Response to Advertisement for Engineering and Related Services

Louisiana Department of Transportation and Development (DOTD)

Contract Identification No. 4400023102

IDIQ Contract for Louisiana Watershed Initiative/State Projects Program (LWI-SSP) - Group No. 2

Caddo, Jackson, Rapides, Evangeline, Grant and Franklin Parishes

January 6, 2022

FREESE AND NICHOLS

FREESE AND NICHOLS
Innovative approaches
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900 Camp Street, Suite 354, New Orleans, Louisiana 70130 • 504-478-1065 www.freese.com

January 6, 2022

RE: IDIQ Contract for Louisiana Watershed Initiative/State Projects Program (LWI-SSP) - Group No. 2 Caddo, Jackson, Rapides, Evangeline, Grant and Franklin Parishes | Contract No. 4400023102

Dear Selection Committee:

Freese and Nichols, Inc. (FNI) appreciates the continued opportunity to serve the Louisiana Department of Transportation and Development (LADOTD) by submitting our proposal for the IDIQ Contract for Louisiana Watershed Initiative/State Projects Program (LWI-SSP) - Group No. 2 - Caddo, Jackson, Rapides, Evangeline, Grant and Franklin Parishes. FNI and Dewberry are committed to delivering on this project by meeting LADOTD's schedule and objectives as we have done for Regions 2 and 7 for the LWI Modeling Contracts. By safely maintaining the function of Louisiana's dams, LADOTD provides a crucial service to communities throughout the state. Our proposal presents our understanding of these services, example projects that demonstrate our experience and additional information to address the specific items required in the RFP. We also detail those items of value that FNI provides to LADOTD, including:

Proven Dam Program Experience – For this contract, we have assembled a team of experts who have worked together on dam, levee and related projects across the south. As a mid-sized engineering firm, FNI offers comprehensive technical capacity without the high overhead costs and bureaucratic hierarchy of the larger firms. We believe our track record and portfolio of related projects is second to none. FNI has extensive experience managing and coordinating multiple task orders under IDIQ contracts. Our recent experience with the Texas State Soil and Water Conservation Board (TSSWCB) and numerous other public agencies ***provides proven approaches that keep projects moving in a positive direction.***

Commitment to Client Service – Our team has a comprehensive understanding of the challenges facing the LADOTD, based on our extensive history of planning, design and construction of similar projects. We have a legacy of stewardship of our clients' resources and appreciate the challenges that the State faces with respect to dam safety. We know that the LADOTD demands excellence, and our project team includes technical experts to address any project which may arise as part of this IDIQ contract. Our team members recognize that frequent and effective project communication is critical to understand and achieve the project goals. As we have demonstrated on the LWI Region 2 Modeling Contract, the ***FNI team will work tirelessly to keep projects on schedule and budget.***

Commitment to Quality – Quality is the cornerstone of our commitment to our clients and our approach includes leveraging our in-house technical experts to provide quality deliverables. Having many services in-house allows FNI to offer a comprehensive, seamless approach to any project. FNI was the first engineering firm to receive the Malcolm Baldrige National Quality Award, a prestigious recognition that awards excellence in organizational performance. This means that our staff is equipped with processes and procedures that facilitate ***responsive service and quality deliverables.***

Local Resources – Our team is specifically tailored to strike the optimum balance between full coverage of the contract requirements and responsive project management. Our decision-making structure is highly decentralized, allowing for client-centered and timely resolution of questions and issues. Our project team has local resources, with knowledge of the dams and flood risks in the region, that can be physically present to meet with LADOTD staff on short notice.

Thank you again for the opportunity to submit our statement of qualifications. Please feel free to contact us with any comments or questions. We look forward to continuing to provide exceptional customer service to LADOTD with this contract.

Sincerely,

John Rutledge, PE
Vice President/Principal
817-735-7284 | john.rutledge@freese.com

James Keith, PE,TX CFM
Vice President/Principal
214-217-2372 | jim.keith@freese.com

DOTD FORM: 24-102

(Revised June 1, 2021)

PROPOSAL TO PROVIDE CONSULTANT SERVICES

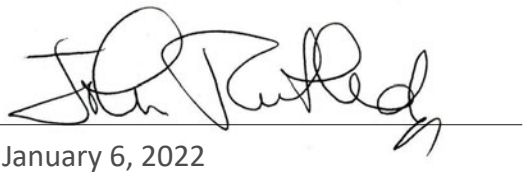
Prime consultant shall complete the DOTD Form 24-102 without altering the Form's text; however, the instruction and/or guidance for Sections 12 through 23 can be removed but do not remove Section title and number.

ANY CONSULTANT FAILING TO SUBMIT ANY OF THE INFORMATION REQUIRED ON THE DOTD FORM 24-102, OR PROVIDING INACCURATE INFORMATION ON THE DOTD FORM 24-102, MAY BE CONSIDERED NON-RESPONSIVE.

Prime consultant should enter the firm name in the footer at the bottom of this page. (It will carry over to subsequent pages.)

1. Contract title as shown in the advertisement	IDIQ Contract for Louisiana Watershed Initiative/ State Projects Program (LWI-SSP) - Group No. 2 Caddo, Jackson, Rapides, Evangeline, Grant and Franklin Parishes
2. Contract number(s) as shown in the advertisement	Contract No. 4400023102
3. State Project Number(s), if shown in the advertisement	N/A
4. Prime consultant name (as registered with the Louisiana Secretary of State where such registration is required by law)	Freese and Nichols, Inc.
5. Prime consultant license number (as registered with the Louisiana Professional Engineering and Land Surveying Board (LAPELS) if registration is required under Louisiana law)	LAPELS No. EF.0000341
6. Prime consultant mailing address	900 Camp Street, Suite 354 New Orleans, Louisiana 70130
7. Prime consultant physical address (existing or to be established, if location is used as an evaluation criteria)	900 Camp Street, Suite 354 New Orleans, Louisiana 70130
8. Name, title, phone number, and email address of prime consultant's contract point of contact	Brad Kirksey, PE, Project Manager 575-649-2481 | brad.kirksey@freese.com
9. Name, title, phone number, and email address of the official with signing authority for this proposal	John Rutledge, PE | Vice President / Principal 817-735-7284 | john.rutledge@freese.com

A Guide to Acronyms can be found on the last page of this document.

10. This is to certify that all information contained herein is accurate and true, and that the team presently has sufficient staff to perform these services within the designated time frame. By submitting this proposal, proposer certifies that it is not engaged in a boycott of Israel and it will, for the duration of its contract obligations, refrain from a boycott of Israel. Proposer also certifies and agrees that the following information is correct: In preparing its response, the proposer has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israeli-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The proposer also has not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. DOTD reserves the right to reject the response of the bidder or proposer if this certification is subsequently determined to be false, and to terminate any contract awarded based on such a false response.	Signature (shall be the same person as #8):  Date: January 6, 2022
11. If a Disadvantaged Business Enterprise (DBE) goal has been set for this advertisement, indicate which firm(s) will be used to meet the DBE goal and each firm(s)' percentage.	Firm(s): N/A Firm(s)' %: N/A

SPECIALIZED DAM ENGINEERING EXPERIENCE

During the last 15 years, FNI has completed:

800+	Dam inspections and evaluations
205+	Breach analyses
115+	Probable maximum flood studies
115+	Emergency action plans
65+	Published papers, presentations, guidelines and books on dam engineering
60+	Dam rehabilitation designs
15	New dam designs

12. Past Performance Evaluation Discipline Table:

Evaluation Discipline(s)	% of Overall Contract	FNI	Dewberry	Lazenby	Nixon	Ardaman
Other	55%	74%	25%		1%	
Survey	3%			75%	25%	
Geotech	27%	75%				25%
CE&I/OV	10%	100%				
Environmental	5%	100%				
Identify the percentage of work for the overall contract to be performed by the prime consultant and each sub-consultant.						
Percent of Contract	100%	76%	14%	2%	1%	7%

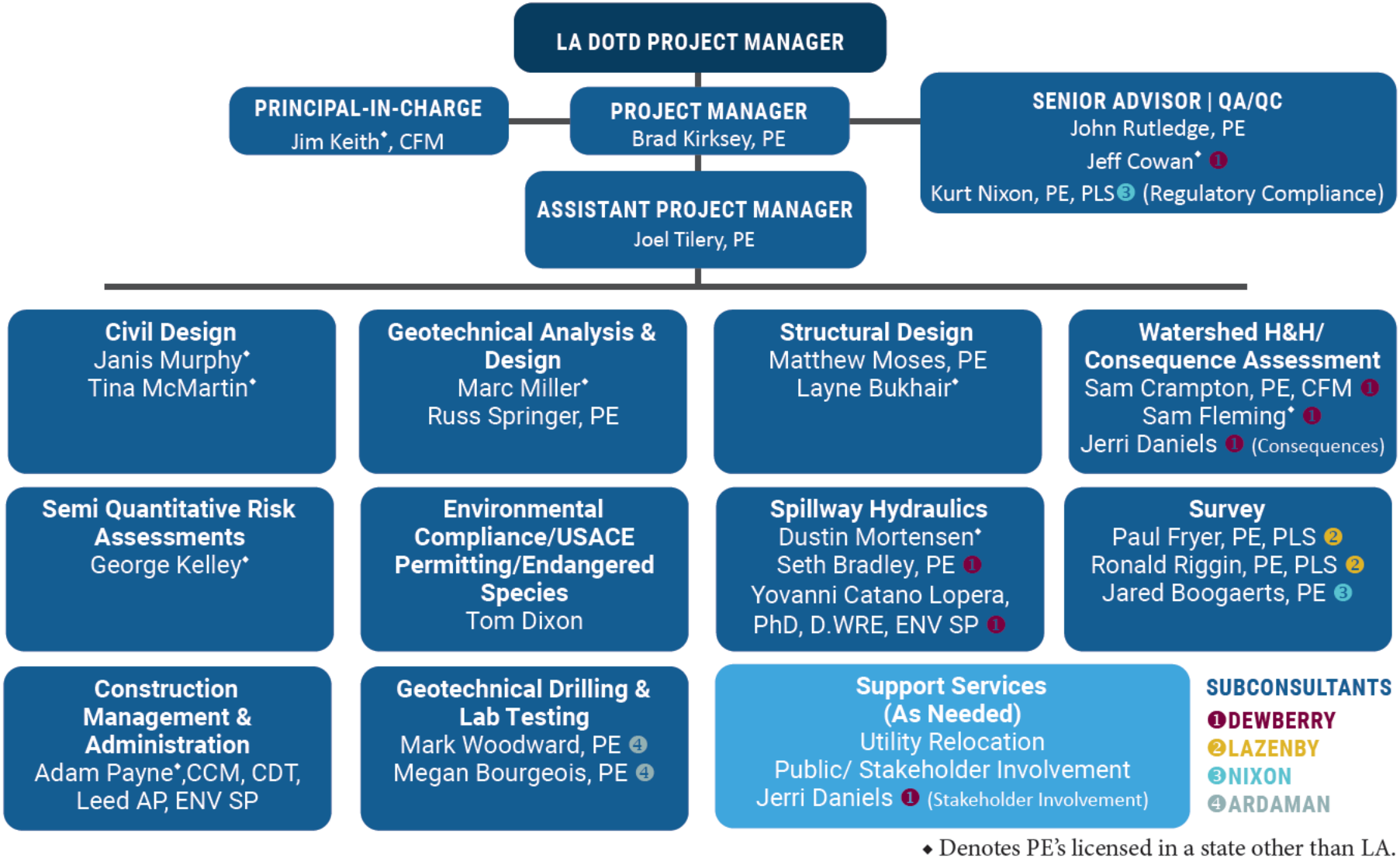
*The past performance evaluation are: Road, Bridge, Traffic, CE&I/OV, Geotech, Survey, Environmental, Data Collection, Planning, Right-of-Way, CPM, ITS, Appraiser and Other. The crosswalk from the old categories to the new categories can be found at the link below: http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/CCS/General%20Information/CPPR%20Crosswalk%20to%20New%20Evaluation%20Disciplines.pdf

13. Firm Size:

Firm Name	DOTD Job Classification	Number of personnel committed to this contract	Total number of personnel available in this DOTD Job Classification (if needed)
FNI	Administrative	1	40
FNI	Cadd Technician	1	27
FNI	Cadd-Operator	1	27
FNI	Engineer	1	3
FNI	Engineer Intern	2	156
FNI	Engineer-Other	6	354
FNI	Environmental Pro	2	34
FNI	Geologist	0	1
FNI	GIS Analyst	1	17
FNI	Inspector	0	40
FNI	Project Office Manager	1	72
FNI	Principal	2	75
FNI	Supervisor-Eng	2	21
Dewberry	Engineer	2	17
Dewberry	Engineer-Other	1	600
Dewberry	Professional	1	100
Lazenby	CADD Operator	1	2
Lazenby	Engineer	1	8
Lazenby	Survey Instrumentman	2	2
Lazenby	Party Chief	1	2
Lazenby	Principal	1	1
Lazenby	Rodman	2	2
Lazenby	Supervisor - Engineer	1	3
Lazenby	Surveyor	1	1

Firm Name	DOTD Job Classification	Number of personnel committed to this contract	Total number of personnel available in this DOTD Job Classification (if needed)
Nixon	Cadd Technician	1	1
Nixon	Engineer	1	1
Nixon	Instrument Man	1	2
Nixon	Party Chief	1	2
Nixon	Supervisor-Eng	1	1
Ardaman	Administrative	3	30
Ardaman	Clerical	3	26
Ardaman	Engineer	12	103
Ardaman	Engineer-Intern	5	16

14. Organizational Chart:



◆ Denotes PE's licensed in a state other than LA.

Prime Consultant Name: Freese and Nichols, Inc.

15. Minimum Personnel Requirements:

MPR No. Do not insert wording from ad	Personnel being used to meet the MPR (Individual(s) may not satisfy more than one MPR unless specifically allowed by Attachment B of the advertisement)	Firm employed by	Type of license / certification & number	State of License	License / certification expiration date
1.	John Rutledge, PE	FNI	Professional Engineer PE.0025581	State of Louisiana	12/31/2022
2.	John Rutledge, PE	FNI	Professional Engineer PE.0025581	State of Louisiana	12/31/2022
3.	John Rutledge, PE	FNI	Professional Engineer PE.0025581	State of Louisiana	12/31/2022
4.	Sam Crampton, PE, CFM	Dewbery	Professional Engineer PE.37866	State of Louisiana	09/30/2023
5.	Paul Fryer, PE, PLS	Lazenby	Professional Land Surveyor PLS #0004806	State of Louisiana	03/31/2023
	Ronald Riggin, PE, PLS	Lazenby	Professional Land Surveyor PLS #0005119	State of Louisiana	09/31/2023
6.	Jim Keith, CFM	FNI	Professional Engineer 105043	State of Texas	9/30/2022
	Sam Crampton, PE, CFM	Dewbery	Professional Engineer PE.37866	State of Louisiana	09/30/2023

John Rutledge, PE

Sam Crampton, PE, CFM

Paul Fryer, PE, PLS

Ronald Riggin, PE, PLS

Jim Keith, CFM

FNI | DEWBERRY | LAZENBY

16. Staff Experience:

Freese and Nichols, Inc.			
Name	James (Jim) Keith, CFM	Years of experience with this firm/employer	9
Title	Principal/Vice President	Years of experience with other firm(s)/employer(s)	12
Degree(s) / Years / Specialization		BS | 2000 | Hydrology and Water Resources	
Active registration number / state / expiration date		Professional Engineer #105043 | TX | 09/22 Certified Floodplain Manager #0608-04N	
Year registered	2009	Discipline	Civil Engineer
Contract role(s) / brief description of responsibilities		**Principal-in-Charge |** As Principal-in-Charge, Jim will work closely with the Project Manager to help the project stay on task, schedule and budget. He will be a sounding board to discuss the staging of critical work items and the ways to accomplish delivering the project as expected. He has the authority to bind the firm and can dedicate additional resources to the project, should the need arise. Jim is an FNI Principal/Vice President and has two decades of technical and managerial experience in water resources planning and design projects, having led large-scale watershed modeling and mapping projects in Louisiana. He has extensive experience in 1-D & 2-D hydraulic analyses using the HEC suite of software, as well as dam design and rehabilitation. Jim is currently serving as Project Manager for the LWI Region 2 Modeling Contract with LADOTD.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
07/20 - Ongoing	**LWI Region 2 Modeling | LADOTD | Project Manager |** Jim oversees a robust team, including five watershed team leads and seven subconsultants. FNI is developing large-scale H&H models to create a statewide watershed-based floodplain management program. The five-year, $18 million contract involves the development of calibrated 1-D/2-D HEC-RAS models for use in consequence and risk assessment. Region 2 is made up of nine HUC-8 watersheds covering approximately 9,500 square miles in the north central part of the state. The hydrologic and hydraulic models developed by Jim's team will be leveraged for the dams within this Group 2 contract.

11/19-05/21	**Floodplain Program Management Assistance - Dam Safety | City of Dallas, TX | Senior Advisor |** Jim provided senior oversight related to the overall goals of the program and supporting implementation of the dam safety activities primarily relating to stakeholder engagement. FNI is providing comprehensive dam safety program services supporting 11 City-owned dams with various analyses, assessments, and workshops. The project coordinates funding from three separate City departments - Dallas Water Utilities, the Storm Drain Management Fund and the Park and Recreation Department to analyze the spectrum of City-owned dams equally and to put forth a consistent dam safety message. A portion of the project will be funded via the new high hazard potential dams grant program from FEMA. Prior to the start of this project, FNI assisted the City in securing this grant funding. Public outreach will be included with two major project tasks: following updates to the City-wide emergency action plan (EAP) with the purpose of public education regarding dam safety; and as a fundamental component of a dredging feasibility study for White Rock Lake, a key recreational asset for the City. Additional project tasks include a spillway capacity analysis, a potential failure modes analysis, inspection training, an EAP tabletop exercise and an instrumentation review.
09/19-04/21 ***Reference Project (page #60)***	**Six Flood Retarding Structure (FRS) Rehabilitations | Texas State Soil and Water Conservation Board | Independent Technical Review |** Jim was responsible for independent technical review of the model results pertaining to FEMA mapping impacts. FNI performed alternatives analyses, geotechnical investigations, environmental permitting and dam rehabilitation design for six dams in Texas. Each dam site had their own technical and project specific challenges, but the scope and scale of the overall program presented time constraint, management and production challenges. The project was managed over a compressed 18-month design timeline. The work production was performed by six separate design teams. Standard internal technical processes and standardized templates for both reporting and CAD designs were established at the program level, so that efficiency and uniformity could be achieved. The project includes coordination with TSSWCB (Client), NRCS-Texas, NRCS NDC-SMC, TCEQ, and Local Sponsor Organizations.
10/02-11/03	**French Lake Dam Emergency Repair and Downstream Study* | Fort Worth Water, TX | Assistant Project Manager |** FNI is responbile for this project involved sizing a new spillway for French Lake Dam, a small structure located in a park in southwest Fort Worth. The HEC-1 program was used to calculate the in-stream flows, and HEC-RAS was used to model the effects of a dam breach on the downstream reach using unsteady flow analysis. Jim used the results of the analysis to size a new outlet structure for the dam and assisted the City in developing an EAP for the dam.
03/07-12/10	**Trinity River Central City* | U.S. Army Corps of Engineers - Fort Worth District | H&H Task Manager/Lead Modeler|** Jim was responsible for overseeing all modeling aspects during design advancement on the 1.6-mile bypass channel. Working closely with the U.S. Army Corps of Engineers (USACE) Fort Worth District, Jim supported the development of baseline HEC-1 and HEC-GeoRAS models of the West Fork and Clear Fork Trinity River. Led modeling of alternative channel configurations to accommodate new bridge designs, architectural modifications, structural and civil layout. Efforts included a technical support role in the testing of a 1:40 scale physical model and 2-D numerical model of the bypass channel. Developed the HEC-RAS calibration methodology to reproduce the physical model results, which involved coordination with USACE and HEC. Further developed the project HEC-1 and HEC-GeoRAS models to refine the project design, along with an unsteady HEC-RAS model to refine operation of the proposed dam and flood control gates. Produced Design Documentation Report (DDR) documenting technical basis of H&H modeling and design efforts.

Freese and Nichols, Inc.			
Name	**Brad Kirksey, PE**	Years of experience with this firm/employer	13
Title	Project Manager / Associate	Years of experience with other firm(s)/employer(s)	0
Degree(s) / Years / Specialization		MS | 2009 | Civil Engineering - Water Resources BS | 2007 | Civil Engineering - Water Resources	
Active registration number / state / expiration date		Professional Engineer #0046191 | LA | 03/22	
Year registered	2021	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		**Project Manager |** As Project Manager, Brad will oversee and manage all contract work performed by the FNI team. He will provide regular reports to LADOTD regarding project status, schedule and budget. He will facilitate clear communication between LADOTD, technical teams, and stakeholders to ensure project objectives are met. Brad is a firm Associate and Project Manager/Engineer in FNI's Water Resources Design Group. Brad's experience consists of the study, inspection, design and rehabilitation of water resources facilities, including earthen embankment dams, concrete gravity dams, dam outlet works, flow control valves and large outlet works gates. He is also experienced in the development of plans, specifications and in construction phase services. Brad was responsible for overseeing the design of more than $200 million in dam rehabilitiations and new dam construction.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
09/19-04/21 ***Reference Project (page #60)***	**Six Flood Retarding Structure (FRS) Rehabilitations | Texas State Soil and Water Conservation Board | Project Manager |** FNI performed alternatives analyses, geotechnical investigations, environmental permitting and dam rehabilitation design for six dams in Texas. Each dam site had their own technical and project specific challenges, but the scope and scale of the overall program presented time constraint, management and production challenges. Brad was the project manager responsible for meeting an 18-month design timeline. With such a compressed timeline, Brad led a centralized project management and quality control team to lead the overall design program for all of the dams. The work production was then performed by six separate design teams, all under Brad's mangement. Standard internal technical processes and standardized templates for both reporting and CAD designs were established at the program level, so that efficiency and uniformity could be achieved.

