**Brett McMann, P.E.**

**Civil Engineer**

**The Water Institute of the Gulf**

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**Education**

**B.S. in Civil and Environmental Engineering, Minor in Business Administration, May 2010**

Louisiana State University, Baton Rouge, LA

**(Ongoing) M.S. in Civil Engineering (focus in Coastal Engineering)**

University of New Orleans, New Orleans, LA

Relevant Coursework: Sediment Transport and Dredging, Design of Coastal and Hydraulic Structures, Ocean and Coastal Engineering, Coastal Geomorphology, Coastal Processes, Coastal Restoration and Management, Sustainability Principles in Engineering. GPA to date: 4.0.

**EXPERIENCE SUMMARY**

Mr. McMann has experience in the planning and design of flood protection and ecosystem restoration projects along the East and Gulf Coasts, most notably for the Louisiana Coastal Protection and Restoration Authority (CPRA), where he has been involved in the proposal, scoping, execution, and closeout of over 20 task orders spanning both engineering and environmental sciences IDIQ contracts with a value of approximately $4.5M. Mr. McMann has had heavy involvement as part of the development team for Louisiana’s 2012, 2017, and now 2023 Coastal Master Plans.  Mr. McMann has experience in the planning and design of levees, pump stations, shoreline armoring, marsh creation, streambank restoration, coastal ecosystem restoration, wetlands value assessments, borrow source identification, engineering feasibility and cost-benefit analysis, municipal utility replacement, and field condition assessments of utilities.

