsh Creation Project (PO-163), CPRA, Orleans Parish, Louisiana**
- **Cole's Bayou Marsh Restoration (TV-63), CPRA, Vermilion Parish, Louisiana**
- **Mitigation Plan for Port Arthur Liquefaction Project, Jefferson County, Texas**
- **Bayou La Loutre Ridge Restoration and Marsh Creation Project (PO-178), CPRA St. Bernard Parish, Louisiana**
- **N. Lake Mechant Landbridge TE-44, CPRA, Terrebonne Parish, Louisiana**
- **Oyster Bayou Marsh Restoration (CS-59), Post-Construction Monitoring, CPRA, Cameron, Louisiana**
- **Bayou Long Recreation Station M.P.4.463, Little Bayou Pigeon Line Abandonment, Geotechnical Services, Atchafalaya Basin, Louisiana**
- **Marsh Creation at Cameron Prairie National Wildlife Refuge, Cameron, Louisiana**
- **New Orleans Landbridge Shoreline Stabilization & Marsh Creation (PO-169), CPRA, New Orleans, Louisiana**
- **Bayou Bonfouca Marsh Creation (PO-104), CPRA, St. Tammany Parish, Louisiana**



+ Lamplighter Park Pond  
Brookfield, WI  
During Construction (left)  
Post Construction (right)

## Project Understanding

22

The University Lakes connect Louisiana State University with the surrounding neighborhoods, act as a gateway to the State's Flagship University, and have served as an iconic feature for the community for nearly a century. They act as a symbol of the City and State for both those who are local, as well as the tens of thousands of I-10 drivers who cross over the lakes every day.

The top priority of this project is restoring the health of the lakes, identified by the 2008 U.S. Army Corps of Engineers (USACE) study that called for a vital need to dredge and sculpt sediment from the shallow lake bottom while also calling for additional methods to enhance water quality, and to revive and support the plant and wildlife habitat. As formalized in the Baton Rouge Lakes 2016 Master Plan, the project goals include providing water quality enhancement, flood risk resilience, usable green spaces, wetland habitat, and increased fishing opportunities while easing future maintenance.

To develop solutions, engineers and scientists must first understand the problem. The 273-acre LSU Lakes System experiences hypereutrophic conditions due to point and non-point source nutrient inputs combined with shallow, relatively stagnant water conditions easily impacted by sunlight. This leads to yearly algal blooms and subsequent fish kills. Maintaining sufficient water depth by dredging would support a healthy lacustrine ecosystem. Indeed, the Master Plan identified dredging as a key component that is crucial to the overall success of University Lakes Project. However, these man-made lakes contain remnants of previous woody species, including cypress roots, which complicate dredging. Above the stumps exists a layer of unconsolidated, nutrient rich, decaying organic material that will need to be removed to immediately meet water quality targets. Situated in an urban environment where traditional construction methodologies will impact public use and landowner peace, the design team will need to address equipment access limitations, construction duration, odor management, and material placement constraints while delivering on the master plan goals.

We understand the extensive effort required to advance the University Lakes project to this stage and the obligations of the Lakes MOU. The Stantec team is a uniquely capable partner to further the LSU Lakes initiative. With the Stantec Team as the Flood Risk Reduction Designer, you will receive strong technical experience in dredging, water quality, flood prevention, and CMAR contractor experience that this project and the community deserves. Our team understands the challenges of this highly sensitive project as it relates to the removal and placement of the lake's sediment and how this process

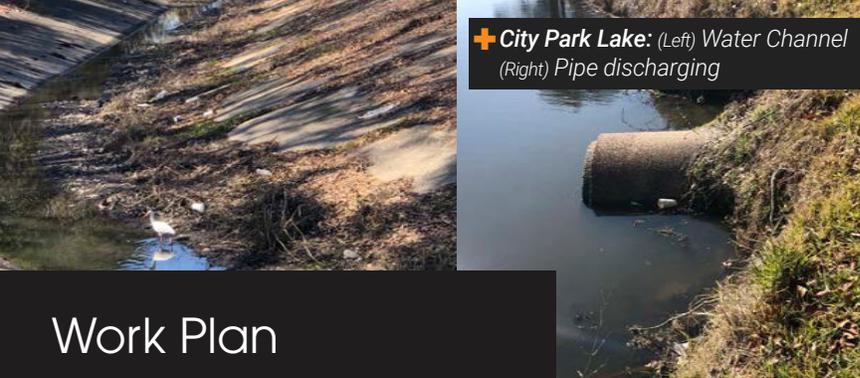
will affect the surrounding community. As your partner, we will work closely with the Project Advisor (B&D/CSRS), the Master Designer (Sasaki), and other selected contractors to ensure that this project is a success and one of which we can all be proud.

### CMAR

UL plans to engage a CMAR Contractor prior to the 30% design phase to work collaboratively with the Design Consultants and provide constructability input, cost estimating, and value engineering. Through this alternative delivery contracting mechanism, there will be the opportunity to potentially accelerate portions of the construction through early start packages as well as eliminate cost uncertainty on the project. Our team has extensive experience in numerous alternative delivery methods and specifically CMAR project delivery. Stantec is currently the Prime Engineering Consultant on the Mid-Breton Sediment Diversion project which, currently valued at over \$660M, is one of the largest CMAR contracts that have been administered by the State of Louisiana. The Mid-Breton Sediment Diversion project includes similar features to the LSU Lakes projects such as dredging and dredge fill placement, mobility and roadway improvements, and environmental restoration. Stantec successfully delivered on over 15 other Alternative Delivery projects throughout North America, including the \$1B PCCP Pump System in New Orleans.