04/18-Ongoing ***Reference Project (page #62)***	**Lake Ralph Hall and Leon Hurse Dam | Upper Trinity Regional Water District, TX | Project Manager |** Brad was responsible for managing the more than 50 people required to successfully complete this design. He successfully managed workload stresses and client requirements, all while ensuring the production of a quality project. FNI designed the new Leon Hurse Dam, a 2.3-mile-long, 108-foot-tall zoned earthen embankment dam, that will form Lake Ralph Hall. The $150 million facility includes a new 705-foot-long, 104-foot-tall roller compacted concrete (RCC) and cast-in-place (CIP) concrete spillway with a 120-foot-wide labyrinth weir overflow section, a new 1,700-foot-wide excavated earthen emergency spillway, a new pump station intake and low flow outlet structure with nine 7-foot by 7-foot sluice gates, as well as approximately 6,500 feet of stream mitigation and restoration downstream of the dam.
02/16-Ongoing ***Reference Project (page #64)***	**Atoka Dam Spillway and Chute Rehabilitation | City of Oklahoma City, OK | Project Manager |** Brad was responsible for managing the project in close coordination with the Senior Advisor (John Rutledge) while simultaneously serving as the lead civil designer on the project. FNI designed an estimated $30 million in improvements to the Akota Dam Spillway for enhanced water supply. The project included detailed inspection, H&H modeling and alternatives analysis for repairs to spilling basin, probable maximum flood analysis and breach analysis. An emergency addition to the scope included the route analysis and design of a water supply pipeline due to the loss of current potable water supply to the Atoka Pump Station facilities. FNI won an ACEC Oklahoma Gold Medal for the Atoka Dam Spillway project.
11/19-05/21	**Floodplain Program Management Assistance - Dam Safety | City of Dallas, TX | PFMA Facilitator |** Brad was responsible for facilitating a Potential Failure Modes Analysis for White Rock Lake Dam which included industry dam safety experts and client personnel familiar with the site. FNI is providing comprehensive dam safety program services supporting 11 City-owned dams with various analyses, assessments, and workshops. The project coordinates funding from three separate City departments - Dallas Water Utilities, the Storm Drain Management Fund and the Park and Recreation Department to analyze the spectrum of City-owned dams equally and to put forth a consistent dam safety message. A portion of the project will be funded via the new high hazard potential dams grant program from FEMA. Prior to the start of this project, FNI assisted the City in securing this grant funding. Public outreach will be included with two major project tasks: following updates to the City-wide emergency action plan (EAP) with the purpose of public education regarding dam safety; and as a fundamental component of a dredging feasibility study for White Rock Lake, a key recreational asset for the City. Additional project tasks include a spillway capacity analysis, a potential failure modes analysis, inspection training, an EAP tabletop exercise and an instrumentation review.
09/13-09/20 ***Reference Project (page #694)***	**Dam Safety Program | U.S. Army Corps of Engineers - Fort Worth District | Project Engineer |** FNI developed and implemented a comprehensive Dam Safety Program for 51 dams. Included physical inspections of 48 dams, hazard classification, identification of dam-safety deficiencies, simplified breach analyses, and modeling using HEC-RAS hydraulic model. Prepared design-build packages for rehabilitation of the four most critical dams, addressing erosion repairs, dam embankment modifications, armoring, vegetation removal and spillway modifications.
10/20-Ongoing ***Reference Project (page #63)***	**Dog River Dam Second Raise | Douglasville - Douglas County Water and Sewer Authority, GA | Civil Design Task Lead |** Brad is currently serving as the civil design taks lead for this project. FNI is providing an alternatives analysis, final design, construction contract documents preparation, bid-phase assistance and construction oversight during construction of the second raising of the Dog River Dam and Reservoir, increasing the normal pool 35-feet over its current elevation. The project is estimated to cost $90 million.

Freese and Nichols, Inc.			
Name	John Rutledge, PE	**Years of experience with this firm/employer**	37
Title	Vice President/Principal	**Years of experience with other firm(s)/employer(s)**	0
Degree(s) / Years / Specialization		MS | 1985 | Water Resources Engineering BS | 1983 | Civil Engineering	
Active registration number / state / expiration date		Professional Engineer #PE0025581 | LA | 03/22	
Year registered	1994	**Discipline**	Civil Engineering
Contract role(s) / brief description of responsibilities		**Senior Advisor | QA/QC |** As Senior Advisor, John will serve as the QA/QC Lead for the project, providing oversight and direction on the project's quality control and quality assurance activities. He will also provide continual technical assistance and oversight for the project manager and project team throughout the project. John is a nationally recognized water resources professional with extensive experience in both large basin flood modeling and the design of dams, spillways and related hydraulic and riverine structures. His experience has focused on all aspects of hydraulic structures, from the H&H model for large basins to the civil and hydraulic design of dams and spillways. He has been engineer of record or lead engineer for the design of more than $400 million of construction for dams, levees and spillways, including new structures and rehabilitation projects. He has also served as a Senior Advisor for the design of numerous dam and levee construction and rehabilitation projects totaling more than $250 million. John currently serves as the Lead Technical Professional for the Water Resources Design Practice at FNI, making him the companywide expert on the subject.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
11/13-Ongoing ***Reference Project (page #65)***	**Bois d'Arc Lake Water Supply Program | North Texas Municipal Water District | Project Manager |** John was the project manager for the design and general representation of the client during construction of the $175 million dam and spillway component of the project. The 2-mile long zoned embankment dam had a maximum height of 90 feet and contained 5.5 million cubic yards of compacted fill. The spillway is a 60-foot-wide 3-cycle labyrinth spillway with an 875-foot-long chute and stilling basin. The project also includes soil cement slope protection, a soil bentonite slurry trench, a 1,500-foot-wide emergency spillway, and an eight gate intake tower that feeds two 72-inch pipes connecting to the 236-MGD pump station at the toe of the dam. Since 2003, FNI has partnered with NTMWD to permit and build a new $1.6 billion water supply system, continuously providing multidiscipline services comprising program management, water rights permitting, project management, design and construction management services to support the development of the reservoir.

04/18-Ongoing ***Reference Project (page #62)***	**Lake Ralph Hall and Leon Hurse Dam | Upper Trinity Regional Water District, TX | Project Manager and Senior Advisor |** John was the project manager for the conceptual design and senior advisor for the final design of the dam and spillway. FNI designed the new Leon Hurse Dam, a 2.3-mile-long, 108-foot-tall zoned earthen embankment dam, that will form Lake Ralph Hall. The $150 million facility includes a new 705-foot-long, 104-foot-tall RCC and CIP concrete spillway with a 120-foot-wide labyrinth weir overflow section, a new 1,700-foot-wide excavated earthen emergency spillway, a new pump station intake and low flow outlet structure.
02/17-04/18 ***Reference Project (page #61)***	**Lewis Creek Spillway Design | APTIM Environmental & Infrastructure, Inc | Senior Advisor |** John was senior advisor for the design and construction phase services for the project. FNI performed complete design and is performing construction oversight and administration. Project includes a new piano key spillway, new piezometers and relief wells and new spillway chute slabs and walls.
02/16-Ongoing ***Reference Project (page #64)***	**Atoka Dam Spillway and Chute Rehabilitation | City of Oklahoma City, OK | Project Manager and Senior Advisor |** John was the project manager for the conceptual design and senior advisor for the final design of the dam and spillway. FNI designed $30 million in improvements to the Akota Dam Spillway for enhanced water supply. The project included detailed inspection, H&H modeling and alternatives analysis for repairs to spilling basin, probable maximum flood analysis and breach analysis. The final design included a full replacement of the side channel spillway, doubling its capacity, and a 7.5-foot raise of the embankment using two opposing retaining walls supporting the public road on the surface. The spillway also included an RCC abutment wall to increase the flood protection of the existing pump station. FNI won an ACEC Oklahoma Gold Medal for the Atoka Dam Spillway project.
10/20-Ongoing ***Reference Project (page #63)***	**Dog River Dam Second Raise | Douglasville - Douglas County Water and Sewer Authority, GA | Senior Advisor |** John is currently serving as senior advisor for the design of this project. FNI is providing an alternatives analysis, final design, construction contract documents preparation, bid-phase assistance and construction oversight during construction of the second raising of the Dog River Dam and Reservoir, increasing the normal pool 35 feet over its current elevation. The project is estimated to cost $90 million.
06/13-12/17 ***Reference Project (page #68)***	**Dam 7 Modernization | Upper Brushy Creek WCID, TX | Senior Advisor |** John served as the Senior Advisor for the rehabilitation of Dam 7 with the addition of a reinforced concrete labyrinth weir to meet state dam safety criteria. Prior to final design, FNI developed and evaluated alternative spillway types to increase spillway capacity. A labyrinth weir spillway was selected to replace the existing auxiliary spillway due to its minimal footprint and impacts to the adjacent properties. FNI coordinated topographic surveys, geotechnical investigations, materials testing, H&H modeling, physical hydraulic modeling and environmental permitting.

Dewberry					
Name	**Jeff Cowan**			Years of experience with this firm/employer	40
Title	Senior Associate, Senior Project Manager			Years of experience with other firm(s)/employer(s)	0
Degree(s) / Years / Specialization			BS | 1981 | Civil Engineering		
Active registration number / state / expiration date			Professional Engineer #019977 | VA | 07/23		
Year registered	1989	Discipline	Civil Engineer		
Contract role(s) / brief description of responsibilities			**Semi Quantitative Risk Assessments |** Jeff has 40 years of experience in the areas of dam safety engineering, drainage design, stormwater management and floodplain management. His dam safety experience includes many aspects of hydrology, hydraulics, probable failure mode assessment, risk assessment, civil design and construction management. Jeff will leverage this experience to provide unbiased independent quality reviews for all aspects of the projects. Jeff is responsible for the planning and design of water resources projects, including lakes and dams, stormwater management facilities, hydraulic structures, and channel improvements. He has been a consultant to local municipalities for the purpose of establishing and updating local stormwater and floodplain management criteria and policies, including the development of dam design criteria.		

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
05/08-06/10	**Lake Accotink Dam Rehabilitation | Fairfax County, VA | Project Manager and Engineer-of-Record |** Responsible for periodic dam safety inspections, evaluations, hydrologic/hydraulic analysis, rehabilitation design and construction administration. The structure is an earth fill dam approximately 28-feet-tall and 300-feet-long, with a concrete slab and buttress spillway structure. Managed concrete testing services performed by a concrete testing subconsultant and completed a comprehensive concrete delamination survey over the entire slab and buttress spillway. Managed the preparation of plans and specifications for concrete repairs, toe drain installation and piezometer installation, which were constructed in 2008 and 2009. Managed and performed dam break analysis and inundation mapping, including an incremental damage analysis justifying a reduction in the required spillway design flood.

02/19-Ongoing	**Lake Hydaway Dam | Lynchburg, VA | Engineer-of-Record |** Currently in the process of designing the new earthen dam, including a drainage collection system, a clay core, a NRCS riser design, a multi-phase Erosion & Sediment Control Plan, dam cross-sections, emergency spillway details, a United States Bureau of Reclamation (UBBR) impact-basin, a spillway cutoff wall and construction cost estimates. Dewberry will also be involved with construction administration including bidding services. A design report will be submitted to Department of Conservation and Recreation (DCR) as part of the preliminary design review.
07/02-10/07	**Big Cherry Dam | Big Stone Gap, VA | Project Manager |** Responsible for preliminary and final design of a new RCC dam located immediately downstream of an existing, unsafe cyclopean concrete gravity dam. Directed geotechnical field investigations, bathymetric and field surveys, preliminary design and alternative evaluation, and final design and preparation of construction plans and specifications. Directed all 404/401 permitting activities and determination of increased reservoir safe yield. Also directed dam break analysis and preparation of dam breach inundation mapping.
07/06-09/08	**Lake of the Woods Dam | Lake of the Woods Association, Orange County, VA | Project Manager and Engineer-of-Record |** Performed dam inspections and evaluation of rehabilitation options and options to increase spillway capacity for two dams within this residential community. Directed final design and preparation of construction plans and specifications for spillway upgrades at the Main Dam, including addition of an RCC auxiliary spillway, a gated crest section for an existing chute spillway, a keystone floodwall across a low area adjacent to the right dam abutment, and repairs to the existing low-level drain. Directed dam break analysis and preparation of inundation zone mapping for both dams and also performed incremental damage analysis to determine if a reduction in the required spillway design flood (SDF) was warranted.
11/15-05/18	**Horsepen Dam Alteration (D/B Project Associated with Route 606 Widening), | Dulles Airport, Loudoun County, VA | Engineer-of-Record |** As part of the Route 606 widening project the Design Build Team of Dewberry and Shirley Contracting Corporation were tasked to perform alterations to Horsepen Dam, a major flood control reservoir constructed in the early 1960s to mitigate flooding due to increased runoff from Dulles Airport. The dam is a high hazard, state regulated dam owned by MWAA operating under a Conditional Operation and Maintenance Certificate due to inadequate spillway capacity. The widening of Route 606 to a 4-lane divided highway required relocation of the earthen auxiliary spillway, widening and raising the crest of the highway/dam embankment, construction of a major bridge over the new realigned auxiliary spillway, and lengthening the existing drop inlet principal spillway box culvert. To avoid having to demolish and reconstruct the downstream end of the existing box culvert a concrete protection slab supported on piles was constructed overtop the existing box culvert to take the load of the additional dam embankment fill associated with the Route 606 widening. Increasing the dam height as part of the Route 606 widening enabled the dam's spillway system to safely convey the required spillway design flood resulting in issuance of a Regular Dam O&M Certificate from VA DCR after construction. Final design was completed in April 2015 and DCR issued a Dam Alteration Permit in May 2015. Construction of the dam alteration was substantial complete in summer of 2018. Dewberry provided full construction administration services.

Nixon			
Name	**Kurt M. Nixon, PE, PLS**	Years of experience with this firm/employer	11
Title	Principal / Senior Engineer	Years of experience with other firm(s)/employer(s)	10
Degree(s) / Years / Specialization		MS | 2011 | Water Resources BS | 2000 | Civil Engineering	
Active registration number / state / expiration date		Professional Engineer #31339 | LA | 09/22 Professional Land Surveyor #5072 | LA | 09/22	
Year registered	2004	Discipline	Civil Engineering/Survey
Contract role(s) / brief description of responsibilities		**Senior Advisor | QA/QC (Regulatory Compliance) |** Kurt's role will be local coordination, highwater mark interpretation, survey manager and assistance with modeling. Kurt has over 21 years of local Civil Engineering experience in project planning, engineering and management. He has had the opportunity to gather a diverse background in all types of civil engineering projects including dam and levee design, large drainage studies, FEMA studies, road projects, new subdivisions, water distribution systems, structural design, site development, drainage pump stations and surveying. The clients for these projects have included state and local government agencies and a variety of private clients. All of the projects which Kurt has undertaken have been done with excellence.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
01/19-06/19	**LWI Region 2/Task Order #2 | LADOTD | Assistant Project Manager/Survey |** This project is the largest and most ambitious modeling project in the history of Louisiana. The plan is to model flooding across the entire state to be able to manage flood risk. The entire state was split into seven regions with a different prime consultant for each region. Region #2 encompasses 13 parishes in the north central portion Louisiana. Task Order #2 is the survey and modeling work for five of those parishes. Just Task Order #2 includes thousands of miles of streams to study and hundreds of structures to survey. Nixon Engineering Solutions is a sub-consultant to FNI on this project. Kurt was responsible for coordinating the survey data collection, processing and deliverables. Additionally, he assisted FNI with engineering modeling and general project planning.

10/19-12/20 ***Reference Project (page #77)***	**Kinsey Scout Pond Dam | Desoto Parish | Project Manager/Survey |** This was a dam design and construction project. The Northwest Louisiana Council, Boy Scouts of America hired Nixon Engineering Solutions to design and develop construction plans and manage the construction project for a 28.8-feet-tall zoned earthen dam in North Louisiana. This dam resulted in a 16.9-acre pond (at pool stage) for the Boy Scouts to use as a recreation area for their activities. Kurt was responsible for overseeing all surveying, engineering, drafting, permitting, inspectors and subconsultants. He was also responsible for clear communication and updates with the owner and government agencies.
04/18-05/19	**Little Cypress No-Rise/ South Arkansas Street Box Culverts | Project Manager and Professional of Record |** This was two projects: the first was a FEMA No-Rise study on alternatives for replacing the bridge, the second was the construction documents needed to bid and build the bridge replacement. Kurt's specific responsibilities and relevant experience include: meeting with the town to establish the scope and goals of our task, oversight and coordination of H&H modeling, analysis of No-Rise alternatives, creation of engineering report documenting findings and recommendations, oversight and coordination of construction document development, handled all advertisement, bidding, contracts and bonding.
06/17-11/18 ***Reference Project (page #76)***	**Benoit Bayou and Benoit Bayou Lateral Drainage Study | Bossier City and Bossier Parish | Project Manager and Professional of Record |** Large complex drainage study for an eight square mile area in Bossier City and Bossier Parish. Kurt's specific responsibilities and relevant experience include: meeting with the City and other stake holders to establish the scope and parameters of the project, oversight and coordination of survey field data (both ground and LiDAR surveys), creation of the hydrologic model in HEC-HMS, oversight and assistance in building the 1-D/2-D combined HEC-RAS model, design and installation of gauge to provide ongoing feedback to model, analysis of model data, summary and recommendation of data in engineering report, presentation of findings to local government bodies and preparation of FEMA map change documents.
03/18-06/18	**Woolworth Road Landfill | City of Shreveport | Survey Manager and Survey Professional of Record |** Boundary and Topographic survey of 435-acre landfill as a subconsultant to Pivotal. Much of the topographic survey was performed using an aerial laser scanner. Kurt's specific responsibilities and relevant experience included: meeting with Project Engineer to decide the best and most efficient method to collect a large amount of survey data in a short time versus cost, scheduling and daily oversight of survey crews, oversight and coordination of drafting and presentation of data, title research and review of deeds, review and reconciliation of property corner data, set missing property corners and review legal descriptions.
08/16-07/17	**Red River Levee Maintenance | Bossier Parish | Project Manager and Professional of Record |** This project analyzed more than 50 miles of Red River highwater marks and correlated them to gauge data. Then used that information to isolate 5,500 feet of levee for improvements. Kurt's specific responsibilities and relevant experience include: meeting with the town to establish the scope and goals of the task, gathering of all relevant data, oversight of compilation of data into single spreadsheet, analysis of data, presentation and summary of data in easy to read maps for Bossier Levee District, oversight and coordination of survey data needed for construction plans, development of construction documents, assistance with advertisement, bidding, contracts and bonding, routine site visits, oversight and coordination of testing lab and construction inspector and contract close out.

Freese and Nichols, Inc.			
Name	**Joel Tillery, PE, CFM**	Years of experience with this firm/employer	1.5
Title	Professional Engineer	Years of experience with other firm(s)/employer(s)	19
Degree(s) / Years / Specialization		Graduate Certificate **|** 2018 **|** Coastal Engineering MS **|** 2003 **|** Civil and Environmental Engineering BS **|** 2001 **|** Agricultural and Biological Engineering	
Active registration number / state / expiration date		Professional Engineer #38376 **|** LA **|** 03/22 Certified Floodplain Manager	#US-16-09436 **|** 12/22	
Year registered	2013	Discipline	Civil Engineer
Contract role(s) / brief description of responsibilities		**Assistant Project Manager |** Joel Tillery will serve as the Assistant Project Manager. He will assist the Project Manager in managing the workload of the other FNI team members and will serve as the project's second point-of-contact to provide continuous service to the LADOTD staff. Joel Tillery is a water resources/coastal engineer and project manager with 19 years of experience in planning and design of flood risk management, drainage improvements and coastal restoration projects. He has dedicated his career to identifying, analyzing and mitigating flood risks, including those areas affected by coastal storm surge, riverine flooding, or pluvial flooding resulting from undersized and aging drainage infrastructure. He is a skilled H&H modeler, well-versed in various software packages including HEC-RAS, HEC-HMS, ICPR, PondPack, PC-SWMM, XP-SWMM, Hydraflow, Storm Sewers, and Storm and Sanitary Analysis (SSA), among others. His drainage design experience spans piped networks, open channel systems, pressure distribution, high volume / load head pump station design, detention ponds, stormwater wetlands, and Low Impact Development (LID) practices such as bioswales, bioretention areas, permeable pavement and rain gardens. Joel has conducted and led efforts involving data collection, H&H analyses, design, permitting, preparing contract documents, and bidding and construction services.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
05/20 - Ongoing	**West Shore Lake Pontchartrain HSDRRS | USACE - Fort Worth District, TX | Project Manager |** FNI is providing civil, geotechnical, mechanical and electrical engineering design services for Reaches 105 and 108 of the West Shore Lake Pontchartrain HSDRR project consisting of 4.7 miles of earthen levee, three drainage structures and pile-founded T-type floodwalls. The designs were conducted in accordance with all applicable design criteria, including HSDRRS Design Guidelines. Joel is leading FNI's portion of the project and is responsible for design team management and USACE coordination.

07/20-Ongoing	**Louisiana Watershed Initiative Modeling Contract | Louisiana Department of Transportation and Development | Project Team |** Joel is supporting team coordination and contract management, as well as performing independent technical review of team work products. FNI is developing large-scale H&H models to create a statewide watershed-based floodplain management program. The five-year, $18 million contract involves the development of calibrated 1-D/2-D HEC-RAS models for use in consequence and risk assessment. Region 2 is made up of nine HUC-8 watersheds covering approximately 9,500 square miles in the north central part of the state.
09/20-Ongoing	**Dillard Wetland Restoration | City of New Orleans | Assistant Project Manager |** Joel is providing technical assistance for this project in which FNI is designing: (1) Stormwater Diversion features; (2) New Weirs and Water Control Devices; (3) Wetlands and Bioswales; (4) Vegetation Management and Control Plan; and (5) Boardwalks through the forest. Additionally, FNI is performing a comprehensive H&H study, extensive flood modeling simulations within the Dillard Wetlands and adjacent communities, and triple bottom line benefit-cost analysis to inform city, community and project teams in formulating green infrastructure and stormwater management installation/improvements features and locations.
08/20-Ongoing	**Regional Flood Studies - Central Region | Texas General Land Office | Technical Lead |** FNI is leading a four-year, $25 million flood planning effort to assist 20 Hurricane Harvey impacted counties and municipalities in the Brazos River, San Jacinto River and Galveston Bay areas (referred to as the Central Region) in identifying and funding flood risk reduction strategies and mitigation projects that reduce disaster suffering and increase community resiliency. Joel is serving as the technical lead for baseline modeling and risk assessment for coastal hydrolic unit code (HUC's) that are affected by compound flooding. He is currently leading a pilot study for Dickinson Bayou where methods are historical rainfall-surge data are being paired resulting in annual exceedance probabilities. Together with developing HEC-RAS models suitable for coastal setting, these datasets are being used to identify the compound flood risk in addition to that from purely rainfall or surge.
06/15-06/16	**Risk Assessment Engineering Services for HSDRRS Complex Structure* | Southeast Louisiana Flood Protection Authority - East | Project Manager |** Joel led a team of specialists to convene a set of risk elicitation workshops focused on identifying hazards and risks of failure for the closure of complex gated structures that are integral components of the Greater New Orleans Hurricane and Storm Damage Risk Reduction System. He integrated three methods of risk analysis, including Hazard and Operability Studies (HAZOP), Failure Modes and Effects Analysis (FMEA), and Fault Tree Analysis (FTA) to evaluate risks among personnel, operation and maintenance procedures, structural and mechanical component, and power systems. Joel developed a method to evaluate the consequences of flooding due to gate failures. The results of the workshop and project were to identify risks that can be addressed through improved operation and maintenance protocols and asset management including the development of a critical spare parts inventory.
01/13-08/13	**Review of HSDRRS Levee Armoring Research and Recommendations Report (LARRR) and Project Description* | Southeast Louisiana Flood Protection Authority - East | Project Manager and Technical Lead |** Joel provided review of USACE overtopping analysis of HSDRRS levees and floodwalls, results of wave overtopping simulations on various grass types and turf reinforcement matting, and recommendations for levee armoring. Prepared technical memorandum that outlined several issues with research and recommendations on armoring of flood-side and protected side of earthen levees to prevent erosion thus allowing SLFPA-E and CPRA to request additional armoring be considered to provide resiliency for 500-year wave overtopping rates.