**Professional Experience**

**The Water Institute of the Gulf (2019-present)**

Civil Engineer/Project Manager

* + Selected Projects and Clients
		- **Rebuild Texas Fund (Susan and Michael Dell Foundation):**
		- “Dryvable” software ap development (Harris County, TX 2019-2020): A shortcoming of mass-broadcast public weather alerts is the inability to relate impending precipitation to likely flood impacts. The probabilistic nature of flood risk communication makes is difficult for the general public to understand and in turn properly inform their behavior. Recent developments in hydrologic modeling and precipitation forecast technology will enable improvements in both flood forecasting and the communication of those forecasts. Brett served as project manager for the team that developed, prototyped, and piloted the Dryvable Flood Risk Awareness System, a numerical, science-based model of the Buffalo Bayou, Cypress Creek and Clear Creek watersheds. Dryvable will help Houston drivers make better decisions about which roads and routes on the common commutes are likely to be flooded and increase awareness and understanding of flood risk for individuals and organizations in Harris County.
		- **Louisiana Coastal Protection and Restoration Authority (CPRA):**
		- Calcasieu Ship Channel Salinity Control Project (CS-0065) / Cameron Parish, LA (2019-present): Brett presently serves as the Principal Investigator/Project Manager of this project. The objective of this project is to support the evaluation of the structural design, attributes, and influence of the planned project on the lake and regional landscape as well as on navigation channel maintenance and infrastructure. Work on this project included environmental modeling support concerning drainage and hydrology of Calcasieu Lake and the Cameron-Creole watershed, as well al support of CPRA’s alternatives re-analysis and decision documentation.
		- 2023 Coastal Master Plan / Statewide, LA (2019-present): Brett presently is part of the risk analysis team investigating high tide flooding metrics and thresholds as part of the upcoming master plan. In this role, Brett works with others at the Water Institute to characterize both the likelihood and effects that disruptions to access of critical and essential facilities will have on low-lying coastal communities in future decades. this analysis focuses on the changes to access and drive times which coastal communities may have to facilities such as pharmacies, hospitals, emergency response, grocery stores, etc.
		- **National Fish and Wildlife Federation (NFWF):**
		- Partnership for Our Working Coast / Lafourche Parish, LA (2019-present): The Greater Lafourche Port Commission (GLPC) operates Port Fourchon. The port services more than 90 percent of all U.S. Gulf of Mexico Deepwater oil and gas exploration and production activities. Energy industry partners Chevron, Shell, and Danos along with GLPC and The Water Institute of the Gulf came together to form the Partnership for Our Working Coast which takes a science-based approach to maximizing the benefits of coastal restoration efforts to protect energy assets and critical infrastructure as a vital component of industry’s risk management and sustainability business drivers. The GLPC is pursuing plans to obtain federal regulatory approval to deepen Belle Pass at the mouth of Bayou Lafourche to a target depth of -50 feet. This large-scale dredging project will generate tens of millions of cubic yards of material over its lifespan. Brett serves as project manager for the multi-disciplinary team developing nature-based defense projects to address the challenges of coastal evolution, improvement in community resilience, and evaluating the potential of blue carbon sequestration through coastal and wetland restoration projects. The Institute is developing a suite of Delft-based ecosystem assessment models to help stakeholders prioritize the proposed solutions. Coupled with the modeling suite development, The Institute is using a unique stakeholder-advised participatory modeling process to inform the inputs and outputs to the modeling process.
		- **Louisiana Watershed Council (Louisiana Office of Community Development):**
		- Louisiana Watershed Initiative / Statewide (2019-present): After the 2016 floods led to major disaster declarations across 56 parishes, Louisiana’s state government decided to fundamentally change its approach to addressing flood risk. To implement holistic approaches statewide, the state established the Louisiana Watershed Initiative (LWI) to improve the way residents and governments understand, address, and respond to flood risk. The program was initially funded with $1.2 billion in federal mitigation funds (CDBG-MIT). Brett, serves on The Institute team supporting OCD in aligning the modeling program with the larger Watershed Initiative by (1) managing the Data and Modeling Technical Advisory Group, (2) engaging with local government stakeholders on modeling and other decision support tool use for watershed management projects, (3) ensuring that the models meet the highest standards by serving on the Technical Delivery and Quality (TDQ) team, (4) developing data management plan templates and procedures such that data can be consistently stored and accessed by stakeholders over the long-term and (5) developing state and regional policy recommendations and supporting legislation.
		- **Quilmes-Rio de la Plata Research Project Risk and Resilience (Baton Rouge Area Foundation)**
		- Quilmes, Argentina (2020): In May 2019, the Baton Rouge Area Foundation approved a $75,000 grant to Tulane University and the Institute to support work in developing a plan to remake the waterfront in Quilmes, Argentina. The city of 580,000 residents is considering two major projects that will critically impact it’s future: The development of the coastal fringe and the work along the two “arroyos” that cross the city and where the most urgent probles of inequality are located. New affordable housing, public facilities, public spaces, infrastructures and ecological fesatures need to be incorporated within a central vision. Tulane’s School of Architecture and the Institute provided needed coastal science and urban repair advice that policymakers, scientists and designers in the Quilmes-Rio de la Plata region of Argentina needed to reinvent their coastline. Brett led the civil and coastal design review of the architectural proposals in order to best marry feasibility with other aspects of the designs.