In addition, our team is comprised of Kodi Guillory, P.E., Sustainable Design Solutions, and Glenn Ledet, P.E., Neel-Schaffer, who were both part of the **State of Louisiana's team that developed CPRA's CMAR program and prepared and administered the initiation of two of the State's largest CMAR contracts.** The team also includes Amanda Phillips, Neel-Schaffer, who owned and operated a construction company for over 10 years with numerous successfully completed dredging projects in South Louisiana. Additionally, Neel-Schaffer, Inc. has extensive experience in a variety of multi-million-dollar Alternative Delivery Infrastructure projects (Design Build, P3, etc.) throughout the Southeast US, including current engineering and design work in Baton Rouge, LA on the Design Build College Drive Flyover project.

Our team not only has an intimate knowledge with alternative delivery and the CMAR contracting methods, but also has experience with serving in an engineering capacity working collaboratively with the CMAR Contractor. The team will utilize these collective experiences to deliver a successful project to UL and the great Baton Rouge community.



**+ City Park Lake:** (Left) Water Channel  
(Right) Pipe discharging

# Work Plan

23

The initial project focus is to identify and understand the processes acting at the project site that govern behavior of the lake system, including the existing topography, bathymetry, and geotechnical characteristics as well as the hydrology, hydraulics, and water quality aspects. This understanding then guides the assessment of data gaps, application of numerical models, and development of recommendations and design documents. The Stantec team will develop alternative solutions in collaboration with the LSU Lakes team to meet the overall project goals and objectives. Our detailed project approach is described below:

## **TASK 1: REVIEW AND INTERPRETATION OF EXISTING DATA (2 MONTHS)**

**Team Lead:** Gordon Thomson

The Stantec Team understands that the first phase of work will require the collection and review of all information regarding the existing conditions of the Lake System. The Team understands the importance of developing a compiled database of all physical data, reports and available knowledge relevant to the project. The Stantec team has already initiated this effort and will continue to build this database throughout the start of the project. On large complex projects such as CPRA's Mid-Breton Sediment Diversion, the Stantec Team has already demonstrated that they can compile and evaluate significant amounts of detailed information to help set the framework of the project approach.

This phase will continue with the review of the ongoing due diligence and data collection efforts, including bathymetric and topographic surveys, a drainage infrastructure survey, stump identification, geotechnical data collection, and sediment sampling services. As survey and geotechnical data collection is conducted and provided, the Stantec team will incorporate this data into their database and their team of engineers and scientists will use this vital information to frame the multi-disciplined design approach.

Time is of the essence with this project, and Stantec will work closely with the Project Advisor (B&D/CSRS), the Master Designer (Sasaki), and the due diligence team to efficiently process the data collection. This will be critical to the success of the project.

## **TASK 2: HYDROLOGIC AND HYDRAULIC MODELING AND ANALYSIS (4 MONTHS)**

**Team Lead:** Tadd Henson

The Stantec Team understands the purpose of this task is to represent existing conditions related to both water quality and water quantity for the 10, 25, 50 and 100-

year storm events. The model created under this task is a critical step in the design of the LSU Lakes System establishing baseline conditions and processes that will then be used to accurately define and evaluate the benefit of different alternatives in improving water quality while continuing to manage or improve water quantity and flood management.

The hydrologic and hydraulic modeling includes upland modeling and hydrodynamic modeling of the lake. The upland model converts rainfall into runoff and routes the runoff into the lakes and the hydrodynamic modeling will model flow as it moves through the lake system. The upland and hydrodynamic models must be chosen while considering both water quality and water quantity. We recognize that this first phase focuses on City Park Lake and Erie Lake but the model will consider the entire system (University Lake, Crest Lake, Campus Lake and College Lake).

The contributing drainage area for the LSU lakes system is primarily a developed urban area and covers about 1.6 square miles. The drainage area consists of rolling topography that was once part of the Mississippi River floodplain prior to the construction of the levees along the river. Most of the contributing drainage area contains storm sewers that collect runoff that is conveyed to the lakes through numerous outlets and then routed through the lake system. The upland model will consider both sewersheds and watersheds. It is anticipated that there is sufficient information of the influent storm water network to explicitly model flow through the pipes in addition to overland flow directly into the lake system. The upland model will be essential in identifying key opportunities or challenges associated with the normal water surface levels functionality of control structures. The team is considering models such as InfoWorks ICM, and SWMM for the model effort. HEC-HMS and HEC-RAS can also be used for this effort and the output can be incorporated in InfoWorks ICM.

Modeling the hydrodynamics in the lakes will be important to understanding sedimentation patterns and nutrient uptake by vegetation. Using our modeling expertise and experience we currently anticipate that a two-dimensional hydrodynamic (HD) model should be sufficient given the targeted lake depths but a three-dimensional model may be considered depending on the flow pattern complexity. Candidate hydrodynamic/water quality models for the lakes include EFDC, Delft3D and the MIKE suite, among others and diagram models, such as Stella, will verify that all potential input sources have been captured. Final model selection for both upland and hydrodynamics will be determined following the data gap analysis and feedback from stakeholders and Project Advisor during the project kick-off phase. We will also work with stakeholders and the Project Advisor to determine an appropriate level of water modeling to meet the project needs.

Water quality improvements will be one of the most critical improvement metrics for the LSU Lakes System. Water quality processes are extremely complex and can involve the prediction of many different variables including several

different forms of phytoplankton (micro-algae), macro-algae, zooplankton, carbon, nitrogen, and phosphorus (C, N and P) dissolved in the water, adsorbed to particles and in the lakebed sediments. Lakebed sediments may be one of the most important sources for the LSU lakes, creating internal loading of nutrients, particularly at night during the summer months. To predict these complex processes, it is necessary to have loading estimates of sediment and the different forms of C, N and P from the watershed at all the point source locations and across non-point source reaches. Other environmental parameters such as photosynthetically active radiation (PAR), relative humidity, air temperature, wind speed and direction, and atmospheric pressure must be available for input. Finally, water temperature, dissolved oxygen (DO), different forms C, N, P, and sediment characteristics (organic, inorganic and distributions) throughout the lake system will be needed to calibrate and validate the models. The more complex water quality models that consider all of these processes, such as EFDC, Delft3D and MIKE among others, also require that more than 30 rate constants are specified for the system under consideration. These types of complex models are often applied to problems such as this one, particularly where sufficient data is available.