*Experience prior to FNI

Dewberry				
Name	**Sam Crampton, PE, CFM**		Years of experience with this firm/employer	20
Title	Vice President		Years of experience with other firm(s)/employer(s)	1
Degree(s) / Years / Specialization			MEng | 2001 | Civil Engineering	
Active registration number / state / expiration date			Professional Engineer #37866 | LA | 09/23 Certified Floodplain Manager #US-0-03250 | 07/22	
Year registered	2013	Discipline	Professional Engineer (Civil); Certified Floodplain Manager	
Contract role(s) / brief description of responsibilities			**Watershed Hydrology and Hydraulics/Consequence Assessments |** Sam has over 20 years of experience in dam safety, hydrology, hydraulics and floodplain management. He is a subject matter expert in the application of the HEC suite of software which includes managing the development of the Amite River Basin Numerical Model, including the use of HEC-HMS, HEC-RAS, HEC-LifeSim, HEC-MetVUE and HEC-FIA. He also led the modeling and consequences assessment for the Darlington Reservoir study as a demonstration project for the ARBNM. Sam will leverage his extensive experience to lead the watershed hydrology, hydraulics and consequences assessments. Sam is a SME in the fields of GIS, hydrology, hydraulics, floodplain mapping, levees, dam safety and the use of various computer application including ArcGIS 10.x, HEC-1, HECHMS, HEC-2, HEC-RAS, FLO-2d, SWMM, XP-SWMM, (1-D/2-D) and SRH2D for bridge modeling and design. Sam frequently works with FEMA as a SME providing advice and guidance for complicated floodplain studies related to dams, levees and complex riverine situations. Additionally he works as a SME providing FEMA with assistance for the development of new procedure memorandums and updates to the Guidelines and Specifications.	
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.			
07/17 – 12/17 ***Reference Project (page #73)***	**Sweetwater Creek Flood Risk Management Feasibility Study | Sweetwater Creek Watershed Atlanta, GA | Project Manager/Technical Lead |** Integral part of the USACE Mobile District Project Development Team (PDT) to develop a calibrated watershed scale hydrologic and hydraulic model using HEC-DSS, HEC-SSP, HEC-HMS, HEC-MetVUE, HEC-RAS and HEC-WAT. Worked with district economists to collect building inventory and create HEC-FDA input files. Assessed concept projects including new and retrofitted dams and flow diversions. The assessment of dams included project siting, development of conceptual spillway and embankment designs, hydrologic benefits analysis including pre-event drawdown and modification to existing primary and auxiliary spillways.			

05/17 – 05/19 ***Reference Project (page #70)***	**Amite River Basin Numerical Model | Maite River Basin | Project Manager/Technical Lead |** Development of HUC8 scale numerical model to assess hydrology, hydraulics and consequences using HEC-DSS, HEC-DSSVUE, HECSSP, HEC-MetVUE, HEC-HMS, HEC-RAS (1-D/2-D), HEC-FIA, HEC-WAT and ArcGIS. Services included: Stakeholder communication and engagement, including briefing and exhibits for LA DOTD, state legislators, and the local community of practice. hydro-meteorologic modeling for historic and design storm development (implementing the watershed hydrology procedures of HMR 52 within MetVUE), hydrologic model development. 1-D and 2-D hydraulic model development, model calibration and validation. Development of economic and life safety consequence model. Development of technical reports. Assessment of concept projects, including the Darlington Reservoir, levee extensions, levee modifications and the use of temporary dams. The Darlington Reservoir simulations included an approximately 3-mile-long, 90-feet-tall dam embankment holding back nearly one million-acre-feet of floodwaters. Additional work included working with Livingston Parish to simulate the concept of pre-event draw down for offline mining ponds to determine whether pre-event draw downs provided substantial flood control benefits. This included developing concept inflow diversion structures and outlet control structures to optimize flood attenuation.
02/17-Ongoing ***Reference Project (page #71)***	**Murphey Candler Park Dam Safety Services | Brookhaven, GA | Engineer-of-Record |** Permitting of high hazard potential dam. Quarterly inspections including biannual inspection reports for 2017, 2019 and 2021. Post flood event assessments. Watershed Hydrology (in coordination with DeKalb County), Dam break inundation modeling using HEC-RAS 2-D. Development of Operations and Maintenance Plan. Development of EAP. Coordination of underwater inspection by dive team. Development of repair and maintenance documents. Inspection of repairs. Development of plans and specifications for Cured in Place rehabilitation of principal spillway pipe.
03/15 - Ongoing	**Dam Safety Services (High Hazard Potential Dams) | Bartow County, GA | Project Manager/Technical Lead |** Dam break inundation modeling, development of EAP's, review of hazard potential, watershed hydrologic and hydraulic models and biannual inspections for four high hazard potential NRCS watershed dams.
01/06 - Ongoing	**Dam Safety Services for 14 NRCS Watershed Dam Structures (High and Significant Hazard Potenital) | Gwinnett County, GA | Project Engineer/Subject Matter Expert |** Development of watershed hydrology and hydraulics for 14 NRCS dams, including PMF and fractional PMF design inflows. Dam break inundation modeling using HEC-HMS and HEC-RAS for sunny day and storm in progress events. Services also included a losses avoided study following the RCC embankment hardening of dam Y15 where HEC-FIA was used to determine the potential economic benefits of the dam rehabilitation following the 2009 flood of record.

Dewberry				
Name	**Sam Fleming**		Years of experience with this firm/employer	13
Title	Associate Vice President, Department Manager		Years of experience with other firm(s)/employer(s)	27
Degree(s) / Years / Specialization			MS | 1993 | Civil Engineering BS | 1992 | Civil Engineering	
Active registration number / state / expiration date			Professional Engineer #024406 | GA | 12/22	
Year registered	1998	Discipline	Professional Engineer (Civil)	
Contract role(s) / brief description of responsibilities			**Watershed Hydrology, Hydraulics and Consequences |** Sam will serve as a subject matter expert for the development of watershed hydrology, hydraulics and consequence assessments. Sam can also provide independent QC review if needed. Sam has over 27 years of experience in civil engineering in both the public and private sectors in areas of water resources, transportation, and civil site engineering, with his primary area of expertise being stormwater infrastructure planning and design. While at Dewberry, he has served as Project Manager and Senior Engineer for multiple water resources projects, including stormwater infrastructure system assessment, dam safety, culvert improvements, emergency response, stream restoration, floodplain studies and expert witness services.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
11/18-12/19	**Seven Oaks Lake Dam | City of Johns Creek, GA | Project Manager/Engineer-of-Record |** Responsible for the design and development of construction plans, specifications, EAP and O&M Manual to bring the Seven Oaks Lake Dam into compliance with the Georgia SDP requirements for a Category I dam. This work included a visual inspection report, watershed hydrology studies, geotechnical analysis, construction documents, specifications, cost estimates and local, state and federal permitting. The proposed design selected consists of upgrading the principal spillway pipe, replacing the outlet control riser structure and headwall, disconnecting the street drainage system from the spillway and re-routing, installing a filter drain system and instrumentation, installing a low-drain siphon system, extensive tree removal, and re-grading the upstream and downstream slopes. Dewberry also provides ongoing services to include quarterly and biennial engineer inspections, owner coordination and provided construction management services during the construction phase of the project.

01/18-04/19	**Turner Hill Dam | Stonecrest, GA | Project Manager/Engineer |** Responsible for the development of an EAP, O&M Manual, and a corrective action plan for Turner Hill Dam. Turner Hill Dam is a privately-owned Category I Dam that provides stormwater management for Stonecrest Mall in the City of Stonecrest, DeKalb County, Georgia. Georgia SDP conducted an inspection of Turner Hill Dam in 2017 and noted compliance and maintenance deficiencies that needed to be addressed and required that a corrective action plan be developed by a Georgia SDP Engineer of Record. Dewberry was hired by the dam owner to conduct an initial inspection, develop a corrective action plan, secure approval from Georgia SDP, coordinate with the contractor during construction and conduct a final inspection once all deficiencies had been addressed. In addition, Dewberry conducted a biennial engineer's inspection and developed an EAP, including breach modeling and inundation mapping, and an O&M Manual for the dam.
02/17-Ongoing ***Reference Project (page #71)***	**Murphey Candler Park Dam Safety Services | Brookhaven, GA | Civil Engineer/Subject Matter Expert |** Services included: Permitting of high hazard potential dam; quarterly inspections including biannual inspection reports for 2017, 2019 and 2021; post flood event assessments; watershed Hydrology (in coordination with DeKalb County); dam break inundation modeling using HEC-RAS 2-D; development of O&M Plan; development of EAP; coordination of underwater inspection by dive team; development of repair and maintenance documents; inspection of repairs; development of plans and specifications for Cured in Place rehabilitation of principal spillway pipe.
03/15-Ongoing	**Dam Safety Services (High Hazard Potential Dams) | Bartow County, GA | Subject Matter Expert |** Dam break inundation modeling, development of EAP's, review of hazard potential, watershed hydrologic and hydraulic models and biannual inspections for four high hazard potential NRCS watershed dams.
01/01-01/09	**NRCS Watershed Dam Rehabilitation Program | Gwinnett County, GA | Program Manager |** Program Manager (as Couty employee) for Gwinnett County's $20 million CIP to evaluate and upgrade the County's 14 NRCS watershed flood control dams as required to comply with State of Georgia Dam Safety Standards. Responsibilities included developing and managing the program's budget and schedule for planning, design, and construction of each dam, applying for and managing NRCS grants for selected dams, coordinating with state and federal Agencies for permitting requirements for each dam, public outreach, briefing public officials, developing emergency action plans and ongoing operations and maintenance for each dam.

Freese and Nichols, Inc.					
Name	**Janis Murphy**			Years of experience with this firm/employer	30
Title	Associate			Years of experience with other firm(s)/employer(s)	13
Degree(s) / Years / Specialization			BS | 1979 | Civil Engineering		
Active registration number / state / expiration date			Professional Engineer #61882 | TX | 03/22		
Year registered	1987	Discipline	Civil Engineer		
Contract role(s) / brief description of responsibilities			**Civil Design |** Janis Murphy is one of the Southeast's most reliable and diverse project managers for dam-related engineering projects. She is an FNI Associate and senior project manager whose experience includes the study, design and inspection of water resources-related structures. Janis has been Project Manager and Project Engineer for TCEQ and FERC 12 dam inspections, hydrologic and hydraulic analyses and emergency action plans, as well as the rehabilitation design for dozens of dams across Texas, with construction costs totaling more than $200 million. Her experience includes dam-safety programs for small privately and municipal-owned dams to some of Texas' largest dams and reservoirs owned or managed by river districts and the USACE.		

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
04/21-Ongoing	**Dam Safety Program | Dallas Water Utilities, TX | Project Engineer |** Janis was responsible for several aspects of this project including dam safety inspections, and facilitation of tabletop exercises. FNI is providing comprehensive dam safety program services for 20 City-owned dams. The project includes dams operated by multiple City departments, including Dallas Water Utilities, the Stormwater Department and the Park and Recreation Department. The effort included inspections of all of the dams, including instrumentation data review and dam inspection training for multiple dams. Also included was the facilitation of five separate tabletop exercises for the City's high hazard dams.
01/18-12/21	**Leonard Terminal Storage Reservoir | North Texas Municipal Water District, TX | Design Engineer |** Janis was design engineer for the design of a terminal storage reservoir located in north Texas. FNI is provided preliminary and final design, construction contract documents, bid phase assistance and construction phase services for the District's 210 million gallon Leonard Terminal Storage Reservoir at the Leonard Water Treatment Plant. Design considerations included the layout of the reservoir and spillway considering hydrologic requirements, as well as designing slope erosion protection for wave action. Erosion protection was chosen to be HDPE liner with an overlay of thin soil cement protection.

06/20-12/21	**Bryan Lake Dam 2020 Inspection and Repairs | Bryan Texas Utilities, TX | Project Manager |** Janis was responsible for the inspection and design of several repairs to Bryan Lake Dam. Bryan Texas Utilities owns and operates the Bryan Utilities Lake Dam. The lake is formed by four embankment sections (Power Plant, East, South and West). The dam inspection was completed in accordance with TCEQ criteria related to dam safety. Design efforts associated with the project include the development of a typical design for the slope repairs to use if necessary. Severe stability issues in 2015 made inspection of the dam a top priority for Bryan Texas Utilities.
05/13-06/20	**Lake Livingston Dam | Trinity River Authority, TX | Project Manager |** Janis was responsible for the project management of the Lake Livingston Dam safety Program and is a certified Part 12 dam safety inspector was responsible for two consecutive Part 12 inspections of the dam. When a third party pursued the addition of hydropower to the dam, she was responsible for reviewing all phases of the design and construction of the hydropower facility as they affect the safety and performance of the spillway, embankment, and discharge channel of the existing dam. With the addition of hydropower, the dam falls under the Federal Energy Regulatory Commissions review and the extensive federal oversight required. The efforts involved a comprehensive inspection and evaluation of the 14,000-foot-long Lake Livingston Dam, including the gated spillway structure (12 tainter gates) and the service outlet. Also included were the facilitation of two Potential Failure Modes Analysis (one for construction and one for the existing dam).
10/16-01/19	**Lake Worth Dam Miscellaneous Repairs | Fort Worth Water, TX | Project Manager |** Janis was responsible for project management and design of several miscellaneous repairs to Lake Worth Dam. These services included: bathymetric survey, site visits, stability analysis of the embankment and design of several miscellaneous maintenance repairs, including the concrete repairs, rock riprap repairs and an underdrain system repair and cleaning. FNI performed engineering services for improvements to the Lake Worth Dam. The services included: bathymetric survey, site visit, stability analysis of the embankment and design of several miscellaneous maintenance repairs. The maintenance repairs in the design package included: repair of the upstream slope paving, minor repairs and patching of the concrete ogee surfaces, response to the undermining of the left training wall, cleaning of the underdrain system installed in the late 1970s under the spillway, miscellaneous cleaning of undesirable vegetation, miscellaneous rock riprap repairs and repair of the right training wall underdrain. Construction documents were procured, including the preparation of drawings and specifications.

Freese and Nichols, Inc.					
Name	**Tina McMartin**			Years of experience with this firm/employer	14
Title	Associate			Years of experience with other firm(s)/employer(s)	0
Degree(s) / Years / Specialization			MS | 2008 | Civil Engineering BS | 2006 | Civil Engineering		
Active registration number / state / expiration date			Professional Engineer #110327 | TX | 09/22		
Year registered	2011	Discipline	Civil Engineer		
Contract role(s) / brief description of responsibilities			**Civil Engineer |** Tina McMartin is a firm Associate and water resources engineer, specializing in design, rehabilitation and inspection of dams. She has served as Project Manager on large dam rehabilitation projects, historic dam improvement projects and numerous studies. She performs dam safety inspections, spillway evaluations, emergency action plans and tabletop exercises. Tina has a background in hydrology and hydraulics, which includes stormwater and pipeline design projects. She has been involved in the design and management of construction projects worth over $40 million dollars.		

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
06/13-12/17 ***Reference Project (page #68)***	**Dam 7 Modernization | Upper Brushy Creek WCID, TX | Project Manager |** Tina served as the EOR for the rehabilitation of Dam 7 with the addition of a reinforced concrete labyrinth weir to meet state dam safety criteria. Prior to final design, FNI developed and evaluated alternative spillway types to increase spillway capacity. A labyrinth weir spillway was selected to replace the existing auxiliary spillway due to its minimal footprint and impacts to the adjacent properties. Tina coordinated topographic surveys, geotechnical investigations, materials testing, H&H modeling, physical hydraulic modeling and environmental permitting. She also led the development of construction plans and specifications.

02/16-Ongoing	**Dam 22 Rehabilitation | Upper Brushy Creek WCID, TX | Project Manager |** Tina led the evaluation, rehabilitation design, and development of construction plans and specification as the EOR. A slide occurred on the downstream slope of the dam and rock riprap was installed as an emergency stabilization measure. After the event, FNI was retained to evaluate the existing conditions and options to repair the dam. The principal spillway conduit joints were found to be separating which led to a larger rehabilitation project. FNI is preparing the final design and construction documents to replace the principal spillway system and regrade the downstream slope and redistribute the rock riprap to meet slope stability requirements.
03/21-Ongoing	**Mitchell Lake | San Antonio Water System, TX | Quality Control |** Tina serves as a technical advisor and quality control reviewer. FNI is designing modifications and improvements to the historic Mitchell Lake Dam to meet state dam safety requirements. Modifications include increasing the spillway capacity with a new labyrinth weir spillway, regrading the embankment, new outlet works, improvements to the adjacent hike-and-bike trail and a bridge over the spillway. FNI is leading the dam rehabilitation as a subconsultant to another firm preparing the design of a 100-acre constructed treatment wetland downstream of the lake. The lake, formerly part of a wastewater treatment facility, is a now a refuge for migratory birds and home of the Mitchell Lake Audubon Center.
08/12-05/17	**Toledo Bend Dam Gate Rehabilitation | Toledo Bend Project Joint Operation, TX | Assistant Project Manager |** FNI provided a detailed inspection, structural analysis and rehabilitation design for the 11 tainter gates, hoists and associated mechanical and electrical systems. Following the inspections, FNI developed a structural model reflecting field conditions and evaluated the structural capacity of the gates. The team also performed a hydraulic study to determine efficient gate-operation sequencing and oversaw the construction phases.
01/03-12/09	**Lake Brazos Dam | City of Waco, TX | Project Engineer |** Tina has led and assisted with numerous projects at Lake Brazos Dam including dam safety inspections, debris removal, and the design of the embankment rehabilitation and outlet works. FNI designed the award-winning, 3,000-foot-long labyrinth weir spillway that combined the use of the existing dam site with an innovative spillway configuration. FNI is currently designing a new outlet works structure and improvements to the embankment section.
08/10-02/13	**2010 Dam Safety Surveillance Report | Toledo Bend Project Joint Operation, TX | Project Manager |** FNI was responsible for the preparation of a Dam Safety Surveillance and Monitoring Report, in accordance with Federal Energy Regulatory Commission requirements, for an 11,000-foot-long by 108-foot-tall zoned earthfill dam.

Freese and Nichols, Inc.					
Name	**Marc Miller**			Years of experience with this firm/employer	11
Title	Principal			Years of experience with other firm(s)/employer(s)	17
Degree(s) / Years / Specialization			MEng | 2005 | Civil Engineering BS | 1995 | Civil Engineering		
Active registration number / state / expiration date			Professional Engineer #87824 | TX | 12/22 Professional Engineer #042538 | GA | 12/22		
Year registered	2001	Discipline	Geotechnical Engineer		
Contract role(s) / brief description of responsibilities			**Geotechnical Analysis and Design |** Marc is a Principal and Senior Technical Professional responsible for the technical excellence of the FNI's geotechnical group. Marc specializes in the design of dams, balancing reservoirs, levees, engineered slopes and streambanks, internal drainage systems and retaining walls. His deep knowledge of soil mechanics and broad range of construction experience has contributed to the longevity and safety of numerous water resource projects throughout the United States. Marc works closely with owners and stakeholders to understand specific project needs and provide integrated solutions that consider not only stability and potential failure modes, but also operations, maintenance, public perception, and funding. He regularly assists owners with dam safety assessments, armoring of slopes for resiliency, and the evaluation of seepage and internal erosion failure mechanisms.		

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
10/20-Ongoing ***Reference Project (page #63)***	**Dog River Dam Second Raise | Douglasville - Douglas County Water and Sewer Authority, GA | Assistant Project Manager |** Marc will oversee the geotechnical explorations and interpretive reports and will lead the geotechnical design aspects of the project. Marc will also manage the civil design team for modifications to the service spillway and dam, the saddle dam, and the saddle dike structures. FNI's proposed scope of services for the new dam raise includes providing an alternatives analysis, final design, construction contract documents preparation, bid phase assistance, and construction oversight during construction of a second raising of the Dog River Dam and Reservoir with the normal pool increasing by 35 feet over its current elevation.