**ARCADIS, U.S. Inc. 2013-2019**

Staff Engineer/Task Manager

* + Selected Projects and Clients:
		- **Louisiana Coastal Protection and Restoration Authority (CPRA):**
		- 2023 Coastal Master Plan / Statewide, LA (2018-2019): Brett lead Arcadis’ effort to develop a new database system for streamlining both the project attribute generation system as well as for data handoffs between various end-user model groups.
		- 2017 Coastal Master Plan / Statewide, LA (2015-2017): Brett lead Arcadis’ effort to develop attributes for several hundred ecosystem restoration and hurricane protection projects to facilitate numeric modeling and prioritization analysis. This effort included GIS analysis, cost estimation, planning-level design, data and document production automation, and regular interdisciplinary team coordination of roughly 20 internal staff and countless external partners such as The Water Institute of the Gulf, the RAND Corporation, USGS, academia, and local governmental partners. Brett also assisted in planning and executing numerous public outreach engagements with local and regional stakeholders. Brett was part of a 12-member delivery team that oversaw more than 100 other technical analysts and support team members from within CPRA and other agencies across the three-year 2017 Master Plan effort. The team produced 6,000 pages of documentation, conducted more than 200 meetings with internal advisory groups and external stakeholder groups, and used state-of-the-art integrated predictive models to deliver a 50-year, $50 billion Coastal Master Plan that forecasts building or maintaining more than 800 square miles of land and reduce expected damages by $8.3 billion annually. Additionally,
			* Program Management for the Calcasieu Ship Channel Salinity Control project (CS-65), Cameron and Calcasieu Parishes, LA (2017-present): Mr. McMann served as a program manager tasked with overall project management, scheduling, scoping, risk analysis, procurement strategy, engineering design QA/QC, and public outreach strategy for a multidisciplinary team of engineers and scientists executing $150M in salinity control features.
			* Louisiana Watershed Initiative: Phase I Program Management and Investigation Report. Statewide, LA (2018-April 2019). Brett served on a technical staff charged with the development of a statewide, comprehensive Watershed-based Floodplain Management Program. Phase I of program development initiated in the fall of 2017 through the cooperation of the Coastal Protection and Restoration Authority (CPRA), the Department of Transportation and Development (DOTD), the Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP), and the Office of Community Development (OCD), as well as a broad swath of stakeholders, subject matter experts, other Louisiana state agencies, and other states and regions in the country. The effort included establishment of both the analysis and governmental framework to enable future phases of the Program to facilitate the prioritization of $1.2B federal dollars earmarked for watershed spending.
			* Final Design and Construction Administration for the Cut-Off/Pointe Aux Chene Levee (TE-78, Reach L of Morganza to the Gulf), Lafourche Parish, LA (2017-2019): Brett currently served as the project engineer overseeing the design, procurement, and implementation of roughly two miles of levee construction on behalf of CPRA.
			* Southwest Coastal Louisiana Feasibility Study/ Calcasieu, Cameron, and Vermilion Parishes, LA (2014-2015): Brett was the project engineer for the planning-level design and cost estimation for roughly $2 billion of features for a proposed flood protection system across St. Mary and Iberia Parishes. The analysis considered a range of flood control features and alignments to best balance cost-benefit ratios with public safety for storm surge and precipitation as well as joint probability events.
			* South Central Coastal Planning Study (TV-54), Phases I and II / Iberia and Saint Mary Parishes, LA (2014-2017): Brett was the project engineer for the planning-level design and cost estimation for roughly $4 billion of features for a proposed flood protection system across St. Mary, Iberia, and Vermillion Parishes in Louisiana as a follow-on effort to the Southwest Coastal Louisiana Feasibility Study. The analysis similarly considered a range of flood control features and alignments to best balance cost-benefit ratios with public safety for storm surge and precipitation as well as joint probability events.
			* Louisiana State Floodplain Management Study-Senate Concurrent Resolution 152 / Statewide, LA (2017-2018): Brett was part of a team conducting research and analysis in support of efforts to reform Louisiana’s floodplain management in response to the flooding disasters of 2016. The analysis team analyzed statutory authorities and national best practices to provide recommendations for legislative reform and ability to regulate sustainable development in floodplains and to enable more efficient floodplain management at local levels.