The team has recently worked on several complex water quality projects. EFDC is being applied to the Sandusky Bay restoration project. This project includes about \$100M in capital works to improve water quality through nutrient and sediment uptake through introduction of new wetlands. For Lake Simcoe in Ontario, the team used the MIKE3/ECOLAB model at the noted complexity to set Total P limits for the watershed to manage agricultural practices at the same time as avoiding DO crashes, HABs and fish kills.

While detailed, complex water quality models can provide invaluable insight to the design, there are also simpler methods that can be applied to minimize HABs. One example is to develop action plans based on model insights that reduce sources of pollution, which the team did for 13 New York State (NYS) Lakes (see: <https://www.dec.ny.gov/chemical/113733.html>). In this case, team members relied on existing models of watershed loadings through tributaries, outfalls and non-point sources, hydrodynamic models of the lakes, satellite imagery (for Chlorophyll A tracking) and lake water quality measurements and meteorological data. Two of the smaller lakes in this group correspond well to the range size/depth of the LSU Lakes. Relying on data from the 13 lakes and supported by detailed literature review, relationships were developed to identify target parameters or thresholds required for healthy lakes (i.e. minimizing chance of HABs and excessive macro-algae). These target parameters included watershed to lake area ratio, area to depth ratio, TN:TP ratio, maximum TP and TN concentrations, water temperature, water clarity, retention time, fetch length/wind speed-direction and several others. These targets formed the basis for the development of upland and in-lake actions whether it be reduction and interception of nutrients generated from agricultural practices, use of filter strips along tributaries and lakes

(and other best management practices), elimination of septic systems, improvements to Waste Water Treatment Plant discharges, introduction of created wetlands at key point source input locations, introduction of nutrient inactivants to reduce internal loading (supply of nutrients from legacy lake bed sediments) and dredging lake bed sediments among others. Development of similar upland and in-lake actions and coordination with the Master Designer will be key to the LSU Lakes long term function and success.

For the LSU Lakes, it is recommended that a two dimensional hydrodynamic model be generated to guide the re-shaping of the lakes and their connections. Utilizing this type of modeling will allow for designs to maximize natural mixing and flushing based on the local wind climate and to avoid excessive re-sedimentation of future dredged areas. We will evaluate whether the model should include a complex or simplified water quality component. The modeling will be supported by our expertise in terms of identifying target parameters for healthy lakes as implemented for the NYS Lakes HABs action plans.

### TASK 3: WATER QUALITY ENHANCEMENT (4.5 MONTHS)

**Team Lead: Qimiao Lu**

According to the Baton Rouge Lakes Master Plan, “water quality is poor, with stormwater flowing unchecked through pipes from roads, parking lots, an interstate highway, and run-off from fertilized residential lawns flowing into the lake system. This results in occasional fish kills, algal blooms, and a missed opportunity for supporting a robust, diverse ecology. Invasive plants have established themselves throughout the system and make it difficult for native plants and wildlife to thrive.” The models developed under Task II will be used to evaluate various means to improve water quality in the lakes.

There are several ways the lakes could be rebuilt to improve water quality. It is important that the orientation of the deeper sections of the lake create flow pathways associated with main inflows, outflow and wind-driven patterns in the lakes. This generally exists now in University Lake with deeper north-south oriented sections. A hydrodynamic model will allow the team to investigate alternatives that result in higher flow speeds along the main flow pathways from the main inflow and outflow locations to minimize sedimentation to the maximum extent possible. It is also important to consider wind-driven circulation and how these winds combine with any inflow/outflow flow patterns in the lake. The Stantec concept is to generate a design that works with nature relative to the winds and flow patterns to improve flushing and minimize future sedimentation.

Additionally, wetlands can be created to act as traps for sediment and sinks or filters



**+** **Unsettled vs. Settled.** Sample was taken in NE area of City Park Lake where previous data indicated an unconsolidated layer over 24" thick

for nutrients. We believe that the most advantageous locations for these wetlands are at the main inflow points from the various point sources. For additional benefit from these wetlands they should also be placed in areas where winds will push water up into bays detained for a time as the wind remains steady. An additional enhancement component for the LSU Lakes system is to place wetlands within the middle of the lake(s) in a manner where flow must move through them as the water flows from inflow points to the outfall location and/or where wind-driven currents will push the water through on a regular basis. These wetlands can act as an internal filter.

#### **TASK 4: EARTHWORK/DREDGING MODEL DEVELOPMENT (5.5 MONTHS)**

**Team Lead: Cameron Whitmore**

Following the results from the H&H and water quality modeling and analysis, the Team will assess the existing conditions of the project, identify potential issues, propose alternative solutions, and develop performance criteria for the alternative solutions.

Conceptual alternatives will be developed in collaboration with the Project Partners and with consideration for the overall project goals and objectives. Evaluation criteria will be developed in coordination with the Project Partners to quantify the ability of the alternatives to meet the project goals. Evaluation criteria are anticipated to include water quality, hydrologic and hydraulic function, earthwork cut and fill volumes, dredging methods, as well as handling, processing, transport, and material placement options. Consideration for monitoring adjacent structures during and post-construction, and future operations and maintenance will also be a significant factor for project goal evaluations.

The performance of the proposed alternatives will be analyzed with the earthwork models developed. The Team will review construction methods that consider temporary dredge material disposal locations within the Lake system to process and store material for future incorporation into project features such as the wetlands meadow or the aquatic marsh. These temporary areas can be worked into final footprint plans while providing the necessary space to facilitate construction. Results of the alternatives development and analysis will be presented to the Project Advisers and documented.