01/10-01/19 ***Reference Project (page #67)***	**Cedar Creek Dam Evaluation | Tarrant Regional Water District, TX | Geotechnical Engineer |** Marc served as Lead Geotechnical Engineer and Task Manager for the evaluation of the existing Cedar Creek Dam. The field study included the installation of 32 vibrating wire piezometers at various locations across the dam and spillway, and pump testing of the alluvial field deposits and the underlying geologic formation. The analysis included the numerical modeling of the seepage and slope stability for the existing embankment and an evaluation of the performance of an aging relief well system. The analysis indicated the presence of excess pore pressure below the embankment due to the permeable nature of the underlying geologic formation. Preliminary design services included providing alternatives for the replacement of the existing relief well system to relief excess hydrostatic pressures below the embankment, and recommendations for a SCADA based instrumentation system.
11/13-Ongoing ***Reference Project (page #65)***	**Bois d'Arc Lake Water Supply Program | North Texas Municipal Water District | Assistant Project Manager and Lead Geotechnical Engineer |** Marc was responsible for the geotechnical analysis and civil design for the 20-MG balancing reservoir project. Since 2003, FNI has partnered with NTMWD to permit and build a new $1.6 billion water supply system, continuously providing multidiscipline services comprising program management, water rights permitting, project management, design and construction management services to support the development of the reservoir. Significant projects include 17,000 acres of environmental mitigation, a two-mile earthen dam, spillway and outlet structures, 420-MG terminal storage reservoir, 236-MGD raw water intake and pump station, 330-MGD high-service pump station and 60 miles of large-diameter raw and treated water pipelines.
06/13-12/17 ***Reference Project (page #68)***	**Dam 7 Modernization | Upper Brushy Creek WCID, TX | Geotechnical Engineer |** Marc served as the geotechnical Engineer-of-Record for the evaluation and rehabilitation with the addition of a reinforced concrete labyrinth weir to increase auxiliary spillway capacity and meet state dam safety criteria. Work included topographic surveys, geotechnical investigations, materials testing, H&H modeling, physical hydraulic modeling, environmental permitting, and development of construction plans and specifications.
01/19-Ongoing	**Leatherwood Creek #5 and South River #19 Dams Rehabilitation | Virginia Department of Conservation and Recreation | Quality Assurance/Quality Control |** Marc was responsible for senior oversight of the design team and provides QA/QC for geotechnical-related analysis and submittals. Rehabilitation of two dams that were originally designed and constructed under the purview of the USDA-NRCS; however, the operation and maintenance agreements between the USDA-NRCS and the local sponsors has expired. The rehabilitation of both dams involves modification of the existing earthen spillways by widening and/or modifying the control section elevation to meet the specified hydraulic capacity. Modification of the embankment will be considered if needed for additional flood storage or if geotechnical analysis indicates that embankment stability needs to be improved.

Freese and Nichols, Inc.			
Name	**Russ Springer**	Years of experience with this firm/employer	14
Title	Professional Engineer	Years of experience with other firm(s)/employer(s)	8
Degree(s) / Years / Specialization		BS **|** 2000 **|** Geological Engineering	
Active registration number / state / expiration date		Professional Engineer #PE.046219**|** LA **|** 03/22	
Year registered	2007	Discipline	Geotechnical Engineer
Contract role(s) / brief description of responsibilities		**Geotechnical Analysis and Design |** Russ is a Geotechnical Engineer in FNI's Water Resources Design group. He provides geotechnical subsurface investigations for dam and levee projects; seepage, slope stability, and settlement analyses; structure stability and settlement; and design of dams and levees and appurtenant structures.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
04/18-Ongoing ***Reference Project (page #62)***	**Lake Ralph Hall and Leon Hurse Dam	Upper Trinity Regional Water District, TX |** Project Manager **|** Russ was responsible for coordination of the subsurface investigation for the proposed dam project. Russ was also the geotechnical lead dam embankment design. FNI designed the new Leon Hurse Dam, a 2.3-mile-long, 108-foot-tall zoned earthen embankment dam, that will form Lake Ralph Hall. The $150 million facility includes a new 705-foot-long, 104-foot-tall RCC and CIP concrete spillway with a 120-foot-wide labyrinth weir overflow section, a new 1,700-foot-wide excavated earthen emergency spillway, a new pump station intake and low flow outlet structure with nine 7-foot by 7-foot sluice gates, as well as approximately 6,500 feet of stream mitigation and restoration downstream of the dam.

02/16-Ongoing ***Reference Project (page #64)***	**Atoka Dam Spillway and Chute Rehabilitation | City of Oklahoma City, OK | Project Manager |** Russ was responsible for the geotechnical analysis and design of the crest raise parapet walls and the proposed spillway improvements. FNI designed an estimated $30 million in improvements to the Akota Dam Spillway for enhanced water supply. The project included detailed inspection, H&H modeling and alternatives analysis for repairs to spilling basin, probable maximum flood analysis and breach analysis. An emergency addition to the scope included the route analysis and design of a water supply pipeline due to the loss of current potable water supply to the Atoka Pump Station facilities. FNI won an ACEC Oklahoma Gold Medal for the Atoka Dam Spillway project.
10/21-Ongoing	**West Shore Lake Pontchartrain Hurricane Storm Damage Risk Reduction System | U.S. Army Corps of Engineers - New Orleans District |** Client Representative | Russ was responsible for management of the geotechnical analyses, including seepage and slope stability analyses for the new levee section and stability analyses for the proposed drainage structure and associated t-walls. FNI is providing civil, geotechnical, mechanical and electrical engineering design services for Reaches 105 and 108 of the West Shore Lake Pontchartrain HSDRR project consisting of 4.5 miles of earthen levee, three drainage structures and pile founded T-type floodwalls. The designs were conducted in accordance with all applicable design criteria, including the HSDRRS Design Guidelines.
10/06-12/21	**Lake Houston Dam Comprehensive Evaluation | Coastal Water Authority, TX |** Project Team | Russ was responsible for performing the sliding and overturning analyses for the spillway section of the dam, including the existing condition and with proposed repair alternatives. Comprehensive evaluation of the Lake Houston Dam for the Coastal Water Authority before taking ownership of the dam from the City of Houston. Based on the effort in Phase A and B (completed by others at FNI), it was concluded that the dam does not meet all state dam safety factors under all conditions (including the PMF). Due to voids observed beneath the hearth of the spillway section of the dam have lost dead weight making it less resistant to overturning and sliding. It was important to observe how much stability of the dam depended on the tailwater associated with the hearth. Included update of the PMF, development of an EAP and geotechnical field exploration, including the use of piezometers.
11/13-Ongoing ***Reference Project (page #65)***	**Bois d'Arc Lake Water Supply Program | North Texas Municipal Water District, TX | Senior Advisor |** Russ was responsible for review of geotechnical analyses for the proposed earthen dam. Since 2003, FNI has partnered with NTMWD to permit and build a new $1.6 billion water supply system, continuously providing multidiscipline services comprising program management, water rights permitting, project management, design and construction management services to support the development of the reservoir. Significant projects include 17,000 acres of environmental mitigation, a two-mile earthen dam, spillway and outlet structures, 420-MG terminal storage reservoir, 236-MGD raw water intake and pump station, 330-MGD high-service pump station and 60 miles of large-diameter raw and treated water pipelines.

Freese and Nichols, Inc.					
Name	**Mathew Moses, PE**		Years of experience with this firm/employer	11	
Title	Vice President/Principal		Years of experience with other firm(s)/employer(s)	20	
Degree(s) / Years / Specialization			MS | 1993 | Structural Engineering BS | 1991 | Civil Engineering		
Active registration number / state / expiration date			Professional Engineer #PE.0037078 | LA | 09/22		
Year registered	2016	Discipline	Structural Engineer		
Contract role(s) / brief description of responsibilities			**Structural Design |** Mathew is a firm Principal and specialist in civil and structural engineering. His background includes detailed inspection, analysis and design of dams and related reinforced concrete, steel, masonry and timber structures. His specialized experience includes RCC dam design, hydraulic and structural design, dam safety inspections, site investigations, pipeline inspections, concrete structure rehabilitation and construction supervision and management.		

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
02/17-04/18 ***Reference Project (page #61)***	**Lewis Creek Spillway Design | APTIM Environmental & Infrastructure, Inc. | Project Manager |** Mathew served as Project Manager and Engineer of Record responsible for the replacement of an existing reinforced concrete ogee, chute and stilling basin as a result of slab heave and instability. The project included cellular cofferdam construction, demolition of existing spillway tainter gates, hoists and bridge deck, chute and stilling basin slab and wall replacement, new piano key weir, soil anchors, and new piezometers and relief wells. FNI performed complete design and is performing construction oversight and administration.

08/10-10/14	**Big Creek Bypass Drop Inlet Structure | Fort Bend County, TX |** Lead Structural Engineer | Mathew was responsible for helical anchor layout and structural slab design. FNI provided the $3.5 million rehabilitation of a large, gated drop structure within a channelization project. The spillway and stilling basin can discharge up to 12,000 cubic feet per second and required emergency repair following a moderately sized storm even in the summer of 2010. Originally designed by others, the structure failed due to the hydraulic inadequacies of the existing stilling basin, which resulted in a 400-cubic yard hole measuring approximately 50-feet in diameter by 13-feet deep beneath the reinforced concrete discharge conduits. The hole created instability to the 50-feet-tall berm, which is where the conduits were founded. The scope of work included the design of an earth retention system; a pressure relief system; an anchoring system, including specialty piles beneath the basin; and dewatering considerations. FNI also oversaw the successful implementation of the repairs by the Owner's staff.
06/20-Ongoing	**Phase 1 – Lake Houston Dam Spillway Improvement Project | Coastal Water Authority (CWA), TX |** Senior Structural Advisor| Mathew was responsible for reviewing and evaluating structural modifications to the existing dam, including adding concrete mass within the cells of the arch-buttress sections for stability, structural modifications to satisfy stress requirements, and replacement of spillway gates. FNI is serving as a Technical Advisor will be to advise and assist CWA throughout the project. This will consist of attending identified meetings, reviewing identified deliverables in draft form, and consulting with another consultant and their project team on the issues reviewed with respect to the safety of the existing dam and the feasibility of the proposed modifications. The initial phase will consist of assistance with the portions of the project already authorized. Continued assistance future phases of the project will be defined as they are authorized. The intent of the scope is to provide all the assistance requested and desired by CWA.
09/17-12/17	**Guajataca Dam Assessment | APTIM Environmental & Infrastructure, Inc., PR |** Assistant Project Manager | Mathew was responsible for providing technical review and guidance during the inspection and development of temporary repairs to the auxiliary spillway. FNI performed an on-call assessment of Guajataca Dam in Puerto Rico due to partial failure of the auxiliary spillway. The earthen embankment dam is classified as a large high-hazard dam with a low flow outlet works and concrete lined auxiliary spillway as a result of Hurricane Maria. The purpose of the dam is to provide irrigation and water supply, but has been hydraulically inadequate and unstable under seismic loading. The dam has also had a history of slow movement due to construction materials (hydraulic fill) and poor foundation conditions.
04/18-Ongoing ***Reference Project (page #62)***	**Lake Ralph Hall and Leon Hurse Dam | Upper Trinity Regional Water District, TX |** Senior Structural Engineer | Mathew provided technical review and direction for RCC mix design and structural design of the new RCC dam, labyrinth weir and concrete spillway. FNI designed the new Leon Hurse Dam, a 2.3-mile-long, 108-foot-tall zoned earthen embankment dam, that will form Lake Ralph Hall. The $150 million facility includes a new 705-foot-long, 104-foot-tall RCC and CIP concrete spillway with a 120-foot-wide labyrinth weir overflow section, a new 1,700-foot-wide excavated earthen emergency spillway, a new pump station intake and low flow outlet structure with nine 7-foot by 7-foot sluice gates, as well as approximately 6,500 feet of stream mitigation and restoration downstream of the dam.

Freese and Nichols, Inc.					
Name	**Layne Bukhair**			Years of experience with this firm/employer	12
Title	Professional Engineer			Years of experience with other firm(s)/employer(s)	0
Degree(s) / Years / Specialization			MBA | 2021 | Civil Engineering BS | 2010 | Civil Engineering		
Active registration number / state / expiration date			Professional Engineer #118788 |TX | 09/22		
Year registered	2014	Discipline	Structural Engineer		
Contract role(s) / brief description of responsibilities			**Structural Design |** Layne Bukhair is a water resources engineer and project manager specializing in hydraulic structures. He served as a task leader on spillway rehabilitation projects and has performed the structural design of many dam modifications, including the 2019 ACEC Texas Gold Medal-winning project Upper Brushy Creek Dam 7 Modernization. Layne has managed over $15 million in constructed design projects ranging from comprehensive facility reviews to dam rehabilitations and bank stabilization projects. Additionally, he was the lead structural engineer for the new Lake Ralph Hall project's dam, with an estimated total construction cost of $150 million. His construction experience includes on-site resident representation for a $20 million RCC dam and general representation for the construction of labyrinth spillways. He has a structural engineering background, including inspection and analysis of hydraulic steel structures, dam stability analysis, reinforced concrete design, structural steel sheet pile design, post-tensioned and foundation anchors design.		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., “designed drainage”, “designed girders”, “designed intersection”, etc.				
04/18-Ongoing ***Reference Project (page #62)***	**Lake Ralph Hall and Leon Hurse Dam | Upper Trinity Regional Water District, TX |** RCC Spillway Structural Engineer of Record | Layne was responsible for leading the design of the RCC Spillway leading a team of ten people in the development of design calculations, plans, technical specifications and construction support. FNI designed the new Leon Hurse Dam, a 2.3-mile-long, 108-foot-tall zoned earthen embankment dam, that will form Lake Ralph Hall. The $150 million facility includes a new 705-foot-long, 104-foot-tall RCC and CIP concrete spillway with a 120-foot-wide labyrinth weir overflow section, a new 1,700-foot-wide excavated earthen emergency spillway, a new pump station intake and low flow outlet structure with nine 7-foot by 7-foot sluice gates, as well as approximately 6,500 feet of stream mitigation and restoration downstream of the dam.				

02/16-Ongoing ***Reference Project (page #64)***	**Atoka Dam Spillway and Chute Rehabilitation | City of Oklahoma City, OK |** Structural Engineer | Layne was responsible for design of the spillway, including Finite-element modeling and development of stability calculations. FNI designed an estimated $30 million in improvements to the Akota Dam Spillway for enhanced water supply. The project included detailed inspection, H&H modeling and alternatives analysis for repairs to spilling basin, probable maximum flood analysis and breach analysis. An emergency addition to the scope included the route analysis and design of a water supply pipeline due to the loss of current potable water supply to the Atoka Pump Station facilities. FNI won an ACEC Oklahoma Gold Medal for the Atoka Dam Spillway project.
06/13-12/17 ***Reference Project (page #68)***	**Dam 7 Modernization | Upper Brushy Creek WCID, TX |** Structural Engineer | Layne was responsible for the structural engineering and reinforced concrete design of the laybrinth weir. Evaluation and rehabilitation with the addition of a reinforced concrete labyrinth weir to increase auxiliary spillway capacity and meet state dam safety criteria. Work included topographic surveys, geotechnical investigations, materials testing, H&H modeling, physical hydraulic modeling, environmental permitting and development of construction plans and specifications.
05/12-09/16 ***Reference Project (page #66)***	**Buchanan Dam Dewatering System | Lower Colorado River Authority, TX |** Project Manager | Layne was responsible for structural design and project management. FNI was tasked by LCRA to design a spillway gate dewatering system at Buchanan Dam that was easy to install, could be deployed in an emergency situation, such as a gate failure, and would eliminate the typical problems experienced with traditional lifting beams. This presented unique challenges since the existing concrete structure did not have any acceptable sealing surfaces for a conventional stoplog system, it would need to deploy in emergency conditions, or flowing water. FNI developed the preliminary design, and hydraulic modeling was performed at UWRL to evaluate hydraulic impacts, spillway pier modifications and verify stoplog deployment in flowing water conditions. FNI developed construction documents for the system, and LCRA constructed and installed the system with support from FNI as needed.
09/19-04/21 ***Reference Project (page #60)***	**Six Flood Retarding Structure Rehabilitations | Texas State Soil and Water Conservation Board |** Structural Engineer | Layne was responsible for structural engineering. FNI performed alternatives analyses, geotechnical investigations, environmental permitting and dam rehabilitation design for six dams in Texas. Each dam site had their own technical and project specific challenges, but the scope and scale of the overall program presented time constraint, management and production challenges. The project was managed over a compressed 18-month design timeline. The work production was performed by six separate design teams. Standard internal technical processes and standardized templates for both reporting and CAD designs were established at the program level, so that efficiency and uniformity could be achieved. The project includes coordination with TSSWCB (Client), NRCS-Texas, NRCS NDC-SMC, TCEQ and Local Sponsor Organizations.

Freese and Nichols, Inc.					
Name	**George Kelley, FASCE**			Years of experience with this firm/employer	6
Title	Professional Engineer			Years of experience with other firm(s)/employer(s)	40
Degree(s) / Years / Specialization			MEng | 1982 | Structural Engineering BS | 1975 | Civil Engineering AS | 1972 | Pre-Engineering		
Active registration number / state / expiration date			Professional Engineer #014921 | GA | 12/22 Professional Engineer #21130 | AL | 12/23		
Year registered	1984	Discipline	Civil Engineer		
Contract role(s) / brief description of responsibilities			**Semi Quantitative Risk Assessments |** George is one of FNI's highly qualified civil, structural and geotechnical engineers. He has more than 40 years of experience in large dams, water resources and transportation projects, as well as leadership positions within the industry. He has served in a leadership advisory position with the Interagency Committee on Dam Safety and industry representative roles with USSD, as well as the ASDSO. He has also provided the operation and regulatory safety compliance for more than 100 projects in both the private and government sectors. This experience encompasses: performing qualitative and quantitative, as well as semi-quantitative risk assessment for dam safety projects, managing the development of risk informed decision making processes and procedures for a large federal agency (TVA) and managing the dam safety governance technical services operations for a large portfolio of over 150 mixed use and multi-purpose dams for an owner within the energy sector. He has also participated in the development of portfolio risk prioritization plans for managing risk reduction as part of a capital improvement plan.		
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.				
06/16-02/17	**Arkansas Dam Assessments | Natural Resources Conservation Service - AR | Senior Dam Safety Engineer |** George was responsible for field condition and dam safety. Dam assessments for 18 Class C high-hazard dams located in the Poinsett Watershed in Poinsett and Craighead Counties, Arkansas. These assessments will be utilized by the NRCS and SLOs to identify high-priority watershed rehabilitation projects, as well as identify short-term needs requiring more immediate action. Each assessment will include a description of the dam and appurtenances, status summary of operation and maintenance activities, evaluation of current hazard classification, determination of eligibility for assistance under the Watershed Rehabilitation Program and identification of potential rehabilitation alternatives and estimated costs.				

02/20-07/21	**Supplemental Watershed Plan Environmental Assessment Mill-Canton Creek Site 6, 10, and 12 | Georgia State Financing and Investment Commission |** Project Manager | George was responsible for collaborating directly with clients and stake holders and managing a team of engineers and scientists to scope the purpose and need for action to develop supplemental watershed plans for rehabilitation of three dam sites in the Mill-Canton Creek watershed. FNI was hired to create a Supplemental Watershed Plan and Environmental Assessment for the rehabilitation of Mill-Canton Creek #6, Mill-Canton Creek #10 and MillCanton Creek #12 dams to meet current Georgia SDP and NRCS criteria associated with High Hazard (Category 1) structures. The work consists of the performance of resource inventories, data reviews, field observations, surveys, engineering analysis, concept designs and planning necessary to complete an NRCS-acceptable SWP in connection with rehabilitation of the Mill-Canton Creek Site 6, 10 and 12 Structures. NRCS has determined that the environmental document created in the SWP shall be an EA. An EA is "a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an EIS or finding of no significant impact" [NRCS 2016]. The SWP documents shall be prepared in accordance with standard planning and engineering principles that comply with NRCS programmatic requirements. The plan development followed a milestone schedule of four milestone deliverables with the final deliverable being the Final EA Plan for all threedams by July 2, 2021.
05/13-12/13	**Guntersville Dam Comprehensive Assessment* | TVA |** Co-Facilitator, CORE Team Member | George was responsible for organizing, scheduling and implementing the new SQRA process and methodology as part of the TVA Dam Safety Governance Comprehensive Assessments. He worked directly with specialists and SMEs to perform the data review, visual site walk-through inspection, brain-storming and potential failure mode characterization, development of risk driving PFMs, categorization of failure probability and potential consequences, and recommended risk reduction measures based on the comparison of total and incremental versus tolerable risks guidelines.
04/12-12/12	**Hartwell Dam Periodic Assessment* | USACE-SAS |** TVA Liaison and CORE Team Subject Matter Expert | George was the TVA liaison in a USACE/TVA/USBREC collaborative effort to transfer knowledge to the new TVA Dam Safety Governance program for the establishment of processes and procedures. He participated in the USACE Risk Management Center training for Periodic Assessments and began hands on experience with the Savannah District dam site to develop the practice for implementation at TVA.
04/15-12/15	**Boone Dam Risk Assessment* | TVA |** Program Manager | George was Program Manager for developing and implementing operational processes and procedures for the TVA dam safety risk management program. He worked directly with all TVA dam safety managers for allocation of resources and staffing to effect the organizational changes needed to champion the program. After a sink-hole was discovered up stream of Boone Dam and internal erosion was determined a risk driving potential failure mode, he worked directly with the asset owner and RAC Engineers and Economists (David Bowles) in developing a two phase risk assessment process to evaluate both operating restricts for the reservoir and the rehabilitation alternatives for the dam seepage concern. These risk assessments were prototypical for TVA's program development of a system that would expand with the needs of the risks involved to include qualitative, semi-quantitative and fully quantitative analyses for evaluation and decision making.

*Experience prior to FNI

Freese and Nichols, Inc.					
Name	**Dustin Mortensen**			Years of experience with this firm/employer	18
Title	Associate			Years of experience with other firm(s)/employer(s)	0
Degree(s) / Years / Specialization			MS | 2004 | Hydraulics BS | 2003 | Civil Engineering		
Active registration number / state / expiration date			Professional Engineer #10000 | TX | 09/22		
Year registered	2007	Discipline	Civil Engineer		
Contract role(s) / brief description of responsibilities			**Spillway Hydraulics |** Dustin Mortensen is a Water Resources Project Manager and Hydraulics Engineer who specializes in the design, rehabilitation and inspections of dams. An firm Associate, he has inspected more than 90 dams and is the Engineer of Record for 16 dam-modification projects. He is one of FNI's most experienced Project Managers/Engineers for the repair of historic dam structures, and has managed projects for a wide variety of dam owners, from smaller municipalities and private entities to state-level and larger-scale river authorities. His background includes inspection, design and construction management of dam-related projects.		

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
01/16-10/18	**Buchanan Dam Spillway Analysis and LOMR | Lower Colorado River Authority, TX |** Project Manager | Dustin was responsible for project management, analyzing multiple gate operating scenarios and the final report. FNI assisted LCRA update their flood operations procedures after implementation of major capital improvements at Buchanan Dam. Using HEC-RAS 2-D, FNI modeled inundation areas for several gate operating scenarios to identify potential impacts associated with spillway releases. FNI performed reservoir simulation modeling using HEC-ResSim to evaluate system-wide responses to flooding. The study involved developing a detailed gate operating plan for the Upper Highland Lakes (including Buchanan Dam) that included flood forecasting and time-varying reservoir guide curves to take advantage of LCRA's extensive system of automated stream and rainfall gauges.