			* Exploring the Reorganization of Levee Districts-Senate Concurrent Resolution 39 / Statewide, LA (2015): Mr. McMann was part of a team conducting research and analysis in support of efforts to streamline Louisiana’s levee authority and flood protection governmental structure in response to the hurricane disasters of 2005 and 2008. The effort resulted in recommendations to the LA Legislature to reform flood and water management based on a watershed approach as opposed to a local political jurisdictional approach.
			* Upper Barataria Basin Risk Reduction / Lafourche, St Charles, St James, St John and Assumption Parishes. (2015): Brett Organized QA/QC efforts to assess proposed project costs and features of various consultant teams. Brett synthesized various cost calculation methodologies for CPRA to enable equitable assessment of the various proposed alignments in accordance with CPRA methodology.
		- **City of Norfolk, VA**
			* CDBG National Disaster Resilience Competition-Ohio Creek Watershed Transformation Plan (2017-2019): Brett served as co-lead for all civil design of flood protection, living shoreline, and coastal engineering tasks of a $120M flood risk resiliency system funded via HUD’s NRDC grant competition. Brett coordinates with an interdisciplinary architectural and engineering team to synthesize storm water, living shoreline, green infrastructure, and public use spaces within the resiliency design.
		- **City of Boston, MA**
			* CDBG National Disaster Resilience Competition-South Boston Resiliency Plan (2017-2018): Mr. McMann served as a team lead for the planning and prioritization of a flood risk resiliency system funded via HUD’s NRDC grant competition to enable South Boston to continue to redevelop and redefine itself in the face of future sea level rise. He oversees cost estimation, alternative development, and feature definition for the project. This work has spurred several offshoot projects, such as FEMA grant applications for implementation and further planning efforts with the Barr Foundation.
		- **Texas General Land Office (TX GLO)**
			* Gulf Coast Community Protection & Restoration District 6 Counties Flood Protection Study, Phases I, II, and III/ Orange, Jefferson, Chambers, Harris, Galveston, Brazoria Counties, TX (2016-2018): Brett assisted in an effort to define storm surge risk reduction alternative measures by leading the alignment layout, quantities calculation, and cost estimation for various alternatives spanning approximately 50 miles of the Texas coast. Brett lead the effort to establish a universal project planning framework across various consultants and entities for uniform reporting.
		- **New York City Department of Design and Construction**
			* East Side Coastal Resiliency Design, Borough of Manhattan (2016): Brett helped establish planning level cost estimating tools for a multimillion dollar urban flood resiliency project which comprises part of the “Big U” scheme to protect lower Manhattan from future flooding.
		- **Plaquemines Parish Government (PPG):**
			* Design and program management for the USACE's Beneficial Use of Dredged Material (BUDMAT) West Bay (2014-2015) and Spanish Pass (2015-2017): Brett assisted in developing project alternatives, feature design, cost optimization, land rights, and environmental constraint identification for two projects which placed over 5 million cubic yards of dredged material to create approximately 200 acres of wetlands and emergent marsh in the lower Mississippi River Delta.
			* Restoration Program Management (2015): Mr. McMann served as a project engineer for the conceptual design management and programmatic permitting of the Plaquemines Parish Vegetative Ecosystem Restoration Program. During the conceptual design and layout, Arcadis worked with multiple consultants to determine least impacts, cost effective alignments considering constructability, mitigation, and synergy with other projects.
		- **West Feliciana Parish Government (partnered with FEMA)**
			* Bayou Sara streambank armoring and hydrodynamic modelling (2016-2017): Mr. McMann was the civil design task lead for a FEMA HMGP project, which aimed to prevent future bank line erosion from threatening multiple points of local critical infrastructure including the town of St. Francisville’s sewerage treatment facilities and the West Feliciana Parish ferry landing access. Brett leads a team of civil designers and hydrodynamic modelers to assess flows and generate solutions which not only addressed the issue but were sensitive to nearby historic archeological sites.
		- **Confidential Client: Vulnerability Assessment/ LA and TX Coastal Zones.**
			* (2015-2016) Brett served as a staff engineer as part of an effort to assess the vulnerability of coastal oil and gas pipeline infrastructure to episodic threats such as storm-induced scour, anthropogenic threats such as spud anchors etc., and duration-based threats such as land loss/subsidence.