Once an alternative has been selected, the design team will work in coordination with the Master Designer on the geometric shape of the new lake footprint, placement of dredged material, construction methodologies, and suitability of the dredged material for construction of recreational improvements.

#### **Stump Removal and Excavation and Embankment**

Based on historical photography during construction of the lakes system and discussions during the Master Planning process, the team anticipates encountering cypress roots above the 7-foot depth contour. This presumption hinges on the understanding that this area was previously a cypress swamp, which are characterized as shallow water environments with relatively little deviation in

ground surface elevation. Shallower areas were likely previously excavated or have roots that were once exposed to oxygen on a semi-annual basis, which contributed to partial decay and consolidation of highly fluid mud material currently found within the lake system. Bald cypress life cycle requires the drying of land for sapling growth, which provides an opportunity for nutrient cycling. This means that parts of University and Crest Lakes are perhaps the only areas without widespread roots. Fortunately, the Stantec Team has experience with removing large quantities of cypress stumps and submerged woody debris in various environments including south Louisiana. Team members were responsible for overseeing the excavation and disposal of identical material in St. James Parish for the Hydrologic Restoration and Vegetative Plantings in the Des Allemands Swamp project. The Stantec Team has also worked with innovative methods of removing stumps, including grinding in-place and underwater.

Contractors will likely need to utilize shallow draft barge and marsh buggy excavator configured as either short reach or long reach excavators to remove roots in a grid pattern. The team is anticipating that most of the construction methods can be done using wet construction methods with limited dewatering. The Team has considered limited dewatering around the lake rim, which will allow the material to dry and form a crust, and could better support equipment. The strength and depth of the soil crust will depend on the type of unconsolidated soil and extent of partial dewatering in the area. Full dewatering is not recommended, as this would contribute to increase community disturbance from soil smell, complete mortality of aquatic organisms, and potential settlement issues in adjacent neighborhoods. Regardless, operators will likely place removed or cypress roots in temporary stockpiles as construction progresses until most of the lake is cleared. Depending on the size, these roots may have monetary value that could offset project costs, which could be incorporated as an alternative when negotiating fees. Simultaneously, deeper trenches can be excavated in the center of each lake for permanent rootwad disposal as a submerged reef. This keeps the surrounding areas free of most construction equipment and provides established locations for fishing habitat. This could be highlighted as a public use feature and marked with signage for anglers. Based on Baird's recent work on the Sandusky Bay Restoration Initiative, reefs comprised of stumps and rootwads are valuable construction features that would typically cost \$15 per square foot but are nearly free in this scope.

Earthen spoil placement areas should be incorporated to provide adequate disposal capacity throughout construction. The footprint of these spoil placement areas do not need to be cleared of stumps.



+ St. James Parish for the Hydrologic Restoration and Vegetative Plantings in the Des Allemands Swamp Project



+ Excavator Setup with Stump Grinder



## TASK 5: DREDGING METHODS AND DREDGED MATERIAL HAULING (5 MONTHS)

Team Lead: **Kodi Guillory**

### Dredging and Placement/Disposal of Earthen Material

Dredging and soil disposal is a primary challenge for this project, and the Stantec Team has already started to develop detailed alternatives and approach methods for the dredging and material placement. The LSU lakes system is surrounded by the Baton Rouge community, which restricts equipment access and the location of easily accessible disposal sites. A review of the initial construction budget suggests that the lakes will be addressed individually and as additional funding becomes available. However, the design should consider construction staging both for the initial project as well as for future phases/lakes and that the required dredge volumes will vary widely between the Lakes. Potential methods of removing soil include both mechanical and hydraulic dredging. However, the stump coverage, soil type and unconsolidated soil quantity will impact the efficacy of both dredging methods.

Mechanical excavation and placement via small bucket dredges or marsh buggy excavators allows contractors to pull stumps, construct containment dikes, and skillfully handle material. It will be an essential part of the scope for removing stumps, grading slopes, installing structures, and is generally more cost effective at small quantities (less than 100k cubic yards). Hydraulic dredging becomes more advantageous as the dredge prism increases, but is difficult with high plasticity clay material, shallow depths, and stump coverage. The potential for widespread stumps and certainty of shallow depths requires that mechanical excavation be utilized everywhere except parts of University Lake or Crest Lake.

Conceptual predesign solutions for investigation include limited or minimal dewatering around the rim of each lake to an elevation at or above the historical groundwater elevations in the surrounding areas and potentially expose shallow water areas for rapid material handling via both land-based equipment and marsh buggies, expediting construction. While shrinking the footprint of water based mechanical dredging (where material would otherwise be double handled by equipment, thus raising costs) it protects aquatic organisms from mortality that will result from a full lake drawdown. Any more

advanced drawdowns will need to be investigated by our geotechnical experts to ensure bankline slope stability and subsurface stability for surrounding neighborhoods. The I-10 corridor will also be evaluated for stability prior to any dredging operations at and around the bridge foundation.