02/16-Ongoing	**Dam 22 Rehabilitation | Upper Brushy Creek WCID, TX |** Project Engineer | Dustin was responsible for developing alternatives, preparing drawings and cost estimate. A slide occurred on the downstream slope of the dam, and rock riprap was installed as an emergency stabilization measure. After the event, FNI was retained to evaluate the existing conditions and options to repair the dam. The principal spillway conduit joints were found to be separating which led to a larger rehabilitation project. FNI is preparing the final design and construction documents to replace the principal spillway system and regrade the downstream slope and redistribute the rock riprap to meet slope stability requirements.
01/03-12/09	**Lake Brazos Labyrinth Weir | City of Waco, TX |** Project Engineer | Dustin was responsible for developing rating curves for each spillway, evaluating sedimentation, scour, sizing riprap and preparing drawings. FNI provided design, bid and construction phase services for an award-winning, 3,000-foot-long labyrinth weir that combined the use of an existing dam site with an innovative spillway configuration. The project included survey, dam safety inspections and structural analysis of the existing structures; H&H modeling; physical hydraulic modeling; design of the replacement spillway; permitting and stakeholder coordination.
12/18-06/16	**Rehabilitation of Four Dams | U.S. Army Corps of Engineers - Fort Worth District, TX |** Project Manager | Dustin was responsible for developing repair methods, preparing drawings. FNI provided design-build services to rehabilitate four dams, including erosion repair, vegetation removal and embankment and spillway modifications to meet the stringent TCEQ H&H and slope stability criteria. Also conducted a feasibility analysis on dredging of a dam.
09/17-12/17	**Guajataca Dam Assessment | APTIM Environmental & Infrastructure, Inc., PR |** Quality Control | Dustin was responsible for reviewing design concepts, drawings, spillway rating curves. FNI performed an on-call assessment of Guajataca Dam in Puerto Rico due to partial failure of the auxiliary spillway. The earthen embankment dam is classified as a large high-hazard dam with a low flow outlet works and concrete lined auxiliary spillway. The purpose of the dam is to provide irrigation and water supply, but has been hydraulically inadequate and unstable under seismic loading. The dam has also had a history of slow movement due to construction materials (hydraulic fill) and poor foundation conditions.

Freese and Nichols, Inc.			
Name	**Tom Dixon**	Years of experience with this firm/employer	8
Title	Associate	Years of experience with other firm(s)/employer(s)	11
Degree(s) / Years / Specialization		MS | 2004 | Wildlife Ecology BS | 2001 | Wildlife Ecology	
Active registration number / state / expiration date		N/A	
Year registered	N/A	Discipline	Environmental Scientist
Contract role(s) / brief description of responsibilities		**Environmental Compliance/USACE Permitting/Endangered Species |** Tom serves as an Ecologist, Project Manager and the FNI Austin office Environmental Team Lead. His background has focused on wildlife habitat management, coastal and wetland ecology, Southeastern U.S. plant community ecology, predictive statistical modeling and ecological processes and functions. Prior to FNI, he conducted research and provided habitat management recommendations regarding federally-listed species for the energy industry (birds) and the U.S. Navy (mammals). Duties include vegetation surveys, preliminary jurisdictional determinations and delineations, threatened and endangered species surveys, ecological functional, and the production of NEPA documents, such as CE, EIA, EIS, reports and regulatory permits, which require working knowledge of various ecological concepts, and regulations, such as NEPA, the Clean Water Act, the Endangered Species Act, the Rivers and Harbors Act and the Coastal Zone Management Act.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
06/13-01/19 ***Reference Project (page #68)***	**Dam 7 Modernization | Upper Brushy Creek WCID, TX |** Environmental Scientist | Tom was responsible for preparing and submitting the Pre-Construction Notification to the USACE to obtain Section 404 authorization to construct the project. Evaluation and rehabilitation with the addition of a reinforced concrete labyrinth weir to increase auxiliary spillway capacity and meet state dam safety criteria. Work included topographic surveys, geotechnical investigations, materials testing, H&H modeling, physical hydraulic modeling, environmental permitting and development of construction plans and specifications.

05/17-Ongoing	**Lake Brazos Dam Improvements | City of Waco, TX |** Environmental Scientist | The Lake Brazos Dam was constructed in the late 1960s, allowing the City to impound water that had been appropriated to the City under its oldest water right. A significant flood occurred during construction of the labyrinth weir in 2007, and the embankment section's downstream slope suffered damage. Erosion of the downstream slope resulted in vertical cuts up to five feet deep in some areas. A 2014 dam safety inspection performed found that the condition of the existing sheet piling system at the toe of the embankment was worsening, therefore improvements to the embankment were necessary to provide adequate stability. FNI performed a detailed evaluation of the existing embankment in 2017 and developed repair alternatives to improve embankment stability. The client selected the alternative, which included constructing a new outlet works stilling basin and flattening the downstream embankment slope. The stilling basin was designed to buttress and stabilize the embankment from the downstream toe while protecting the downstream slope from further erosion. Tom led efforts to secure USACE authorization and USFWS approvals to implement various improvements to the Lake Brazos Dam structure, including USACE authorization to remove accumulated sediments and debris from the dam, and another to obtain USACE authorization to improve the embankment and stilling basin. These efforts included freshwater mussel surveys to comply with Endangered Species Act and cultural resource evaluations to comply with Section 106 of the National Historic Preservation Act.
03/13-01/19	**Martinez Dams 1, 2 and 3 Rehabilitation | San Antonio River Authority, TX |** Environmental Scientist | Tom assisted a larger team with implementing the aquatic resource relocation plan, including electroshocking, data collection and relocation of aquatic resources. FNI provided services that included the evaluation and rehabilitation design of three high-hazard dams (Nos. 1, 2 and 3) to meet the state and NRCS dam safety criteria. The work also included topographic surveys, geotechnical investigations, material testing, H&H modeling, environmental permitting, development of construction plans and technical specifications and general construction oversight. The rehabilitation design also included oversight from the NRCS Central National Technology Support Center. Significant urban development had occurred downstream of Martinez Creek Floodwater Retarding Structures No. 1, 2 and 3 since their completion. As a result, the dams had been reclassified as high hazard dams and had failed to meet current dam safety and performance criteria. The SARA and NRCS have chosen to modernize the dams to address the identified safety deficiencies while preserving the level of flood control benefits.
02/20-07/21	**Supplemental Watershed Plan Environmental Assessment Mill-Canton Creek Site 6, 10, and 12 | Georgia State Financing and Investment Commission, GA |** Environmental Scientist | Tom oversaw efforts to develop the Environmental Assessment, including QAQC of the document, client coordination and team coordination. FNI created a Supplemental Watershed Plan and Environmental Assessment for the rehabilitation of Mill-Canton Creek #6, Mill-Canton Creek #10 and Mill-Canton Creek #12 dams to meet current Georgia SDP and NRCS criteria associated with High Hazard (Category 1) structures. The work consisted of the performance of resource inventories, data reviews, field observations, surveys, engineering analysis, concept designs and planning necessary to complete an NRCS-acceptable SWP.

Freese and Nichols, Inc.			
Name	**Adam Payne, CCM, CDT, LEED® AP**	Years of experience with this firm/employer	13
Title	Principal	Years of experience with other firm(s)/employer(s)	7
Degree(s) / Years / Specialization		MEng | 2014 | Civil Engineering BS | 2004 | Construction Science	
Active registration number / state / expiration date		Professional Engineer #120277 | TX | 03/22 Construction Document Technologist | Certified Construction Manager | LEED Accredited Professional	
Year registered	2015	Discipline	Construction Manager
Contract role(s) / brief description of responsibilities		**Construction Management and Administration |** Adam Payne is a firm Principal and Certified Construction Manager with experience with heavy civil and architectural projects. Adam is currently serving as a Program Construction Manager for a major water supply program in North Texas. He and his team administers construction contracts and provides construction management and inspection services for FNI's clients. Adam has also served as a resident engineer and construction manager on several projects ranging from earthen/ concrete dams to water transmission facilities. On assigned projects, he assists in administering contracts, responding to contractor and inspector inquiries, reviewing change order proposals and payment requests; and he acts as a liaison for the client, contractor, and other architectural/engineering personnel. While in the office he helps with scheduling, cost estimating, contract change management and special construction inspections.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
11/14-Ongoing ***Reference Project (page #65)***	**Bois d'Arc Lake Water Supply Program | North Texas Municipal Water District |** Program Construction Manager and Project Manager | Serving as the Program Construction Manager for the Bois d'Arc Lake Program. The project consists of a new $1.6 billion water supply system program that will deliver 175,000 acre-feet of water per year to customers of the NTMWD. Components for the program include a new dam and intake, reservoir clearing, raw water pump station, 210-MG raw storage reservoir, 17,000 acres of environmental mitigation, 70-MGD water treatment plant, high service pump station, 60 miles of raw and treated water pipelines, office facilities, recreational boat ramps and a maintenance building. Adam assisted with design phase and preconstruction services, such as constructability reviews, cost estimating, procurement of CMAR and development of a program management plan and standards for use during construction. A resident engineering, construction management and inspection staff of over 40 team members from FNI, subconsultants and NTMWD are assigned to the various projects in the program. Adam is managing the quality assurance effort during construction.

01/21-Ongoing ***Reference Project (page #62)***	**Lake Ralph Hall and Leon Hurse Dam | Upper Trinity Regional Water District, TX |** Construction Phase Manager and Senior Advisor | Serving as the Construction Phase Manager and Senior Advisor for the Lake Ralph Hall Leon Hurse Dam Construction. FNI designed the new Leon Hurse Dam, a 2.3-mile-long, 108-foot-tall zoned earthen embankment dam, that will form Lake Ralph Hall. The $150 million facility includes a new 705-foot-long, 104-foot-tall RCC and CIP concrete spillway with a 120-foot-wide labyrinth weir overfow section, a new 1,700-foot-wide excavated earthen emergency spillway, a new pump station intake and low fow outlet structure with nine 7-foot by 7-foot sluice gates, as well as approximately 6,500 feet of stream mitigation and restoration downstream of the dam. Adam provides day-to-day management of field staff, including resident engineers, construction managers and inspectors. Adam is providing quality assurance services in the form of the Senior Advisor by helping field staff with technical and contractual questions in the field.
03/11-12/12	**Dry Comal Creek Flood Retarding Structure | Comal County, TX |** Construction Manager and Resident Representative | FNI services included the assessment, final design and construction of a new 1,500-foot-long RCC gravity dam. FNI performed site investigations, geotechnical analyses, stability analyses and final design, which included a deep cut-off wall and foundation improvements. Adam served as resident construction manager and inspector for both the deep cutoff wall and dam construction. He worked closely with FNI engineering staff as well as, Contractor, Comal County and TCEQ officials. Adam provided inspection services for reinforced CIP concrete construction, backfill and rip-rap placement and monitoring instrumentation installation. Adam was also responsible for coordinating the schedules for five night shift inspectors and all onsite meetings, document control, pay request and contract modification review.
06/10-08/11	**Calaveras No. 6 Flood Control Dam Rehabilitation Construction | Natural Resources Conservation Service - TX |** Resident Representative, Assistant Project Manager | Adam served as the resident representative onsite providing daily inspection services for the rehabilitation construction of Calaveras No. 6 soil conservation dam. He worked closely with the Contractor, NRCS and SARA officials and was responsible for observation and documentation of all construction activities to include approximately 61,000 CY of excavation, 46,000 CY of earth fill, a 180-foot bore, and construction of a new concrete riser, impact basin, and principal spillway. Communicated progress to NRCS and SARA through daily construction reports, progress photos and concrete testing reports.
05/13-10/14	**Landa Park River Rehabilitation Third-Party Construction Management | City of New Braunfels, TX |** Project and Construction Manager | Adam provided third party construction management for a difficult and environmentally complex project in a historic public park in New Braunfels. The project required extensive coordination between the construction manager and the City, Contractor, EOR, Environmental Professionals and State Agencies. Assisted the City's project manager daily with inspections, monitoring, reporting and contract administration.

Dewberry			
Name	**Seth Bradley, PE**	Years of experience with this firm/employer	9
Title	Project Engineer	Years of experience with other firm(s)/employer(s)	0
Degree(s) / Years / Specialization		MS | 2012 | Civil Engineering MS | 2009 | Civil Engineering	
Active registration number / state / expiration date		Professional Engineer #42121 | LA | 03/22	
Year registered	2017	Discipline	Professional Engineer (Civil)
Contract role(s) / brief description of responsibilities		**Hydrologic/Hydraulic Engineer |** Seth has nearly 10-years of experience in hydrologic and hydraulic modeling which he has applied throughout Louisiana. He is an expert in the application of the HEC suite of software which includes serving as a lead engineer for the development of the Amite River Basin Numerical Model that used HEC-HMS, HEC-RAS, HEC-MetVUE, HEC-LifeSim and HEC-FIA. He also participated in the modeling and consequences assessment for the Darlington Reservoir study as a demonstration project for the ARBNM. Seth will leverage his extensive experience to play a lead roles in the watershed hydrology, hydraulics and consequences assessments. Seth has water resources engineering and numerical modeling experience ranging from H&H modeling to post-disaster field work. His technical experience includes hydrologic modeling, steady and unsteady flow hydraulic modeling, floodplain mapping and dam break analyses. Seth has applied these skills in a variety of projects including H&H modeling for parishes in Louisiana and counties in Georgia, unsteady flow modeling for dam break analyses in Georgia, and floodplain mapping for counties in Alabama and Georgia. Other work experience includes community outreach for FEMA Region VI and post-disaster building inspections for Hurricane Isaac in Louisiana and Hurricane Sandy in New Jersey.	
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.		
03/19 – 10/20	**West Feliciana Parish Phase 2 | West Feliciana Parish|** Project Engineer | Managed FEMA CTP Phase 2 tasks and performed H&H analysis for a successful update of all streams in West Feliciana Parish as a result of the Discovery Process in previous years. The community asked for updated engineering and mapping based on FEMA's BLE results. Met and worked with the Parish Engineer to detail the scope of work and prepare recommendations for needs to FEMA. Study included 220 miles of limited detail study using HEC-HMS and HEC-RAS and incorporated BLE data into Phase 2 products to provide coverage for the entire parish. Seth assisted in the packaging and submittal of deliverables, including survey, terrain hydrology, hydraulics, floodplain mapping and flood risk products.		

05/17-05/19 ***Reference Project (page #70)***	**Amite River Basin Numerical Model | Amite River Basin |** Project Engineer | Development of HUC8 scale numerical model to assess hydrology, hydraulics and consequences using HEC-DSS, HEC-DSSVUE, HECSSP, HEC-MetVUE, HEC-HMS, HEC-RAS (1-D/2-D), HEC-FIA, HEC-WAT and ArcGIS. Services included: Stakeholder communication and engagement, including briefing and exhibits for LADOTD, state legislators and the local community of practice, hydro-meteorologic modeling for historic and design storm development (implementing the watershed hydrology procedures of HMR 52 within MetVUE), hydrologic model development. 1-D and 2-D hydraulic model development, model calibration and validation. Development of economic and life safety consequence model. Development of technical reports. Assessment of concept projects including the Darlington Reservoir, levee extensions, levee modifications and the use of temporary dams. The Darlington Reservoir simulations included an approximately three mile long, 90-feet-tall dam embankment holding back nearly one million-acre-feet of floodwaters. Additional work included working with Livingston Parish to simulate the concept of pre-event draw down for offline mining ponds to determine whether pre-event drawdowns provided substantial flood control benefits. This included developing concept inflow diversion structures and outlet control structures to optimize flood attenuation.
12/17-03/18	**LaSalle Parish Study | LaSalle Parish |** Project Engineer / Task Manager | Scoped the Parish-wide study to modernize and update flood hazard information while providing additional non-regulatory flood risk assessments. Study incorporated over 678 miles of FEMA BLE, 140 miles of approximate analysis and 35 miles of a limited detail studied streams. Managed tasks and MIP submittals including survey, H&H and floodplain mapping. Updated flood hazard data and risk assessments provide the Parish and Communities with access to critical data necessary for flood permitting, planning, development and flood mitigation.
04/13-6/16	**Boeuf Watershed, Franklin, and West Carroll Parishes | LA Phase 2 H&H (FEMA PTS Region 6) |** Project Engineer | Dewberry was the lead for this regional H&H study under the FEMA PTS Contract for West Carroll Parish and Franklin Parish in northeast Louisiana. The services consisted of data collection and gap analysis, 1-D and 2-D hydraulic modeling, field work, GIS analysis, reports, and stakeholder communication and engagement. A tiered modeling approach was developed, which included approximately 128 miles of the Boeuf River streams that was controlled by break out flows from the Boeuf River where a medium detail, coupled 1-D/2-D model was developed. Channel geometry was measured from aerials and depths of channel were assumed using engineering judgment from field reconnaissance which involved measuring water depths with basic tools at accessible locations. The 2-D grid was developed using LiDAR data where it is available for West Carroll Parish and for areas to the West, either the state LiDAR or USGS DEM was used for the West overbank of the Boeuf River.

Dewberry			
Name	**Yovanni Catano Lopera*, PhD, D.WRE, ENV SP**	Years of experience with this firm/employer	1
Title	Principal Engineer	Years of experience with other firm(s)/employer(s)	20
Degree(s) / Years / Specialization		PhD **|** 2005 **|** Civil and Environmental Engineering MS **|** 2000 **|** Water Resources Engineering BS **|** 1997 **|** Civil Engineering	
Active registration number / state / expiration date		Professional Engineer #50515 **|** MA **|** 06/22 Environmental Sustainability Professional	
Year registered	2013	Discipline	Professional Engineer (Civil)
Contract role(s) / brief description of responsibilities		**Spillway Hydraulics/Computational Fluid Dynamics |** Yovani will serve as lead for computational fluid dynamics pertaining to the hydraulic design of spillway structures. Yovani could also serve as quality control lead for computational fluid dynamics if needed. Yovanni has more than 20 years of experience with water resources engineering projects and is an expert in advanced groundwater, CFD, sediment transport, and wastewater and stormwater collection systems modeling. His current role is as a Hydraulics Technical Lead working in Collection systems and advanced hydraulics on national and regional projects. He has extensive experience in hydraulic evaluations and in the construction, calibration, and validation of numerous hydrodynamic, hydrologic and hydraulic models.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
05/21-12/21	**CFD Modeling and Physical Modeling of the S-356E Pumping Station and S-334E Gated Spillway	Miami-Dade County, FL	Subject Matter Expert/Senior Technical Reviewer |** The design team used CFD and Physical modeling for a newly designed pump station and gated spillway in the central everglades. Goal of CFD modeling was to provide assurance of smooth non-damaging operational flows during pumping and spillway release discharges. The goal of physical modeling was to complete mechanical analyses of the pump intake components and configuration to reduce improper non-aligned flows into the pumps and to confirm the findings from the CFD modeling effort.

07/21 – 08/21	**Evaluation of Flow and Debris Splitting in Flow Diversion Structure | DC Water-Fairfax County, VA | Lead CFD Modeler |** Used CFD (FLOW3D) to simulate flow, and solid matter partition under varied flow conditions. Diverted flows and sediments are directed towards the proposed DRPS within the Washington DC collection system. The model results showed that the designed structure minimizes debris accumulation and diversion into the DRSP. Simulation headlosses at the diversion structure were incorporated into the Fairfax and Washington DC Water collection system model (InfoWorks ICM).
03/20 – 08/20	**Hydraulic Capacity and Performance of a Pump Station Intake | Manteca, CA | Lead CFD Modeler |** CFD modeling was used to evaluate the complex flow structure within an existing pump intake wet well under current combinations of inflows, ON/OFF levels, and pumping activation. Under existing system conditions flow into the pump intakes exhibits undesired asymmetries that may reduce pumping efficiency and ultimately can potentially induce pump structural damage. To alleviate this issue, an array of rectangular bottom baffles located directly downstream the side-weir ramps was proposed. As a result, implementation of the proposed configuration, pump performance and efficiency increased noticeably.
01/19 – 02/20	**Mid-Breton Sediment Diversion | Lower Mississippi River, LA | Subject Matter Expert/Senior Technical Reviewer |** Served as senior technical reviewer for: • Sediment concentration measurements in the Mississippi River using ADCP sensors. • 1D/2D HEC-RAS, DEFLT3D, and FLOW3D hydrodynamic model build, calibration and validation developed by subcontractors to evaluate hydrodynamics and sediment transport in the lower Mississippi River and Gulf of Mexico under existing and sediment diversion project scenario conditions.
02/13 – 01/14	**Grit Chamber Sedimentation at Treatment Plant | Chicago, IL | Lead CFD Modeler |** Refined numerical simulations were used to investigate flow structure (velocity, turbulent kinetic energy, and shear stress distributions) and sedimentation characteristics in the sediment grit chamber of a WTP. Alternatives for minimizing recurrent uneven grit distribution on the grit chambers were proposed, including implementation of bottom steps, and opening-closure gates.
03/12 – 09/12	**Fish Passage Optimization | Wichita, KS | CFD Modeler |** Conducted CFD simulations to investigate flow structure within the fish passage ladder openings of a planned facility. Simulation results were used to optimize geometric configuration to be used in the laboratory. The results from both laboratory and numerical tests were used in conjunction to aid in the design of the facility in the field.
01/12-01/12	**Evaluation of Disruptive Transient Phenomena in the TARP Tunnel System, MWRDGC | Chicago, IL | Lead CFD Modeler |** Refined numerical modeling combining CFD and 1D transient models were used to study the Geysering and transient phenomena observed at several hydraulic structures in the North Branch Tunnel System of the city during severe storm events. Several alternatives were recommended to eliminate the detrimental effect of the transient phenomena on the system structures.

Dewberry				
Name	**Jerri Daniels**		Years of experience with this firm/employer	12
Title	Associate Vice President, Department Manager		Years of experience with other firm(s)/employer(s)	9
Degree(s) / Years / Specialization			MS | 2000 | Geography BS | 1998 | Biology	
Active registration number / state / expiration date			N/A	
Year registered	2007	Discipline	Certified Floodplain Manager	
Contract role(s) / brief description of responsibilities			**Consequence Assessment Lead |** Jerri brings more than 20 years of experience in water resources. She has extensive experience in stakeholder engagement/ outreach which she carefully uses to garner stakeholder buy in, successfully communicating complex technical data to engineers, scientists, community officials, elected officials and the general public. During the development of ARBNM, Jerri was the lead for the development of the HEC-FIA consequence assessment model where she innovatively developed an asset inventory utilizing LiDAR derived building footprints conflated with tax assessor and census data. Additionally she led the development of a pilot HEC-LifeSim model for a portion of Baton Rouge. These models enabled the economic benefits of key projects including the Darlington Reservoir to be rapid recognized. Her unique combination of mapping technology (GIS) expertise and strong outreach experience will make her an asset to the team where she will serve a project lead for consequence assessments and stakeholder engagement activities.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
05/17-05/19 ***Reference Project (page #70)***	**Amite River Basin Numerical Model | Amite River Basin |** HEC-FIA Lead/Stakeholder Engagement | Lead for stakeholder engagement which included outreach to local stakeholders to collect data and input upon project initiation. This also included numerous client, stakeholder and legislator briefings pertaining to project progress and findings. Lead for development of the HEC-FIA life safety and economic losses model. This involved extensive research to develop an asset inventory by conflating local tax and census data with LiDAR derived building footprints which were the backbone of life safety and economic consequence estimates. This model was used to assess project benefits for the conceptual Darlington Reservoir which provided meaniful data for elected officials and the public.