**Brown and Caldwell 2010-2013**

Engineering Specialist

* + Selected Projects and Clients:
		- **Louisiana Coastal Protection and Restoration Authority (CPRA)**
			* 2012 Master Plan Update/ Statewide, LA (2010-2012). Similar to the 2017 Coastal Master Plan, Brett was part of a multidisciplinary team which evaluated over $300 billion of proposed projects in order to prioritize $50 billion of ecosystem restoration and flood resiliency projects across Louisiana’s coast.
		- **Ecosystem Investment Partners**
			* Restoration Feasibility and Wetlands Value Assessment of Orleans Land Bridge Mitigation Bank/ Orleans Parish, LA (2011): Brett served as a staff engineer for the project, which included evaluation of the feasibility of restoring approximately 17,000 acres of brackish marsh in Southeastern Louisiana as compensatory mitigation for unavoidable impacts to waters of the United States, including wetlands, resulting from activities authorized under Section 404 of the Clean Water Act (Section 404) and Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and/or LA. R.S. 49:214.21-214.41. Tasks included preparing a Wetlands Value Assessment based on the Coastal Wetlands Planning, Protection, and Restoration Act Wetlands Value Assessment Methodology using coastal marsh Community Models.
		- **East Baton Rouge Parish Dept. of Public Works**
			* Florida Boulevard Pump Stations Project/ East Baton Rouge Parish, LA (2013-2014): Brett served as a staff engineer for the project which facilitated the upgrades to/construction of 10 pump stations with peak future flows ranging from 763 to 21,236 gpm. Brett assisted with pump and wet well sizing calculations.
		- **New Orleans Sewerage and Water Board**
			* Paths to Progress Water Line Replacement Civil Design, Construction Inspection for Water Line Replacement / Orleans Parish, LA (2014): Brett server as a staff engineer for the replacement and relocation of municipal waterlines damaged during Hurricane Katrina. Duties included QA/QC of survey data, relocation troubleshooting, construction inspection, and water line design for approximately 30 city blocks.
		- **United States Naval Facilities and Engineering Command (NAVFAC)**
			* Pensacola Naval Base SSES Program (2014): Brett served as a staff engineer on this project, which included a field condition assessment of all base wastewater conveyance infrastructure, electronic documentation and database compilation of defects, system testing, and GIS mapping of the NAS Pensacola wastewater system.

**Professional Registration**

1. Professional Engineer, Civil Water Resources and Environmental. LA No. 39894
2. Professional Engineer, Civil Water Resources and Environmental. TX No. 124465

**Professional Memberships**

1. American Society of Civil Engineers
2. Louisiana Engineering Society
3. American Shore and Beach Preservation Association

**Technical Proficiencies**

* Proficiency with ESRI GIS software.
* Basic proficiency in Autocadd, SlopeW, PSDDF, Mathcadd software.
* Familiar with numerous industry-standard hydrologic and hydraulic models.

**RECENT Conference Proceedings, PUBLICATIONS, AND Presentations**

1. **B McMann**, R Simoneaux III. 2018. *Development of Project Attributes and Costs for the 2017 Coastal Master Plan.* Louisiana Civil Engineer- Journal of the Louisiana Section. February 2018. Vol. 26 No. 2.
2. **B McMann**, R Brouillette, I. Harrouch. 2018 *Planning Future Hurricane Protection in South Central and South West Louisiana. Proceedings of the State of the Coast Conference.* June 1-3, 2018. New Orleans, LA.
3. **B McMann**, M Schulze. 2018. *Spanish Pass Beneficial Use of Dredged Material.* *Proceedings of the State of the Coast Conference.* June 1-3, 2018. New Orleans, LA.
4. **B McMann,** M. Schulze, H. Sprague, and K. Smyth. 2017. 2017 Coastal Master Plan: Appendix A: Project Definition. *Coastal Protection and Restoration Authority- Version: Final.* Baton Rouge, LA.
5. **B McMann**, P Tschirky, M Schulze, E Mesehle. 2016. Beneficial Use of Mississippi River Navigation Dredged Material. *Proceedings of Ports 2016: 14th Triennial International Conference of the American Society of Civil Engineers.* June 13-15, 2016. New Orleans, LA.
6. **B McMann**, P Tschirky, M Schulze, E Mesehle. 2016. Beneficial Use of Mississippi River Navigation Dredged Material. *Proceedings of the State of the Coast Conference.* June 1-3, 2016. New Orleans, LA.