Although dewatering is always an option, utilizing wet construction methods have significant advantages. Using wet construction methods allows the existing lake depths could be maintained during construction while marsh buggies and barge mounted excavators clear lake bottoms of stumps, stockpiling material for use in creating green space, sediment traps, and nutrient sequestration features. This would be accompanied by mobilizing small (<16") hydraulic dredges to transport unconsolidated material and improve water quality, while limiting odor. Four options are described below that the Stantec Team has discussed and found worthy of future discussion during our brainstorming sessions to prepare for this proposal. These concepts were considered individually and in tandem with other options for the placement of the fill:

- 1. Wetland Expansion and Marsh creation Areas on the Lake Perimeter.** Developing dewatering sites around the perimeter of the Lake system could provide several advantages. First, the limited pump distance would save time and cost. Second, the material could be re-used to facilitate construction of other parts of the Master Plan vision. Third, there are several areas within the Lake System that are physically distant from residences, avoiding odor issues. The marsh fill sites would be extended from the shoreline into the lake and use either a steel sheet pile system or in-situ earthen containment dikes to retain the disposal discharge. Three areas that the Team has considered are the north and west sides of the bird sanctuary area, the southwest corner of City Lake, and the northeast corner of University Lake. The first option provides enhanced habitat features, post-construction pedestrian nature trails on top of earthen containment dikes, and board walks across post-construction gaps. The latter two sites are attractive as City Park is immediately upland allowing for greater construction option flexibility and construction access. All of these options provide for scalability of the disposal site and use during dredging of other LSU Lakes in the future
- 2. Filling Geotubes or Similar geobags:** Hydraulically dredged material filled in geotubes could be placed at low points along the lake rim, providing additional reservoir capacity and reducing the volume of material and cost needed to achieve target lake depths. As mentioned by Gaffney et al (1999), the geotubes can be tailored to retain solids while passing the liquids depending on the coefficient of uniformity of the soil being pumped in to the geotubes. These tubes could be incorporated in green space features and cut open post construction, with the fertile material being spread for vegetative planting. Geotubes are also beneficial in containing contaminated



soils. Alternatively, the geotextile tubes could be placed at City Park allowing for easier off-site disposal. This material is typically fluid allowing move due to construction activities. A 2-stage weir drainage structure could be considered that would “capture” the material as it moves through the system but prior to the final weir that releases the water into the outfall locations. The first stage area could be dug empty as needed for water control and for material reuse

- 3. Out of system.** Off-site disposal will be limited or eliminated if possible. If necessary, contractors could hydraulically pump undesirable material out of the lakes via a temporary pipeline system. Two obvious disposal locations include the Mississippi River and plot of undeveloped land. Both options require installing a discharge pipe under Dalrymple Road, across Crest Lake, south of McKinley High, through Corporation Canal, above Nicholson Highway. After obtaining a permit, contractors could pump into the Mississippi River batture by crossing river road with an elevated or buried pipeline, near the Water Campus. An alternative disposal area could be the undeveloped/unoccupied land adjacent to the sewage treatment facility, which is currently marked for sale. Pending landrights agreements or purchase, the same pipeline corridor would carry the slurry from Corporation Canal into a confined upland disposal area, where it would be dewatered into the bordering drainage ditch and sold after consolidation
- 4. Creating New Islands in the Lake System.** New Islands can be created in the lake that can act as a recreational area and be part of a natural landscape that could promote wildlife habitat. The advantage of creating islands includes reuse of dredged material on-site while reducing costs of transporting and disposal of material off-site. Constructing these islands in deeper portions of the lake can be challenging, and the Stantec Team has proven success in evaluating these challenges and providing successful solutions.

Assuming that the soils that are mechanically dredged meet the specifications for structural fill and are deemed environmentally suitable, they can be placed adjacent to the existing roadways or used in construction of embankments around the lakes. For non-structural fill, contractors and project cost will benefit from investigating a variety of spoil placement areas. By establishing disposal along the shoreline for desirable material, similar to what is shown in the Master Plan, the placement footprint will not need to be excavated for roots. This saves costs and increases the average lake depth. The material placement will also need to mitigate future nutrient and sediment sources. Hydrologic and water quality modeling will be used to engineer material placement configurations and have these area function as effluent treatment and sediment traps. Surveying of existing adjacent structures will be completed prior to initiation of the construction activities and a monitoring plan will be developed to check for any movement during construction activities. The need for any tertiary water treatment facility for long-

term maintenance can be evaluated along with other alternatives. This can be helpful to reduce the nitrogen and phosphorus in the lake that are primary factors aiding algae blooms.

The Stantec team will develop dredge cost models to compare project alternatives and construction methodologies, utilizing Cost Engineering Dredge Estimating Program (CEDEP) and Contractor input from the CMAR process; the dredging methodology will be informed by cost projections.

## **TASK 6: CONSTRUCTION & IMPLEMENTATION PLAN (9 MONTHS)**

**Team Lead: Amanda Phillips**

The Stantec team has construction experts on staff with direct experience with mechanical dredging and methods for processing material into usable embankment material. This experience also includes the complex component of marine construction methods that make the University Lakes project unique. This experience is poised to be critical for this project and will facilitate project understanding guiding the 10% to 30% design and increasing confidence in costs and schedule control from the start of the project.

Also, critical to the success of this project will be the cooperation between the designers and the CMAR construction contractor. Contractors are well versed with atypical conditions that often arise on projects that need to be addressed in atypical manners. With the common language of construction between Stantec’s team and the Construction Manager, our experts will immediately start engaging with the construction management team to initiate and assist with value engineering, cost estimating, and constructability reviews. By collectively discussing and working towards the common goal, the Stantec team, along with the future CMAR contractor, will review, discuss, and develop solutions for items such as mobilization considerations, dredging technologies, material handling techniques, disposal locations, schedule, and phasing of the water quality improvement work.

As the design progresses from the 60% to 90% design phase the Stantec team will continue to work in partnership with the CMAR contractor and Master Designer to accelerate the construction schedule and reach a guaranteed maximum construction cost that aligns with project budget constraints. Throughout this phase we will continue to build on strong communication and coordination with the construction manager to balance cost, schedule, and quality of the project.

Stantec has already demonstrated that they have the CMAR project delivery expertise with successful projects such as Mid-Breton Sediment Diversion. The sediment diversion is proposed to divert flow from the Mississippi River to convey sediment and fresh water from the river into the nearby Breton Sound, to restore the natural deltaic and land-building processes. Stantec worked closely with the Construction Manager during the Value Engineering process to analyze diversion location alternatives in an effort to save costs associated with the diversion canal, gate structure, and the LA 39 realignment.