01/17-06/19	**CTP Discovery and Modeling Projects in LWI Modeling Contract Region No. 7 | HUC8 Watershed in Region 7 | Project Manager, Contract Manager |** Conducted FEMA Region VI Phase 1 Discovery Projects for four HUC8 watersheds in Region 7: Bayou Sara-Thompson, Tickfaw, Amite, Liberty Bayou Tchefuncte. Project management included updates to FEMA and LADOTD CTP contract management. Gathered data on each watershed, creating a comparison of newly created Flood Risk information to compare to historic Flood Insurance Rate Map data and conducted meetings to discuss those results with all community officials in each watershed. This also included congressional briefings and data deliveries to the communities. Needs and concerns related to flooding for all watersheds was collected, documented, and delivered to FEMA for recommendations on updated engineering needs to more accurately identify the flood risk.
03/19-Ongoing	**West Feliciana Parish Phase 2 | West Feliciana Parish | Project Manager |** Managing FEMA CTP Phase 2 modeling for successful update of all streams in West Feliciana Parish as a result of the Discovery Process in previous years. The community asked for updated engineering and mapping. We met and worked with the Parish Engineer to detail the scope of work and prepare recommendations for needs to FEMA. Project is near completion, with final databases currently being developed for FEMA.
04/13-6/16	**Boeuf Watershed, Franklin, and West Carroll Parishes | LA Phase 2 H&H (FEMA PTS Region 6) | Project Manager |** Dewberry was the lead for this regional H&H study under the FEMA PTS Contract for West Carroll Parish and Franklin Parish in northeast Louisiana. The services consisted of data collection and gap analysis, 1-D and 2-D hydraulic modeling, field work, GIS analysis, reports, and stakeholder communication and engagement. A tiered modeling approach was developed, which included approximately 128 miles of the Boeuf River streams that was controlled by break out flows from the Boeuf River where a medium detail, coupled 1-D/2-D model was developed. Channel geometry was measured from aerials and depths of channel were assumed using engineering judgment from field reconnaissance which involved measuring water depths with basic tools at accessible locations. The 2-D grid was developed using LiDAR data where it is available for West Carroll Parish and for areas to the West, either the state LiDAR or USGS DEM was used for the West overbank of the Boeuf River.

Lazenby			
Name	**Paul D. Fryer, PE, PLS**	Years of experience with this firm/employer	34
Title	Senior Vice-President	Years of experience with other firm(s)/employer(s)	2
Degree(s) / Years / Specialization		BS **|** 1984 **|** Civil Engineering	
Active registration number / state / expiration date		Professional Land Surveyor #0004806 **|** LA **|** 09/23 Professional Engineer #0023426 **|** LA **|** 09/23	
Year registered	1997 1989	Discipline	Professional Land Surveyor Professional Engineer (Civil and Environmental)
Contract role(s) / brief description of responsibilities		**Land Surveyor |** Surveyor responsible for project supervision and QC/QA. Paul has over 20 years of experience in conducting topographic surveys, property surveys and developing ROW maps on LDOTD projects. Additionally, he has over 34 years of experience in planning, surveying, designing, inspecting, and construction administration of transportation facilities. Paul is familiar with LDOTD and AASHTO design standards for roadway design and plan development. He has performed professional engineering and land surveying services on a variety of projects involving line and grade studies, major investment studies, location and Stage "O" studies, as well as topographic surveys, property surveys and development of ROW maps. Paul has extensive experience in developing preliminary and final roadway plans. Additionally, Paul has completed the three-day LDOTD training course entitled the "National Environmental Policy Act (NEPA) and Transportation Decision Making". He has successfully completed the LA Specific Traffic Control Technician course and the LA Specific Traffic Control Supervisor course in January, 2014 and the Traffic Control Supervisor Refresher course in October 2016 and in July, 2020.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
03/08-04/11	**Retainer Contract for Professional Surveying Services	Statewide |** Project Surveyor **|** This retainer contract authorized 15 task orders for topographic surveys, property surveys and ROW maps over a three year period.
05/08-05/12	**Kansas Lane Connector (Route US 80 to US 165)	Ouachita Parish |** Project Manager **|** Responsible for topographic surveys and for property surveys and ROW maps on an Urban Systems project in Monroe, LA.

08/10-04/11	**Arkansas Road (West Monroe) (Caldwell Road to LA 143) Route LA 616 | Ouachita Parish |** Project Surveyor | Responsible for conducting property surveys and developing ROW maps on a 3.2 mile urban arterial route.
11/10-05/12	**Retainer Contract for Professional Surveying Services | Statewide |** Project Surveyor | This retainer contract authorized 23 task orders for topographic surveys, property surveys and ROW maps over a three year period.
11/11-01/15	**Retainer Contract for Professional Surveying Services | Statewide |** Project Surveyor | This retainer contract authorized 25 task orders for topographic surveys, property surveys and ROW maps over a three year period.
06/15-06/18	**Retainer Contract for Professional Surveying Services | Statewide |** Project Surveyor | This retainer contract authorized 11 Task Orders for property surveys and ROW Maps over a three year period.
03/18-Ongoing	**Retainer Contract for Professional Surveying Services | Statewide |** Project Surveyor | This retainer contract has authorized 12 Task Orders to date for Property Surveys and ROW Maps over two years of a five year project life.

Lazenby			
Name	**Ronald J. Riggin, II, PE, PLS**	Years of experience with this firm/employer	9
Title	Project Surveyor	Years of experience with other firm(s)/employer(s)	5
Degree(s) / Years / Specialization		BS | 2006 | Civil Engineering	
Active registration number / state / expiration date		Professional Land Surveyor #0005119 | LA | 03/23 Professional Engineer #0036016 | LA | 03/23	
Year registered	2014 2011	Discipline	Professional Land Surveyor Professional Engineer (Civil and Environmental)
Contract role(s) / brief description of responsibilities		**Land Surveyor |** Project surveyor responsible for scheduling survey field crews, conducting topographic surveys. Ronald is familiar with the requirements of the LDOTD Location and Survey Section for conducting topographic surveys, property surveys and hydrographic surveys. He is responsible for quality control of all survey data obtained by survey crews in conducting topographic surveys, property surveys and hydrographic surveys. Ronald has over five years experience in conducting and performing topographic surveys, property surveys and developing ROW maps. Additionally, Ronald has successfully completed the LA Specific Traffic Control Technician course and the LA Specific Traffic Control Supervisor course in January, 2014 and the Traffic Control Supervisor Refresher course in October 2016, and July 2020.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
07/14-06/16	**Retainer Contract For Professional Surveying Services | Statewide | Project Surveyor |** Project Surveyor responsible for coordination and supervision of survey field crews performing topographic surveys and property surveys on 14 Task Orders for an accumulated value of $436,473.00 for LDOTD State Projects at various locations in northern Louisiana.
04/13-06/16	**S.P. # H.008768 – Hydrographic Survey Monitoring of Existing Bridges | Statewide (North Region) | Project Surveyor |** Performed hydrographic surveys on 14 Task Orders for monitoring scour at major bridge sites in north Louisiana. Duties included supervision of survey crews, analysis of survey data and the development of required hydrographic survey reports at the various bridge locations.

04/14-Ongoing	**Multiple Residential Developments | Ouachita Parish | Project Surveyor |** Professional Surveyor of Record for developing topographic surveys and Property Surveys for private clients on residential developments and commercial developments in Ouachita Parish and northern Louisiana. Professional EOR for the overall design of residential and commercial developments.
03/15-08/17	**S.P. # H.011742 – Ole Highway 15 Improvements (US 80 – Arkansas Road (LA 616)) | Ouachita Parish | Project Engineer and Project Surveyor |** Performed a topographic survey of a 2.2 mile section of Ole Hwy 15 from US 80 to LA 616 and then was the project engineer responsible for roadway design which consisted of cold planning to remove existing AC surfacing, in-place cement stabilization of existing base course, AST interlayer and asphaltic concrete overlay.
05/16-02/18	**Steep Bayou Sewer Main project of the West Ouachita Sewerage District No. 5. | Ouachita Parish | Project Surveyor |** Performed a topographic survey of the alignment for a sewer main trunk line from I-20 to New Natchitoches Road along Steep Bayou in Ouachita Parish. He also conducted a boundary survey of the ROW parcels along this route and developed the necessary ROW maps and legal descriptions.
09/18-Ongoing	**Retainer Contract For Professional Surveying Services | Statewide (North Region) | Project Surveyor |** Performing hydrographic surveys on major bridge structures in northern Louisiana for monitoring channel scour. Duties include supervision of field crews, analysis of survey data and development of required hydrographic survey reports at the various bridge locations for submission to the LADOTD.

Nixon			
Name	**Jared R. Boogaerts, PE**	Years of experience with this firm/employer	10
Title	Project Engineer	Years of experience with other firm(s)/employer(s)	0
Degree(s) / Years / Specialization		BS | 2012 | Civil Engineering	
Active registration number / state / expiration date		Professional Engineer #PE.41026 | LA | 03/23	
Year registered	2016	Discipline	Civil Engineer
Contract role(s) / brief description of responsibilities		**Project Engineer |** Jared will assist with the hydraulic and hydrologic modeling, gage installation design and monitoring and additional survey party chief, as needed. Jared has been practicing Civil Engineering for nearly 10 years and has experience with engineering, site inspection, drafting and land surveying. Some of the jobs he has worked on in his career include dam design, drainage studies, FEMA floodplain delineation and analyses, water withdrawal analyses, subdivision developments, site/civil projects and topographic surveys. He has worked with multiple state and local government agencies on many of these project, as well as with many different private clients. Throughout his career he has aimed to practice civil engineering in a way that meets or exceeds the expectations of the owner while protecting and advancing the health, safety and welfare of the public.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
10/19-12/20 ***Reference Project (page #77)***	**Kinsey Scout Pond Dam | Desoto Parish | Project Engineer/Drafter/Surveyor/Inspector |** This was a dam design and construction project. The Northwest Louisiana Council, Boy Scouts of America hired Nixon Engineering Solutions to design and develop construction plans and manage the construction project for a 28.8-feet-tall zoned earthen dam in North Louisiana. This dam resulted in a 16.9-acre pond (at pool stage) for the Boy Scouts to use as a recreation area for their activities. Part of this process included working with LADOTD to determine the dam hazard classification via hydrologic and hydraulic studies and breach analyses. Biddable construction plans, including estimated quantities, cross-sections, plan and profile sheets, siphon and spillway details and specifications were generated by Nixon. The project management portion included construction inspection, soils test verifications and survey measurements.

03/12-04/19	**Surface Water Withdraw Studies | Union, Lincoln, Bossier, Caddo and Desoto Parishes | Project Engineer/Survey Party Chief/Surveor |** Over 45 water withdrawal studies have been completed by Nixons office in the last six years in Union, Lincoln, Bossier, Caddo and Desoto Parishes, as well as several in Texas and Arkansas. Jared's responsibilities included site visits, data collection, velocity and flow measurements via an ADCP, channel surveys via GPS and robotic total station, hydrologic and hydraulic modeling, generation of rating curves, gage analysis including frequency and duration analyses, interpretation of state low-water findings and standing water body volume calculations. He used the results of the above tasks to generate a water withdrawal analysis report that set limitations on the duration, volume, rate and location of water withdrawals to minimize stream impacts. These reports were used for acquiring DNR and USACE permits.
06/17-11/18 ***Reference Project (page #76)***	**Benoit Bayou and Benoit Bayou Lateral Drainage Study | Bossier Parish and Bossier City | Project Engineer/Survey Party Chief |** This was a large drainage study with an eight square mile watershed including rural and urban areas in Bossier Parish and Bossier City. Jared's responsibilities included building and calibrating 1-D/2-D hydraulic models using a combination of aerial LiDAR and traditional survey data. Based on this data he created multiple flood maps for several flood conditions and composed the report summarizing the findings. Jared collected portions of the survey data, including channel cross sections, culvert crossings and bridge geometry. He assisted with the installation of a real time stream gage. Jared was also responsible for calibrating the gage and setting up the reporting features.
03/18-06/18	**Briscoe Road | Dimmit County, TX | Project Engineer/Survey Party Chief/Surveyor |** A 3.5-mile stretch of road in Dimmit County, TX needed a series of low water crossings to prevent washouts. Nixon collected data using a combination of GPS, Robotic Total Station and UAV surveys to generate a digital terrain model. Jared used this model in conjunction with State DEM data to create a hydrologic model using HEC-HMS and a 1-D/2-D hydraulic model using HEC-RAS. These models were used to determine the flood elevations for different flood events at multiple locations adjacent to the road. Based on these findings Jared designed a series of low water crossings. He then developed full biddable plans (plan and profile sheets, cross sections, typical sections and details) for the entire rebuild of the 3.5 miles of road.
08/16-07/17	**Red Chute Levee Maintenance | Bossier Parish | Project Engineer/Survey Party Chief/Surveyor |** 5,500 LF of the Red River Levee was raised to correct insufficient freeboard. Jared's responsibilities included assisting with multiple topographic surveys of the levee, both initially as part of the design phase and later as part of the construction phase, creating a set of detailed construction plans and pre-construction meetings with the contractor, inspector and owner.
06/16-12/17	**Kelly Bayou Stream Restoration | Caddo Parish | Project Engineer/Survey Party Chief |** This was a wetlands mitigation project that aimed to restore existing farmland back into a wetland. Jared's responsibilities included creating the hydrology model and building and calibrating 1-D and 2-D hydraulic models in HEC-RAS based on a combination of State DEM and survey data. Jared collected portions of the survey data including channel cross-sections, bridge geometry and high-water marks for use in model calibration. The proposed design was modeled, and the results were compiled into a stream restoration report. Flood maps showing multiple flood stages were included as part of this report.

Ardaman			
Name	**Mark Woodward, PE**	Years of experience with this firm/employer	3
Title	Principal Geotechnical Engineer	Years of experience with other firm(s)/employer(s)	36
Degree(s) / Years / Specialization		MS | 2019 | Risk Management MS | 1986 | Civil Engineer BS | 1982 | Civil Engineer	
Active registration number / state / expiration date		Professional Engineer #PE.24206 | LA | 09/23	
Year registered	1991	Discipline	Civil Engineer
Contract role(s) / brief description of responsibilities		**Principal Geotechnical Engineer |** Mark served as a geotechnical engineer for 39 years in the geotechnical branch of USACE New Orleans District, retiring as the Deputy Chief of the Geotechnical Branch and Dam and Levee Safety Program Manager. He was responsible for managing all departments in the branch, including engineering, drilling, soils laboratory, dredge material testing, concrete testing and administration. Mark has considerable experience designing and managing flood control projects on the Mississippi River, Atchafalaya Basin and Storm Surge Levees in Southeast Louisiana and Texas, as well as mitigation and coastal projects in Louisiana. These projects included design of dams, earthen levees, hydraulic structures, floodwalls, ground improvement, deep excavations, relief wells, wick drains, dewatering systems, seepage and stability berms, preloads, reinforced levees and marsh creation for mitigation, coastal restoration and protection and beneficial use of dredge material in marsh and coastal environments with field investigations requiring use of specialized marine and marsh drilling equipment.	
Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., “designed drainage”, “designed girders”, “designed intersection”, etc.		
05/83-12/14	**Mississippi River and Tributaries Project, Geotechnical Investigation, Design and Construction Oversight | Louisiana (Statewide) | Senior Geotechnical Engineer |** Mark conducted or oversaw the review of existing geotechnical data and implementation of field investigation to obtain subsurface data, selection and reduction of laboratory testing, geotechnical engineering analyses, development of conclusions and recommendations, final report preparation and construction oversight for over 50 levee and floodwall projects on the Mississippi River and Atchafalaya Basin. Responsible for providing final geotechnical approval of 1,000 permits a year for construction activities on and around levees.		

12/14-04/18	**Dam and Levee Safety Program | USACE New Orleans District | Dam and Levee Safety Program Manager |** Mark served as the USACE New Orleans District Levee Safety Program Manager for over four years, responsible for Levee Evaluation Reports for Levee Certifications and the National Flood Insurance Program, Levee Inspection Reports on over 1300 miles of levee on an annual basis, risk assessments and communication for all levees in the District's jurisdiction. Responsible for final Section 408 permitting approval to ensure that construction activities do not increase risk, or diminish function of levees and do not cause harm to the public.
1998	**Seven Oaks Dam | San Bernardino, CA | Embankment Engineer |** Mark served as the embankment engineer for the 600-foot-tall earth fill Seven Oaks Dam during construction. This dam was for flood control, with no constant pool against it. It was a zoned dam with a clay core and varying rock gradations towards the upstream and downstream sides. Performed many large diameter sand cones on the rock fill. Looked for cracks at edges of the dam against the canyon wall so shotcrete could be applied, ensured that the clay core was not contaminated by equipment traffic, ensured proper gradation and compaction, monitored outlet works, spillway and tunnel construction. Monitored blasting and clay delivery system.
05/18-Ongoing ***Reference Project (page #79)***	**Cheniere Spillway and Bridge Replacement | Ouchita Parish | Senior Geotechnical Engineer |** Mark serves as the Senior Geotechnical Engineer for this project for the replacement of the current damaged spillway and bridge. structure in Ouchita Parish, Louisiana.
05/18-Ongoing ***Reference Project (page #78)***	**Mid-Breton Sediment Diversion | Plaquemines Parish | Senior Geotechnical Engineer |** Mark serves as the Geotechnical Engineer of Record for CPRA's Mid-Breton Sediment Diversion Project to reconnect the Mississippi River to the deteriorating deltaic wetlands in the Breton Sound Basin. This project includes a control structure in the mainline levee along the Mississippi River. The project also includes an associated river inlet channel, a conveyance channel with associated guide levees across the protected landside area
05/18-Ongoing	**Mid-Barataria Sediemtn Diversion | Plaquemines Parish | Senior Geotechnical Engineer |** Mark provided geotechnical consulting in regard to dewatering, pump platforms, borrow suitability, stability, seepage and settlement for interim Mississippi River Levee and designed slope for 50-foot-deep dry excavation.
04/217-Ongoing	**SP NO. H.013987 Rural Bridges Phase 1 | Claiborne Parish | Senior Geotechnical Engineer |** The Rural Bridges project initiative is to replace many older bridges throughout the State of Louisiana. The geotechnical design includes geotechnical exploration, analyses and foundation recommendations for three bridges (recall numbers 016831, 016842 and 016850).
206/06-12/14	**HSDRRS | New Orleans Metro Area | Supervisory Geotechnical Engineer |** Mark provided Senior Consistency Review for Geotechnical work product performed by A/E firms and other Corps Districts for the entire Hurricane Storm Surge Risk Reduction System. He was also responsible for the geotechnical design of 15 miles of HSDDRS from Bayou Segnette to Harvey Canal.

Ardaman			
Name	**Megan Bourgeois, PE**	Years of experience with this firm/employer	15
Title	Project Engineer/Assistant Branch Manager	Years of experience with other firm(s)/employer(s)	0
Degree(s) / Years / Specialization		BS | 2006 | Civil Engineering	
Active registration number / state / expiration date		Professional Engineer #PE.36725 | LA | 03/22	
Year registered	2011	Discipline	Geotechnical Engineer
Contract role(s) / brief description of responsibilities		**Geotechnical Project Manager |** Megan has more than 15 years of experience with shallow foundations, embankment settlement, pile and drilled shaft foundations, LRFD design, slope stability (embankment and excavation), pipeline and pump station recommendations, geotechnical instrumentation and construction monitoring. She has managed numerous geotechnical investigations and design evaluations, managed laboratory testing programs, while also serving as Ardaman's program manager for many LADOTD projects for bridges and roadways throughout Louisiana. Megan also serves as the director of Ardaman's geotechnical engineering laboratory in Baton Rouge. In this role, she supervises the laboratory manager, oversees testing, provides guidance to laboratory staff, and ensures appropriate protocol is followed and deadlines are met in addition to provide training material and maintaining AASHTO certifications.	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; i.e., "designed drainage", "designed girders", "designed intersection", etc.
05/13-10/14	**IATT and Nantachie Lake Dams Evaluation and Remediation | Grant Parish | Project Manager |** Megan served as project manager for this project that included a geotechnical engineering evaluation of the earthen dams for two lakes in Grant Parish for slope stability issues. Study included initial site reconnaissance, review of available design, construction, inspection and repair documents, collection of additional field and laboratory data and engineering analyses to develop recommendations for repairs and long-term geotechnical performance monitoring.

07/14-12/16	**40 Arpent Levee Certification Phase 2, Tetra Tech (Owner: South Louisiana Flood Protection Authority - East) | Orleans and St. Bernard Parishes | Laboratory Director |** Ardaman conducted extensive field exploration and laboratory testing programs including CPTs and borings and supervised seepage and stability analyses for FEMA levee certification of the 40 Arpent Levee System that included more than 20 miles of levee with various closure structures. Megan was involved with review of laboratory data throughout the project.
07/14-12/16	**Maxent Levee Certification Phase 2, Tetra Tech (Owner: South Louisiana Flood Protection Authority - East) | Orleans and St. Bernard Parishes | Laboratory Director |** Ardaman conducted extensive field exploration and laboratory testing programs including CPTs and borings and supervised seepage and stability analyses for levee certification of the Maxent Levee System that included five miles of levee. Megan was involved with review of laboratory data throughout the project.
2010	**New Orleans to Venice Levee Raising Design (NOV-7) | South Louisiana | Project Engineer |** The general scope for NOV-07 levee project consisted of raising approximately 12.1 miles of hurricane protection levee to an authorized grade of Elev. +15.6 feet plus overbuild of the levee and berm that was needed to compensate for settlement so that the authorized grade was maintained for at least a 10-year period after completion of construction. In addition, wave berms as prescribed by the GDM and seepage or stability berms were added to the general levee section. Ardaman conducted a geotechnical analysis for this study which utilized the available geotechnical information provided by USACE, including the new soil borings, laboratory test data and CPTs.
2008	**St. Mary Sugarcane Facility Levee | St. Mary Parish | Project Engineer |** Completed inspection of the levee to observe several failures prior to the investigation. Conducted geotechnical engineering analyses including slope stability for the levee and provided repair recommendations for the failures.
04/21-Ongoing	**SP NO. H.013987, Rural Bridges Phase 1 | Claiborne Parish | Project Engineer |** The Rural Bridges project initiative is to replace many older bridges throughout the State of Louisiana. The geotechnical design includes geotechnical exploration, analyses and foundation recommendations for three bridges (recall numbers 016831, 016842 and 016850).
10/19-01/20	**SP NO. H.000263, Chef Menteur Bridge and Approach | Orleans Parish | Project Manager |** Managed and oversaw all aspects of an extensive field investigation program including performing 26 deep soil borings and 12 CPT soundings, including borings over 200-feet in over 80-feet-deep of high flow water. Megan also managed laboratory testing program to provide geotechnical characterization data for use in design of deep foundations and embankments, oversaw the field resistivity testing program and developed the data report.