# Signature Solutions

The Stantec Team will implement both traditional and innovative design and construction methods in this environment to provide water quality enhancement and flood risk reduction to the LSU Lakes System while limiting the inconvenience and impact to the surrounding community. Stantec understands that multiple solutions should be evaluated and has developed a team that can design any of the preferred methods.

The Stantec Team has developed and summarized the following key signature solutions and goals for the project approach. These are demonstrated as follows:

## Leverage Expertise Combined with Hydrologic and Water Quality Modeling to Test Alternatives

- The Stantec Team will utilize innovative models to test different material placement and wetland locations for sediment trapping and nutrient uptake, while developing action plans to maximize Sasaki's upland designs for reduction of eutrophication.
- On projects such as **Mid-Breton Sediment Diversion** and **PCCP**, the Stantec team has repeatedly shown the ability to process existing and collected data, model alternative designs and recommend a preferred design on complex projects under aggressive schedules.
- The Stantec Team's expertise and modeling capabilities will give the project a head start on the design phase while simultaneously developing a vision of the finished product for the owners and stakeholders.

## Proven Solutions for Stump Removal and Reuse

- The Stantec Team understands that the existing cypress stumps could be a construction challenges if left in place, and the Team plans to mitigate this early in the construction phase.
- The Stantec Team has experience with removing large quantities of cypress stumps and submerged woody debris in various environments including south Louisiana.
- Stump identification, removal and stockpile can be implemented as the first phase of construction. This will allow for the stumps to be moved out of the area of conflict with the excavation, embankment and dredging phase of work. This approach will help to expedite the dredging construction.
- Stumps can then be salvaged and placed as underwater reefs, as demonstrated on the **Sandusky Bay Restoration Initiative**.

- Stump re-placement can have multiple benefits as a reef feature in controlled locations, providing fish habitat, aid flow routing, and prevent water-based access to sensitive habitat areas.

## Innovative Solutions to Maximize On-site Material Reuse

- The Stantec Team has industry leading experience with various mechanical excavation and hydraulic dredging techniques, as all areas of the team have successfully completed similar project within challenging marine environments.
- The Stantec Team intends on maximizing material placement to create nearshore wetlands and nature trails adjacent to the existing lake rim, automatically increasing average depth by making shallow areas "land." As demonstrated in the approach and work plan, the Stantec Team has developed concepts to place the unconsolidated layer, along the shoreline and near less populated areas such as the bird sanctuary. These features can be built using earthen containment dikes and/or geotubes.
- Additionally, the Team will evaluate the options of repurposing the earthen containment dikes which are proposed to hold unconsolidated material during construction as nature trails post construction and include board walks over drainage gaps.
- The Stantec Team has also initiated an excavation/embankment design approach and plan utilizing existing documentation and data. The Team has developed an approach to balance the cut and fill material quantities in Phase I to eliminate off-site disposal of usable material. If the material is deemed environmentally acceptable for beneficial use, the Team is confident that this approach will be effective.

## Utilize Natural Topography and Bathymetry of the Lake System

- The Stantec Team intends on maximizing material placement to create nearshore wetlands to utilize the natural shallow water areas.
- The Team will work with Project Advisor (B&D/CSRS), the Master Designer (Sasaki), and other selected contractors to ensure that this approach will be successfully implemented.

## Limit Dewatering of Lake System

- The Stantec Team intends on developing an approach to maximize using wet construction methods.
- This approach will limit/eliminate odor issues and limit any potential slope stability issues during drawdown events.
- The approach will also provide project cost savings as cofferdams and lake dewatering will not be necessary.

- The Stantec Team members have successfully constructed numerous projects using these techniques.

### Utilize Hydraulic Dredging and Off-Site Disposal Where Necessary

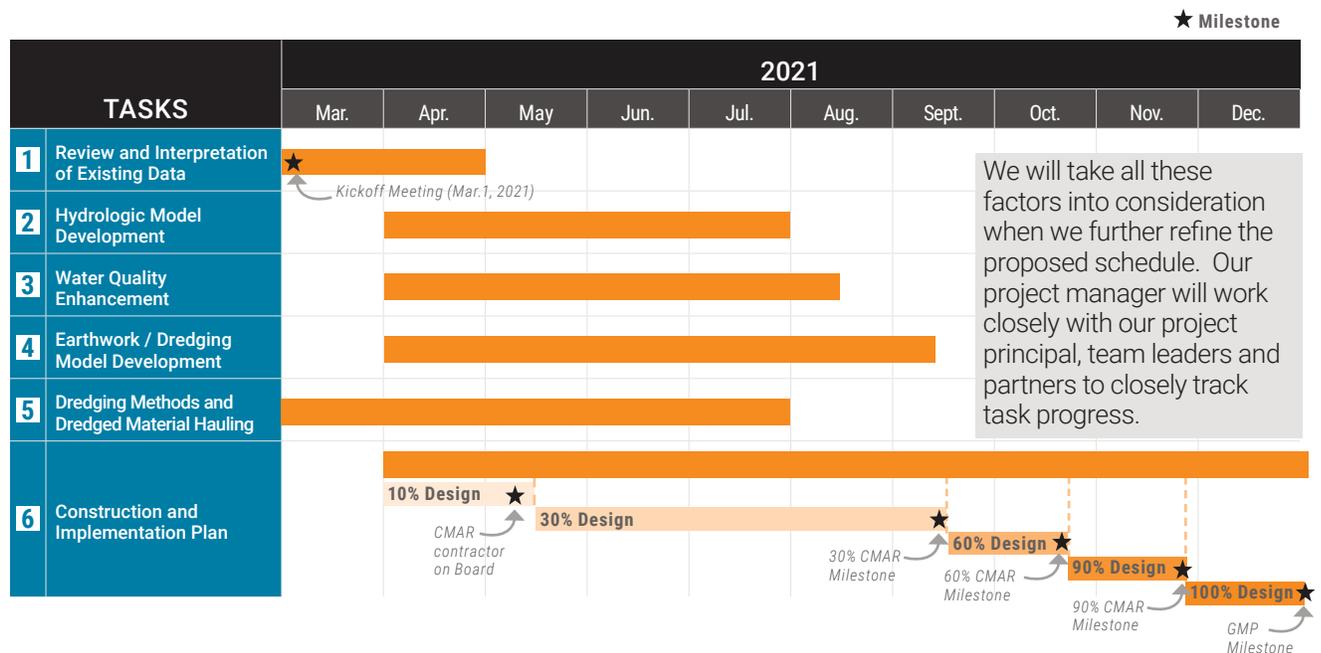
- The Stantec Team will evaluate the options of developing a dredge pipeline corridor for hydraulically dredging and off-site disposal of the Lake System if the material is deemed not suitable for beneficial use. As discussed in the work plan, the Team has already initiated this analysis and has developed several advantageous options for the corridor and disposal including the Mississippi River bature pump-out or an upland disposal area near