17. Firm Experience:

Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	Six Flood Retarding Structure (FRS) Rehabilitations			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Texas State Soil and Water Conservation Board		
Project location	Temple, TX			Owner's Project Manager	Steve Bednarz
Owner's address, phone, email	3129 Executive Drive, Temple, TX 76502 | 254-773-2250 | sbednarz@tsswcb.texas.gov				
Services commenced by this firm (mm/yy)	09/19	Total consultant contract cost ($1,000's)		$5,298	
Services completed by this firm (mm/yy)	04/21	Cost of consultant services provided by this firm ($1,000's)		$4,270	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: The TSSWCB, in collaboration with NRCS, contracted with FNI for the rehabilitation design of six flood retarding structures in Wise, Kaufman, Gillespie and Rockwall counties in Texas. The design is based on NRCS and TCEQ dam safety criteria. FNI's scope of work was for the performance of detailed time and cost estimate, bid schedule, plans, construction specifications, design report, analysis of impacts to downstream floodplain, storm water pollution prevention plan and quality assurance plan for the design of six dams. FNI's work also included an environmental evaluation to address potential environmental impacts, such as threatened and endangered species, water quality, floodplain management, invasive species, cultural resources and Clean Water Act permitting requirements.

The project was performed by six separate design teams led by a single program manager with single oversight by a quality control review team. This project team organization allowed for simultaneous development of the submittal, which was then provided to NRCS in a sequential patterns to allow for timely reviews. Three of the dams were rehabilitated with the addition of structural spillways; two consisted of a stepped RCC spillway over the embankment, and one site consisted of a labyrinth weir to significantly increase discharge capacity during the design flood. The remaining three dams were rehabilitated with regrading of the existing earthen auxiliary spillway and raising of the earthen embankment. A new principal spillway with new intake riser was added to all six dams. Each project required coordination with TSSWCB, NRCS, TCEQ and the local sponsor organization.

Each dam site had their own technical and project specific challenges, but the scope and scale of the overall program presented time constraint, management and production challenges. Namely, the TSSWCB indicated that **an 18-month design timeline was required to meet the NRCS-prescribed funding deadlines.** With such a compressed timeline, FNI proactively formed a centralized project management and quality control team to lead the overall design program for all of the dams. The work production was then performed by six separate design teams. Standard internal technical processes and standardized templates for both reporting and CAD designs were established at the program level, so that efficiency and uniformity could be achieved. Another management approach was to stagger the submittal schedules for all of the sites to reduce the potential for production bottlenecks, both internally and for the client review steps. Each of the design teams were selected based on workload projections and individual technical expertise. This approach allowed for on-time submittals for all critical deadlines and an across-the-board 5-star review from TSSWCB.

TEAM MEMBERS INVOLVED: John Rutledge, Jim Keith, Brad Kirksey, Layne Bukhair, Tina McMartin, Marc Miller, Russ Springer, Dustin Mortensen

Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	**Lewis Creek Spillway Design**			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	APTIM Environmental & Infrastructure, Inc.		
Project location	Willis, TX		Owner's Project Manager	Roger Everson	
Owner's address, phone, email	10001 Woodloch Forest Drive, Suite 450, The Woodlands, TX | 833-862-7846 | reverso@entergy.com				
Services commenced by this firm (mm/yy)	02/17	Total consultant contract cost ($1,000's)		$1,252	
Services completed by this firm (mm/yy)	04/18	Cost of consultant services provided by this firm ($1,000's)		$1,213	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: The Lewis Creek Dam and reservoir are owned and operated by Entergy Corporation and is located in Willis, Texas. The reservoir provides cooling water for Entergy's energy station. In 2016, it was observed that a portion of the spillway showed evidence of distress which caused concern to the overall integrity of the spillway. **FNI performed site inspections, spillway seepage and stability analyses and provided recommendations for the spillway repairs that can safely pass the required design storm.** The design efforts were coordinated to avoid any disturbance to the recently completed embankment repairs, constructed by others.

The project included a hybrid cofferdam designed to dewater upstream of the spillway for construction. The hybrid cofferdam system was designed to retain the reservoir at its normal operating pool level. The cofferdam system consisted of two main cofferdam cells, each with a diameter of 64-feet and height of 50-feet. The main cofferdam cells were connected with an arc cell. The cofferdam cells were filled with granular fill material and connected to the upstream embankment via straight sheet pile sections. A gravel berm within the dewatered area was designed to provide additional stability to the cofferdam.

As a part of the spillway improvements, a piano key weir spillway was selected to replace the existing radial gates and center pier. **The piano key weir was one of the very first of its kind constructed in the United States.** The piano key eliminated the need for gate operations during storm events and allowed the structure to pass the design storm without intervention from personnel. The spillway design was evaluated with a computational fluid dynamic (CFD) model. The CFD model was used to determine the configuration of the piano key weir to minimize the footprint while passing the required flow. A new vehicular bridge was designed to replace the existing vehicular bridge. FNI also reviewed geotechnical information, topographic surveys and the ground penetrating radar data, which identified voids beneath the chute slabs. The design developed by FNI utilized the existing ogee as a foundation for the new piano key weir. A grouting program was developed to grout the existing ogee underdrain. A cutoff wall with slope anchors was designed to contain the grout under the ogee during grouting operation and provide additional stability to the ogee. Temporary and permanent sheet pile walls with soil anchors were designed to retain embankment soils during chute replacement. Spillway design improvements were developed in consideration of embankment improvement efforts by others.

The new piezometers, relief wells and vertical sand drains were designed to monitor and relieve uplift pressures acting on the spillway. The stilling basin floor was raised by concrete fill and riprap was added downstream of the stilling basin to increase stability.

FNI developed construction plans for the cofferdam and construction plans and specifications for the spillway improvement. FNI efforts were completed within a year due to the urgency of the project and to complete the spillway improvements following ongoing embankment repairs. The project is currently under construction. FNI is providing construction phase services.

TEAM MEMBERS INVOLVED: John Rutledge, Mathew Moses, Dustin Mortensen, Layne Bukhair, Tina McMartin, Russ Springer

Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	**Leon Hurse Dam**			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Upper Trinity Regional Water District		
Project location	Ladonia, TX		Owner's Project Manager	Adam McKnight	
Owner's address, phone, email	900 N. Kealy Avenue, Lewisville, TX 75067 | 972-219-1228 | amcknight@utrwd.com				
Services commenced by this firm (mm/yy)	04/18	Total consultant contract cost ($1,000's)		$10,202	
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)		$8,069	

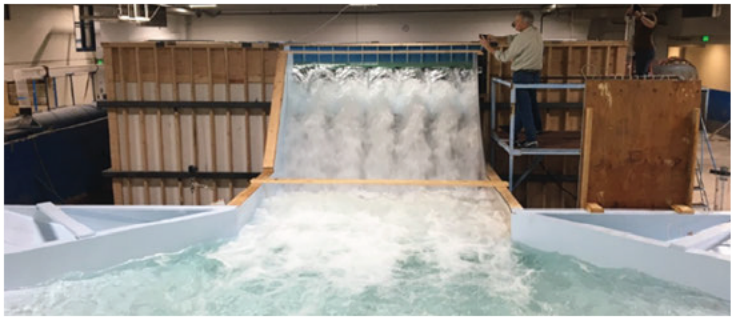
Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: FNI provided design services for this new high-hazard dam which consists of a 2.3-mile-long, 108-foot-tall zoned earthen embankment; a new 705-foot-long, 104-foot-tall, RCC and CIP concrete spillway with a 120-foot-wide labyrinth weir overflow section; a new 1,700-foot-wide excavated earthen emergency spillway; a new pump station intake and low-flow outlet structure with nine 7-foot-by-7-foot sluice gates; and approximately 6,500 feet of stream mitigation and restoration downstream. FNI's service spillway design consists of a mass-gravity RCC structure with an overflow and two adjacent non-overflow sections, while the overflow section consists of a labyrinth weir resting on top of a RCC gravity structure. Dam and levee safety engineer and design services included:

- Geotechnical engineering
- Hydraulic engineering
- Hydrology
- Geology
- Geomorphology
- Geophysics
- Seismology
- Mechanical engineering
- Electrical engineering
- Structural engineering
- Civil/site engineering
- Economics
- Consequence estimation
- Environmental
- GIS/CAD
- Cost and schedule risk analysis
- Construction engineering
- Surveying
- Consequence studies
- Feasibility studies
- Preliminary designs
- Value engineering
- Constructability reviews

TEAM MEMBERS INVOLVED: John Rutledge, Brad Kirksey, Layne Bukhair, George Kelley, Tina McMartin, Marc Miller, Dustin Mortensen, Mathew Moses, Janis Murphy, Adam Payne

"We had a great experience working with the design team on this important project. The project manager did a great job. We are currently in transition to construction and hope that it will be seamless."
- Adam McKnight



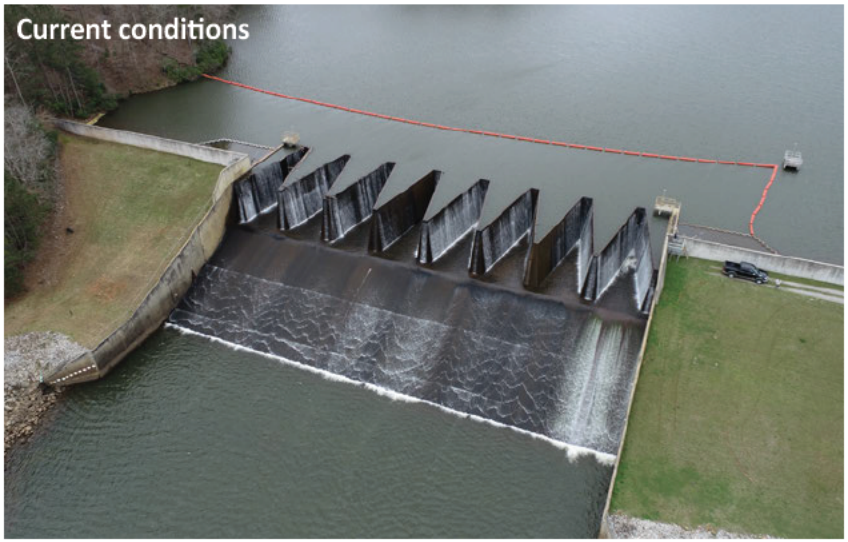
Prime Consultant Name: Freese and Nichols, Inc.

Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	**Dog River Dam Second Raise**			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Douglasville - Douglas County Water and Sewer Authority		
Project location	Douglasville, GA		Owner's Project Manager	Gilbert Shearouse	
Owner's address, phone, email	PO Box 1157, Douglasville, GA 30133 | 770-949-7617 | gshearouse@ddcwsa.com				
Services commenced by this firm (mm/yy)	10/20	Total consultant contract cost ($1,000's)		$10,618	
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)		$5,597	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: DDCWSA is planning for a second raise of the Dog River Dam and Spillway Structure to meet future water supply needs in Douglas County. The project includes the raising of the reservoir pool by 35 feet, which results in a total dam height of over 100 feet and requires an entirely new spillway structure, the rebuilding of the main dam and a saddle dam, and the construction of a new saddle dike embankment. Because of the complexity of the project, FNI proposed an alternatives analysis to verify the early design approach, findings and construction estimate. **FNI identified hydrological challenges with far-reaching project impacts and is refining a multi-spillway design to improve the hydraulic performance and limit construction cost overruns. FNI also adjusted the spillway location to reduce wetland impacts, resulting in the savings of over $7 million in mitigation credits.** FNI's services include design services for the dam, spillway and saddle dike, construction contract documents preparation, bid phase assistance, and construction oversight during construction.

TEAM MEMBERS INVOLVED: John Rutledge, Brad Kirksey, Marc Miller, George Kelley, Mathew Moses



Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	Atoka Dam Spillway and Chute Rehabilitation			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	City of Oklahoma City, OK		
Project location	Oklahoma City, OK		Owner's Project Manager	Larry Hare	
Owner's address, phone, email	420 W. Main Street, Suite 500, Suite 500, Oklahoma City, OK 73102 | 405-297-2391 | larry.hare@okc.gov				
Services commenced by this firm (mm/yy)	02/16	Total consultant contract cost ($1,000's)		$4,675	
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)		$4,186	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: FNI performed the analysis and design of necessary repairs to the dam and spillway at Atoka Dam, a large high-hazard dam owned by the City and located in Atoka County. Lake Atoka is a primary water supply source for the Oklahoma City Metropolitan Area. The spillway chute and stilling basin were severely damaged during flooding in May 2015, which was very near the 100-year storm. FNI's analysis demonstrated that the dam passed less than half of the minimum design flood as required by the Oklahoma Water Resources Board (OWRB).

The initial phase of the project consisted of a condition assessment of the spillway, as well as an update of the design storm hydrology and hydraulics. FNI then performed an alternatives analysis of possible modifications to address the immediate repairs needed to the chute and stilling basin, as well as the ability of the dam to pass the required design flood.

Due to steep topography, expanding the side channel spillway presented numerous construction challenges and hydraulic difficulties. **Alternative spillway configurations were reviewed using both HEC-RAS 2-D flow module and a 3-D CFD model. Various combinations of labyrinth and ogee weirs were analyzed. The optimum configuration, an L-shaped ogee weir, was verified in the final design with a physical model study performed by Utah Water Resources Laboratory.**

2021 ACEC Oklahoma Gold Award Medal Winner

The final design included raising the dam 7.5 feet using a combination of two retaining walls with earth fill between due to the tight space constraints. A new saddle dike was added to contain the higher design flood lake level.

Environmental Services: FNI scientists carried out biological site assessments to identify any endangered or threatened species and their habitats, as well as identifying and delineating Waters of the US.

Construction Services: FNI also provided full-time construction inspection services, as well as general representation of the client throughout the construction period.

TEAM MEMBERS INVOLVED: John Rutledge, Brad Kirksey, Russ Springer, Dustin Mortensen, Layne Bukhair, George Kelley

Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	**Bois d'Arc Lake Dam, Spillway and Intake Structure**			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	North Texas Municipal Water District		
Project location	Fannin County, TX		Owner's Project Manager	Cesar Baptista	
Owner's address, phone, email	P.O. Box 2408, Wylie, TX 75098 | 972-442-5405 | cbaptista@ntmwd.com				
Services commenced by this firm (mm/yy)	11/13	Total consultant contract cost ($1,000's)		$7,508	
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)		$6,438	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: FNI designed the Bois d'Arc dam and reservoir that now holds the 16,600-acre Bois d'Arc Lake in Fannin County, Texas. The $173 million dam, spillway and intake structure is the focal point of the NTMWD new $1.6 billion Bois d'Arc Lake Water Supply Program, creating a lake capable of storing 367,600 acre-feet of water. The reservoir dam is comprised of a 11,200-foot-long earthen embankment more than 90-feet-tall with 5.2 million cubic yards of earth fill. The zoned embankment features a soil-bentonite slurry trench cutoff to a shale foundation, soil cement erosion protection on the upstream face and an intricate internal drainage system to control potential seepage and enhance embankment stability.

FNI provided planning, permitting, preliminary and final design for the dam, spillway and intake, as well as overall program management and construction management services for the project's significant components. Bois d'Arc Lake is expected to generate an estimated $300 million–plus in taxable real estate values and over $160 million in economic impact through recreational activities.

Service Labyrinth Spillway: FNI designed the dam's labyrinth spillway to increase discharge capacity over a standard ogee weir. The 800-foot-long service spillway features a 60-foot-wide, three-cycle labyrinth weir control section and roller-compacted concrete abutments. This solution offers a more efficient release system and saved more than $4 million in construction costs over the originally planned ogee weir.

Risk Analyses: As part of the design process, FNI worked with a Peer Review Board of industry experts, a team consisting of the Owner, Engineer, Peer Review Board and TCEQ – Dam Safety. **At each phase of the design process (30-, 60- and 90% milestones), the team thoroughly reviewed the design's various elements to identify and mitigate dam safety risks, as well as construction costs, economic damage, etc.** FNI communicated risks, allowing NTMWD to make informed decisions during each step of the design process. **FNI also coordinated with the District to help select a CMAR.** The Construction Management at-Risk (CMAR) contributed to the design reviews and provided cost savings concepts starting at the 60% milestone.

TEAM MEMBERS INVOLVED: John Rutledge, Brad Kirksey, Russ Springer, Marc Miller, Layne Bukhair, Dustin Mortensen, Janis Murphy, Tina McMartin, Mathew Moses, Adam Payne

Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	Buchanan Dam Small Gates Final Design			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Lower Colorado River Authority		
Project location	Buchanan Dam, TX		Owner's Project Manager	Doug Witkowski	
Owner's address, phone, email	PO Box 220, Austin, TX 78767 | 512-473-3200 | doug.witkowski@lcra.org				
Services commenced by this firm (mm/yy)	05/12	Total consultant contract cost ($1,000's)		$216	
Services completed by this firm (mm/yy)	09/16	Cost of consultant services provided by this firm ($1,000's)		$159	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: In 2006, the Lower Colorado River Authority (LCRA) began an effort to improve, optimize, and rehabilitate three spillways of the Buchanan Dam in response to events of extreme rain. The various projects covered different aspects of the dam infrastructure, with the LCRA in the role of fabricator, constructor, and installer of the improvements, and FNI will serve as engineer-of-record.

Buchanan Dam was built in the late 1930s by LCRA to provide water and hydropower. With 35- and 70-foot multiple-arch sections, the dam was the largest multiple-arch dam in the world at the time of construction. The structure features several gravity non-overflow sections, 37 tainter gates across three spillways, a gravity overflow section and an earthen embankment.

FNI provided engineering oversight and technical support while LCRA fabricated the various components of a new dewatering system and performed structural repairs of the gates. A total of 37 tainter gates were refurbished by strengthening steel members, replacing seals, and painting members.

FNI performed hydraulic modeling of spillways, conducted structural modeling of gates and hoist bridges and evaluated gate operations to determine the requirements for the final design. FNI led a multifirm team to analyze the hydraulic performance and structural integrity of the three spillways tainter gates. **FNI findings helped design improvements to the spillways and provided LCRA better control of lake levels and flood releases.** H&H modeling was instrumental in identifying dam safety needs, designing spillway improvement and assessing impacts of flood discharges. Using 2-D and 3-D computer modeling and physical hydraulic modeling, **FNI was able to design a dewatering system for spillway improvements without sacrificing hydraulic performance.** Flow-3D was used to develop spillway rating curves and assess the influence of modifications into hydraulic performance, which was validated with physical hydraulic models. HEC-HMS and HEC-RAS 1-D were instrumental in assessing gate operations during flood events including the Probable Maximum Flood (PMF). Results from these models were used to determine the adequate level of spillway automation to pass the probable maximum flood safely. These models also helped establish hydraulic loads for the design of gate improvements which included the addition of spillway dewatering systems.

TEAM MEMBERS INVOLVED: John Rutledge, Tina McMartin, Layne Bukhair, Mathew Moses

Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	Cedar Creek Dam			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Tarrant Regional Water District		
Project location	Fort Worth, TX			Owner's Project Manager	Louie Verreault, PE
Owner's address, phone, email	808 East Northside Drive, Fort Worth, TX 76028 | 817-335-2491 | louie.verreault@trwd.com				
Services commenced by this firm (mm/yy)	01/10	Total consultant contract cost ($1,000's)		$2,604	
Services completed by this firm (mm/yy)	01/19	Cost of consultant services provided by this firm ($1,000's)		$1,656	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: Joe B. Hogsett Dam at Cedar Creek Reservoir was designed by FNI in the early 1960s, and was constructed by Tarrant Regional Water District (TRWD) in 1964 and 1965. The reservoir included a 7,000-LF earthen embankment dam, a 10,300-LF levee embankment, a low-flow outlet works and channel, and a principal spillway outfall with 10 motor-operated radial tainter gates. The project also included a system of 37 relief wells to collect seepage that passed under the embankment cut-off.

The reservoir infrastructure developed several issues related to age, including reduced efficiency of the seepage collection system. TRWD desired to study the source of these issues and related maintenance items to explore actions to improve the performance of the asset and to improve maintenance efforts and accessibility.

FNI developed a detailed engineering study scope that included the analysis of the principal spillway and the earthen embankment. The multiphase study included a geophysical survey, a sonar survey of the spillway basin, a comprehensive geotechnical investigation, a structural assessment and hydraulic analysis. The study phase also included the installation of a test relief well with drawdown testing to establish the seepage characteristics of the embankment foundation material.

The TRWD elected to implement these recommendations and split the work into three phases. Phase 1 was constructed in 2013, Phase 2 in 2014 and Phase 3 in 2015.

TEAM MEMBERS INVOLVED: John Rutledge, Brad Kirksey, Marc Miller

Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	**Dam 7 Modernization**			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Upper Brushy Creek WCID		
Project location	Cedar Park, TX		Owner's Project Manager	Alysha Girard	
Owner's address, phone, email	4000 Sunrise Road, #1200, Round Rock, TX 78665 | 512-284-7685 | alysha.girard@upperbrushycreekwcid.org				
Services commenced by this firm (mm/yy)	06/13	Total consultant contract cost ($1,000's)		$2,735	
Services completed by this firm (mm/yy)	12/17	Cost of consultant services provided by this firm ($1,000's)		$2,400	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: Upper Brushy Creek Dam 7 is one of the many flood control dams maintained by Upper Brushy Creek Water Control and Improvement District (WCID) in Williamson County, Texas. Dam 7 is one of the District's largest and most visible dams due to its proximity to Brushy Creek Park and the Brushy Creek Regional Trail. The trail crosses the dam and spillway and the spillway was designed to incorporate the trail with aesthetic enhancements.