river road, using Corporation Canal as a pipeline corridor.

- The Stantec Team has industry leading experience with these systems. Numerous members of the team have worked for and with CPRA / Coastal Louisiana parishes and have successfully completed similar project within challenging environments.
- Hydraulic Dredging and off-site disposal will be specifically evaluated for future phases of the work on University Lake, as the geotechnical properties of the lean clay and organic nature of University Lake will be more advantageous to this technique.



Our team understands that schedule is an important component of any project, especially one located in a highly sensitive area such as this. When creating a project schedule, **Stantec focuses on the collective needs of reviewing the existing information, potentially collecting additional data, refining designs, coordinating with stakeholders, and developing the final design and construction plans.**





# Current Project Backlog + Ability to Conform to Schedule

## KEY PROJECT PERSONNEL

**Hilary Thibodeaux, PE** **20%**  
Principal-in-Charge



### ACTIVE PROJECTS

MID BRETON DIVERSION / PLAQUEMINES PARISH, LA	20%
A-2 RESERVOIR PUMP STATION / FL	50%
WEST PEARL RIVER RESTORATION / LA	30%

**Brian Lennie, CWS** **60%**  
Project Manager



### ACTIVE PROJECTS

C. REISS DOCK / SUPERIOR, WI	50%
CROSSING RIVER HEALTH CENTER / PRAIRIE DU CHIEN, WI	50%
COOK COUNTY FOREST PRESERVES TINELY CREEK RAVINE / ORLAND PARK, IL	60%
WILKE LAKE MANAGEMENT PLAN / KIEL, WI	80%

**Ben Hartman, PE** **70%**  
Deputy Project Manager



### ACTIVE PROJECTS

SPANISH PASS CONSTRUCTION SUPERVISION & INSPECTION / NEAR VENICE, LA	2%
RESTORE FLORIDA COASTAL CONNECTING WATERS / FL	50%
H2OHIO SANDUSKY BAY RESTORATION INITIATIVE NUTRIENT REDUCTION WETLANDS / SANDUSKY, OH	30%

**Gordon Thomson, PE, D.CE** **40%**  
Project Technical Lead



### ACTIVE PROJECTS

H2OHIO SANDUSKY BAY RESTORATION INITIATIVE NUTRIENT REDUCTION WETLANDS / SANDUSKY, OH	30%
SPANISH PASS CONSTRUCTION SUPERVISION & INSPECTION / NEAR VENICE, LA	15%
TOWN OF PALM BEACH MARINA CONSTRUCTION / PALM BEACH, FL	30%

## AVAILABILITY FOR ALL INDIVIDUALS LISTED ON ORG CHART

	Name	Anticipated Availability
<b>STANTEC</b> <i>Prime</i>	<b>Hilary Thibodeaux, PE</b> Principal-in-Charge	20%
	<b>Brian Lennie, CWS</b> Project Manager	60%
	<b>Dennis Passman, PE</b> Sr. Advisor - Civil QA/QC	20%
	<b>Jeff Pena, PE</b> Sr. Advisor - FRR QA/QC	20%
	<b>Cameron Whitmore</b> Earthwork & Dredging Team Lead	60%
	<b>Matt Starr, PE</b> Earthwork & Dredging	50%
	<b>Tom Cancienne, PE</b> Earthwork & Dredging	60%
	<b>Matt Hoy, PE</b> Hydrology	40%
	<b>Steven Elliott</b> Water Quality	60%
	<b>Ryan Waldron, PE</b> Dredging Material Placement	70%
	<b>Bob Esenwein, PhD, CEP</b> Dredging Material Placement	60%
	<b>Debby Sheets, PE</b> Construction & Implementation	60%
<b>Chris Sanchez, PE</b> Construction & Implementation	40%	
<b>Kyle Blakley, PE</b> Geotechnical Services	40%	
<b>BAIRD</b> <i>Subconsultant</i>	<b>Ben Hartman, PE</b> Deputy Project Manager	70%
	<b>Gordon Thomson, PE, D.CE</b> Project Technical Lead	40%
	<b>Tadd Henson, PE</b> Hydrology Team Lead	60%
	<b>Rob Nairn, PhD, PE</b> Hydrology	30%
	<b>Qimiao Lu, PhD</b> Water Quality Team Lead	50%
	<b>Alex Brunton, PhD</b> Water Quality	20%
<b>NEEL-SCHAFFER</b> <i>Subconsultant</i>	<b>Glenn Ledet, PE</b> Sr. Advisor - Hydrology QA/QC	20%
	<b>Amanda Phillips, PE</b> Construction & Implementation Lead	50%
<b>AME</b> <i>Subconsultant</i>	<b>Venu Tammineni, PE, LEED AP</b> Geotechnical Services Team Lead	50%
	<b>Michael Mckinney</b> Geotechnical Services	20%
<b>SDS</b> <i>Subconsultant</i>	<b>Kodi Guillory, PE</b> Dredging Material Placement Team Lead	50%



Israel or Israeli-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. Respondent also has not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. UL reserves the right to reject the response of the Respondent if this certification is subsequently determined to be false, and to terminate any contract awarded based on such a false response.

Authorized Signature:   
Typed or Printed Name: Hilary Thibodeaux, PE  
Title: Principal  
Company Name: Stantec Consulting Services Inc.  
Address: 1200 Brickyard Lane, Suite 400  
City: Baton Rouge State: LA Zip: 70802

SIGNATURE of Respondent's Authorized Representative  DATE 1/21/2021

---

**PART III: Acknowledgement of Receipt**

**This Acknowledgement of Receipt should be signed by an Authorized Representative of the Proposer and included in Proposer's response to this Request for Proposals.**

**I HEREBY CERTIFY THAT I HAVE ACKNOWLEDGED RECEIPT OF THIS ADDENDUM 1 TO THE REQUEST FOR PROPOSALS FOR FLOOD RISK REDUCTION DESIGN SERVICES AND HAVE INCLUDED A COPY OF THIS ACKNOWLEDGEMENT WITH PROPOSAL AS EVIDENCE OF RECEIPT.**

COMPANY NAME: Stantec Consulting Services Inc.

SIGNATURE OF AUTHORIZED REPRESENTATIVE: 

PRINTED NAME: Hilary Thibodeaux, PE

TITLE: Principal

DATE: 1/21/2021

End of Addendum



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
5/1/2021 4/10/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Lockton Companies 444 W. 47th Street, Suite 900 Kansas City MO 64112-1906 (816) 960-9000	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A : Berkshire Hathaway Specialty Insurance Company		22276
INSURER B : Travelers Property Casualty Co of America		25674
INSURER C :		
INSURER D :		
INSURER E :		
INSURER F :		

COVERAGES      CERTIFICATE NUMBER: 14193567      REVISION NUMBER: XXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> CONTRACTUAL/CROSS <input checked="" type="checkbox"/> XCU COVERED GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:	N	N	47-GLO-307584	5/1/2020	5/1/2021	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 25,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
B B B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS ONLY	N	N	TC2J-CAP-8E086819 (AOS) TJ-BAP-8E086820 TC2J-CAP-8E087017 (NJ)	5/1/2020 5/1/2020 5/1/2020	5/1/2021 5/1/2021 5/1/2021	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ XXXXXXXX BODILY INJURY (Per accident) \$ XXXXXXXX PROPERTY DAMAGE (Per accident) \$ XXXXXXXX \$ XXXXXXXX
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> EXCESS LIAB DED    RETENTION \$	N	N	47-UMO-307585	5/1/2020	5/1/2021	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$ XXXXXXXX
B B B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	TC2J-UB-8E08592 (AOS) TRJ-UB-8E08593 (MA, WI) EXCEPT FOR OH ND WA WY	5/1/2020 5/1/2020	5/1/2021 5/1/2021	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required) TO WHOM IT MAY CONCERN.

<b>CERTIFICATE HOLDER</b> 14193567 TO WHOM IT MAY CONCERN	<b>CANCELLATION</b> SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE 
---	--

© 1988-2015 ACORD CORPORATION. All rights reserved.



# CERTIFICATE OF LIABILITY INSURANCE

10/1/2021

DATE (MM/DD/YYYY)

9/13/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

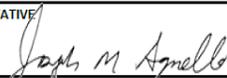
PRODUCER Lockton Companies 444 W. 47th Street, Suite 900 Kansas City MO 64112-1906 (816) 960-9000	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Berkshire Hathaway Specialty Insurance Company	22276
INSURED 1414100 STANTEC CONSULTING SERVICES INC. 370 INTERLOCKEN BOULEVARD, SUITE 300 BROOMFIELD CO 80021-8012	INSURER B : AIG Specialty Insurance Company	26883
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES CERTIFICATE NUMBER: 14181323 REVISION NUMBER: XXXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			NOT APPLICABLE			EACH OCCURRENCE \$ XXXXXXXX DAMAGE TO RENTED PREMISES (Ea occurrence) \$ XXXXXXXX MED EXP (Any one person) \$ XXXXXXXX PERSONAL & ADV INJURY \$ XXXXXXXX GENERAL AGGREGATE \$ XXXXXXXX PRODUCTS - COMPI/OP AGG \$ XXXXXXXX \$
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY			NOT APPLICABLE			COMBINED SINGLE LIMIT (Ea accident) \$ XXXXXXXX BODILY INJURY (Per person) \$ XXXXXXXX BODILY INJURY (Per accident) \$ XXXXXXXX PROPERTY DAMAGE (Per accident) \$ XXXXXXXX \$ XXXXXXXX
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$			NOT APPLICABLE			EACH OCCURRENCE \$ XXXXXXXX AGGREGATE \$ XXXXXXXX \$ XXXXXXXX
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			NOT APPLICABLE			PER STATUTE OTH-ER E.L. EACH ACCIDENT \$ XXXXXXXX E.L. DISEASE - EA EMPLOYEE \$ XXXXXXXX E.L. DISEASE - POLICY LIMIT \$ XXXXXXXX
A	Professional Liab	N	N	47-EPP-308810 NO RETROACTIVE DATE	10/1/2020	10/1/2021	\$3,000,000 PER CLAIM/AGG INCLUSIVE OF COSTS
B	Contractors Pollution Liab			CPO8085428	10/1/2019	10/1/2021	\$3,000,000 PER LOSS/AGG

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

<b>CERTIFICATE HOLDER</b> 14181323 TO WHOM IT MAY CONCERN	<b>CANCELLATION</b> SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE 

© 1988-2015 ACORD CORPORATION. All rights reserved.