The intermediate-size, high-hazard dam was hydraulically inadequate as it did not pass the required flood flows per state dam safety requirements. In 2013, **FNI evaluated alternatives for upgrading Dam 7 to meet state requirements by increasing the spillway capacity.** A labyrinth weir spillway was selected to replace the existing auxiliary spillway due to its minimal footprint and impacts to the adjacent properties. The spillway design was evaluated with a CFD model and a physical model to verify the design and evaluate construction cost savings, including reducing excavation and the spillway footprint.

FNI coordinated public outreach meetings at two key milestones and prepared display boards providing an overview of the project's design. FNI also assisted the District, Williamson County Parks Department and the City of Cedar Park Parks Department with preparation of press releases.

FNI performed geotechnical investigations, topographic surveys, materials testing, and environmental permitting, including City of Austin site development permitting and USACE permitting. The project included replacement of the rock riprap slope protection on the upstream slope of the dam and replacement of the regional trail to accommodate the new spillway and provide a wider and more accessible trail. FNI produced construction plans and specifications for the rehabilitation of the dam.

FNI provided construction phase services, including full-time resident representation and document management control. Construction was completed in 2018; change orders were limited to 1.1 percent of the total construction cost. The project provides increase flood protection to the downstream residents, as well as a scenic recreational amenity to the community.

TEAM MEMBERS INVOLVED: John Rutledge, Tina McMartin, Tom Dixon, Marc Miller, Mathew Moses, Dustin Mortenson, Layne Bukhair, Adam Payne

Freese and Nichols, Inc.				Past Performance Evaluation Discipline (s)*	Other
Project name	Fort Hood Dam Safety Program			Firm responsibility (prime or sub?)	Joint Venture
Project number	W9126G-11-D-0005 W9126G-17-D-0011 W9126G-17-D-0017	Owner's name	U.S. Army Corps of Engineers - Fort Worth District		
Project location	Fort Hood, TX			Owner's Project Manager	Curtis Eickenloff
Owner's address, phone, email	4612 Engineer Drive, Fort Hood, TX 76544 | 254-287-7129 | curtis.c.eickenloff.civ@mail.mil				
Services commenced by this firm (mm/yy)	09/13	Total consultant contract cost ($1,000's)		$2,082	
Services completed by this firm (mm/yy)	09/20	Cost of consultant services provided by this firm ($1,000's)		$1,795	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: FNI was hired by USACE-Fort Worth District and the Fort Hood Directorate of Public Works to **assist with development of a phased dam safety program.** Fort Hood owns 51 dams on the installation.

Fort Hood Dam Evaluations – Phase I (W9126G-11-D-0005, TO 0013) and Phase II (TO 0018) – In August 2013, FNI implemented Phase I of a comprehensive dam safety evaluation of all 51 dams on Fort Hood. In addition to physical inspections, services included data research of the dams' original design and construction, hazard classification, identification of deficiencies relative to USACE and TCEQ dam safety criteria, topographic surveys of each dam and simplified breach analyses utilizing state breach calculation methodologies and modeling the breach inundation area using USACE's HEC-RAS hydraulic model. In April 2014, FNI completed Phase II of the evaluation program, which included a hydrologic capacity evaluation of each dam using USACE's HEC-HMS model to evaluate the 5, 10, 25, 50, 100-year, PMF storm events, bathymetric surveys of 25 impoundments, and detailed geotechnical investigations at 12 dams using the criteria set forth in USACE regulations. EAPs were prepared for seven dams classified as high or significant hazard dams, which FNI managed external stakeholder meetings and public involvement.

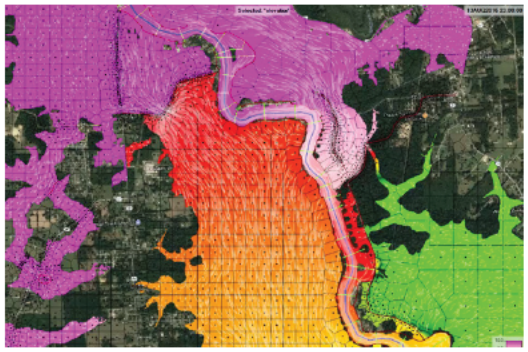
Design-Build RFPs and Dredging Evaluation for Four Dams (W9126G-11-D-0005, TO 0023) - FNI developed design-build (DB) RFPs for three dams and conducted a study to evaluate options for dredging at a fourth dam/reservoir. The RFPs addressed the needs of erosion repairs, dam embankment modifications, armoring, vegetation removal, and spillway modifications necessary to meet H&H criteria requirements.

Dams 1, 46-51 Evaluations (W9126G-17-D-0011, TO F0165) - FNI developed an alternatives study and a benefit-cost analysis of seven high hazard dams. Previous studies determined the dams to be hydraulically inadequate and costs were estimated at $26 million to rehabilitate all seven dams. This study estimated the expected annual benefits provided by the dams, as individual dams and operating as a system, and benefits-to-costs ratios (BCRs) were calculated for individual and combined-system scenarios. Conceptual designs were developed for rehabilitating the dams, decommissioning alternatives were developed for the "without project" condition to serve as a comparison baseline, and non-structural alternatives for reducing hazard classifications from "high hazard' to "low hazard". Hydraulic modeling was developed for the 2- through 500-year events. The project also developed a suite of interim risk reduction measures to increase downstream public safety for each of the dams.

TEAM MEMBERS INVOLVED: John Rutledge, Brad Kirksey, Dustin Mortensen, Janis Murphy, Russ Springer

Dewberry				Past Performance Evaluation Discipline (s)*	Other
Project name	Amite River Basin Numerical Model (ARBNM)			Firm responsibility (prime or sub?)	Prime
Project number	PO# 2000261901 Retainer Contract# 4400008293 LN: 1	Owner's name	Louisiana Department of Transportation & Development		
Project location	LA Statewide			Owner's Project Manager	Edward Knight, PE
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70804-9245 | 225-279-3007 | edward.knight@la.gov				
Services commenced by this firm (mm/yy)	05/17	Total consultant contract cost ($1,000's)		$2,136	
Services completed by this firm (mm/yy)	05/19	Cost of consultant services provided by this firm ($1,000's)		$1,675	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)



FIRM'S ROLE: Development of HUC8 watershed scale numerical model to assess hydrology, hydraulics and consequences using **HEC-DSS, HEC-DSSVUE, HECSSP, HEC-MetVUE, HEC-HMS, HEC-RAS (1-D/2-D), HEC-FIA, HEC-WAT and ArcGIS**. Services included:

- Stakeholder communication and engagement including briefings and exhibits for LA DOTD, state legislators and the local community of practice pertaining to the model capabilities and results of demonstration projects.
- HEC-HMS hydrologic model development and detailed calibration.
- Hydro-meteorological modeling for historic and design storms implementing the watershed hydrology procedures of HMR 52 as fractional PMP within MetVUE, integrated with HEC-HMS, allowing concentric storms to be moved around the watershed to determine storm center sensitivity and support the strategic selection of storms.
- 1-D and 2-D HEC-RAS hydraulic model development and calibration using tiered approaches.
- Development of economic and life safety consequence model using HEC-FIA and HEC-LifeSim. This included development of an asset inventory by developing LiDAR derived building footprints conflated with census, NSI and local tax information.
- Assessment of concept projects, including the Darlington Reservoir, levee modifications and the use of temporary dams. The Darlington Reservoir simulations included an approximately three-mile-long, 90-feet-tall dam embankment holding back nearly one-million-acre-feet of floodwaters. HEC-FIA was successfully used to demonstrate $2.2 billion of potential economic benefits and 20,500 structures protected from flooding had the Darlington Reservoir been in place during the August 2016 flood.

Using the **ARBNM, Dewberry worked with Livingston Parish to simulate the concept of pre-event draw down** for offline gravel pits to determine whether they provided substantial flood control benefits if dedicated as flood control facilities. This included the development of inlet and outlet control structure concepts to allow gravity driven pre-event drawn down and diversion of peak flood volumes to optimize flood attenuation benefits. The study demonstrated another successful implementation of the ARBNM.

TEAM MEMBERS INVOLVED: Sam Crampton, Seth bradley, Jerri Daniels, Sam Fleming

Dewberry				Past Performance Evaluation Discipline (s)*	Other
Project name	Murphey Candler Dam Safety Services			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	City of Brookhaven		
Project location	Brookhaven, GA			Owner's Project Manager	Brian Borden
Owner's address, phone, email	4362 Peachtree Road NE, Brookhaven, GA 30319 | 404-637-0562 | brian.borden@brookhavenga.gov				
Services commenced by this firm (mm/yy)	04/17	Total consultant contract cost ($1,000's)		$1,280	
Services completed by this firm (mm/yy)	03/18	Cost of consultant services provided by this firm ($1,000's)		$1,280	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: Dewberry has been providing turn-key dam safety services for Murphey Candler Dam within the City of Brookhaven since 2017. Murphey Candler Dam is a Category I High Hazard Potential Dam constructed in 1953 and has approximately 1,530 acre-feet of storage volume.

Dewberry's services for this project include:

- Research into historical records, issues, repairs and plans pertaining to the dam from state dam safety program archives
- Permitting of the high hazard dam with the GA Safe Dams Program
- HEC-HMS watershed hydrologic modeling (performed under contract with DeKalb County) to determine inflows to and through the reservoir and downstream floodplain
- HEC-RAS dam breach modeling and inundation mapping
- Development of an EAP using the NRCS EAP template
- Development of an O&M Manual
- Quarterly and biannual dam inspections
- Post flood assessments to identify potential damage and debris build up
- Coordination and review of underwater inspections performed by County dive team
- Coordination and review of CCTV footage for principal spillway pipes that identified joint separation and seepage and general deterioration
- Development of plans and specifications for maintenance and minor repair of the earthen embankment and concrete spillway
    - o Construction inspection of repaired items
- Development of detailed plans and specifications for the rehabilitation of the principal spillway using cured in place pipe methods

TEAM MEMBERS INVOLVED: Sam Crampton, Sam Fleming, Jeff Cowan

Dewberry				Past Performance Evaluation Discipline (s)*	Other
Project name	Seven Oaks Lake Dam			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	City of Johns Creek		
Project location	Johns Creek, GA			Owner's Project Manager	Chris Haggard, PE
Owner's address, phone, email	11360 Lakefield Drive, Johns Creek, GA 30097 | 678-512-3253 | chris.haggard@johnscreekga.gov				
Services commenced by this firm (mm/yy)	11/18	Total consultant contract cost ($1,000's)		$4,140	
Services completed by this firm (mm/yy)	12/19	Cost of consultant services provided by this firm ($1,000's)		$4,140	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: Dewberry developed construction plans and permitting documents for the 32-feet-tall Seven Oaks Lake Dam in the City of Johns Creek in order to bring the dam into compliance as a Category I High Hazard Potential dam with the Georgia SDP. Seven Oaks Lake Dam was reclassified from Category II to Category I in 2018 as a result of hazard creep, and Dewberry initially completed a Visual Inspection Report (VIR), which included an watershed hydrologic and hydraulic study to evaluate the existing spillway capacity, and identified any deficiencies and rehabilitation or repair needs.

Dewberry developed a proposed design consisting of upgrading the principal spillway pipe system to a 48-inch pressure rated HDPE pipe, replacing the outlet control riser structure and headwall, disconnecting the street drainage system from the spillway and re-routing, installing a filter drain system, instrumentation, and a low-drain siphon system, extensive tree removal and regrading of the upstream and downstream slopes. Construction drawings, technical specifications, and cost estimates were provided to the City for the proposed design. Dewberry also assisted with public outreach, and completed an O&M Manual, EAP, and Technical Memorandum for the dam design. Dewberry also provides ongoing services to include quarterly and biannual engineer inspections, owner coordination, and will provide construction management services during the construction phase of the project.

Dewberry is providing public outreach assistance for the City which included presentation briefings to the owner and property owners adjacent to the dam, coordination for easement acquisition and assistance in developing a Memorandum of Agreement between the City and dam owner. Outreach messaging has focused on regulatory drivers, project overview, project status, estimated schedule and cost and long-term operation and maintenance.

TEAM MEMBERS INVOLVED: Sam Crampton, Sam Fleming, Jeff Cowan

Dewberry				Past Performance Evaluation Discipline (s)*	Other
Project name	Sweetwater Creek Flood Risk Reduction Feasibility Study			Firm responsibility (prime or sub?)	Prime
Project number	W912HZ-16-R-0016, Call 0002	Owner's name	USACE Mobile District		
Project location	Sweetwater Creek Watershed near Atlanta, GA			Owner's Project Manager	Ryan "Bailey" Crane
Owner's address, phone, email	109 St. Joseph Street, Mobile, AL 36602 | 251.694.4018 | ryan.b.crane@usace.army.mil				
Services commenced by this firm (mm/yy)	07/17	Total consultant contract cost ($1,000's)		$330	
Services completed by this firm (mm/yy)	12/17	Cost of consultant services provided by this firm ($1,000's)		$299	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: Dewberry worked as an integral part of the USACE Mobile District Project Development Team (PDT) to develop a calibrated watershed scale H&H model using HEC-DSS/HEC-DSSVUE for management of data, HEC-SSP for analysis of historical streamflow data, HEC-HMS for 75 stream miles of hydrologic modeling, HEC-MetVUE for hydro-meteorological data manipulation and HEC-RAS for 51 stream miles of hydraulic modeling.

Key to the development and calibration of the models was the application of hydro-meteorological techniques to recreate and process radar rainfall of historic floods using HEC-MetVUE. **High water marks, previously collected by Dewberry, were used to calibrate the H&H models in conjunction with observed USGS stream flow data.**

Dewberry developed and assessed concept projects including new and retrofitted dams and flow diversions. The assessment of dams included project siting, development of conceptual spillway and embankment designs and hydrologic benefits analysis including pre-event drawdown and modification to existing primary and auxiliary spillways.

Dewberry worked with the district economists to collect asset inventory data and create HEC-FDA input files. In coordination with economists, HEC-FDA and HEC-RAS were used iteratively to refine individual measures by optimizing hydraulic performance versus construction cost and project benefits. **Various annual exceedance probability simulations were performed for With- and Without-Project Conditions and floodplains were delineated and mapped to demonstrate project impacts.**

Dewberry participated in weekly meetings with USACE staff, prepared materials for meetings and participated in stakeholder and public meetings to encourage collaboration with locals and state agencies. This included the development of artistic renderings to communicate the proposed project benefits and concepts, such as dams to the local community.

TEAM MEMBERS INVOLVED: Sam Crampton, Sam Fleming, Seth Bradley

Lazenby				Past Performance Evaluation Discipline (s)*	Survey
Project name	**Topographic Survey I-12 (LA 21-US 190) & I-12 (US 190-LA 59)**			Firm responsibility (prime or sub?)	Sub
Project number	Contract No. 4400005020	Owner's name	LADOTD		
Project location	St. Tammany Parish I-12 (LA 21-LA 59)		Owner's Project Manager	Nicholas Olivier, PE	
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, Louisiana 70802-4438 | 225-379-1133 | nicholas.olivier@la.gov				
Services commenced by this firm (mm/yy)	02/15	Total consultant contract cost ($1,000's)		$1,189	
Services completed by this firm (mm/yy)	02/16	Cost of consultant services provided by this firm ($1,000's)		$513	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: This project consisted of conducting a topographic survey and location of subsurface utilities along a 8.89-mile section of Interstate Highway I-12 in St. Tammany Parish. This section of interstate highway though Covington, Louisiana, is heavily traveled and the LDOTD plans to widen the roadway section from a four-lane divided roadway to a six-lane divided roadway. The section of I-12 surveyed in this project extended from west of LA 21 to east of LA 59 for a distance of 8.89 miles. Lazenby & Associates, Inc. served as a subconsultant to SJB Group, L.L.C. and performed approximately 48% of the total survey project which included a hydrographic survey across the Tchefunete River at the I-12 bridge crossing.

The topographic survey was performed within a heavily traffic section of I-12 by equipping the survey crew with three Trimble robots so that crew members could advance down both sides of the ROW and the grass median simultaneously. Safety of the survey crew members and the traveling public was of the utmost importance.

All survey crew members used on this project had received LDOTD Work Zone Training certifications for Flagger, Traffic Control Technician and Traffic Control Supervisor after completing ATSSA approved Traffic Control courses.

TEAM MEMBERS INVOLVED: Paul Fryer, Ronald Riggin

Lazenby				Past Performance Evaluation Discipline (s)*	Survey
Project name	Retainer Contract for Professional Surveying Services			Firm responsibility (prime or sub?)	Prime
Project number	Contract No. 4400009384	Owner's name	LADOTD		
Project location	Statewide			Owner's Project Manager	Stan Ard, PLS
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, Louisiana 70802-4438 | 225-379-1292 | stan.ard@la.gov				
Services commenced by this firm (mm/yy)	01/18	Total consultant contract cost ($1,000's)		$989	
Services completed by this firm (mm/yy)	06/19	Cost of consultant services provided by this firm ($1,000's)		$974	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: This project consisted of performing topographic surveys for state projects located primarily in northern Louisiana. A total of six Task Orders totaling $989,478.00 were issued under this retainer contract for the performance of professional surveying services using survey total stations, survey robots, GPS equipment, and terrestrial scanning equipment.

Task Order No. 1 consisted of performing a topographic survey of a section of Johnson Street (US 167) in Lafayette. Due to the heavy volume of traffic, our firm used survey total stations, survey robots, GPS equipment and a terrestrial scanner to obtain the necessary survey data.

Task Order No. 2 consisted of obtaining topographic survey of the Kansas Lane – Garrett Road Connector and I-20 in the vicinity of Pecanland Mall in Monroe, Louisiana. The firm used survey total station, survey robots, GPS equipment and terrestrial scanning equipment to obtain topographic survey data.

Task Order No. 3 and No. 5 consisted of a topographic survey of the proposed I-220/I-20 Interchange IMP and Barksdale Air Force Base Access in Bossier Parish. The existing I-220 overpass ramp structures were surveyed using the firm's SX-10 terrestrial scanner.

TEAM MEMBERS INVOLVED: Paul Fryer, Ronald Riggin

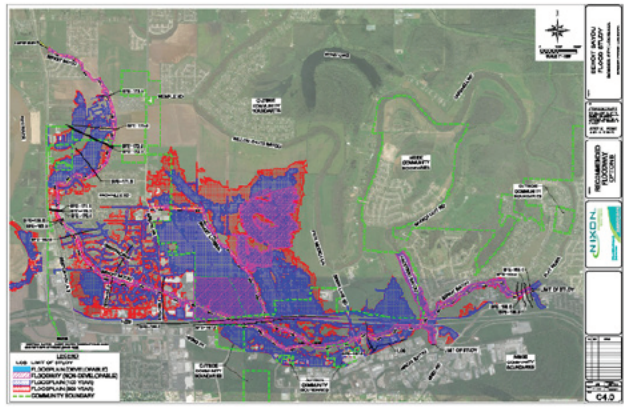
Nixon				Past Performance Evaluation Discipline (s)*	Survey
Project name	Benoit Bayou and Benoit Bayou Lateral Drainage Study			Firm responsibility (prime or sub?)	Prime
Project number	0017.17.01	Owner's name	City of Bossier City		
Project location	Bossier City, LA			Owner's Project Manager	Mark Hudson, PE
Owner's address, phone, email	620 Benton Road, Bossier City, LA 71111 | 318-741-8568 | hudsonm@bossiercity.org				
Services commenced by this firm (mm/yy)	06/17	Total consultant contract cost ($1,000's)		$117	
Services completed by this firm (mm/yy)	11/17	Cost of consultant services provided by this firm ($1,000's)		$85	

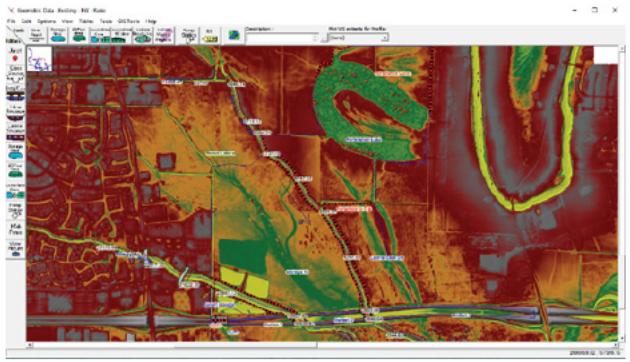
Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: The City of Bossier City wanted to open up an area within an existing FEMA Floodplain for development with the building of Innovation Drive Extension. This existing undeveloped land is in a natural low area located immediately upstream of I-220. Box culverts under the interstate restrict flow from Benoit Bayou and Benoit Bayou Lateral during large rainfall events and cause water to back up and store on the undeveloped property. Uncontrolled development in this area will remove this storage and cause significant additional flooding of the existing homes and businesses along the Airline Corridor area.

The existing FEMA model was outdated and did not accurately represent the current conditions of the basin. Therefore, NES began by collecting a **significant amount of survey data including eight square miles of new aerial LiDAR data, 71 stream cross-sections, eight bridges, and 12 culvert crossings.** All of this data was collected for the entire length of Benoit Bayou (44,053 feet) and Benoit Bayou Lateral (11,498 feet). This data was used to build an updated hydrologic model in HEC-HMS. The resulting hydrographs were used in an unsteady HEC-RAS model that incorporated 1-D and 2-D elements including cross-sections, lateral and inline structures, bridge and culvert crossings and multiple storage areas. NES also installed and monitors a gage on Benoit Bayou to calibrate and update the existing hydraulic model.

TEAM MEMBERS INVOLVED: Kurt Nixon, Jared Boogaerts





Nixon				Past Performance Evaluation Discipline (s)*	Survey
Project name	Kinsey Scout Pond Dam			Firm responsibility (prime or sub?)	Prime
Project number	0004.18.02	Owner's name	NORWELA Council, Boy Scouts of America		
Project location	Keatchie, LA			Owner's Project Manager	Jeffery Brasher
Owner's address, phone, email	3508 Beverly Place, Shreveport, LA 71104 | 318-868-2774 | Jeffery.Brasher@scouting.com				
Services commenced by this firm (mm/yy)	10/19	Total consultant contract cost ($1,000's)		$65	
Services completed by this firm (mm/yy)	12/20	Cost of consultant services provided by this firm ($1,000's)		$44	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: The Northwest Louisiana Council, Boy Scouts of America hired Nixon Engineering Solutions to design and develop construction plans and manage the construction for a 28.8-foot-tall zoned earthen dam in North Louisiana. This dam resulted in a 16.9-acre pond (at pool stage) for the Boy Scouts to use as a recreation area for their activities. Part of this process included working with LADOTD to determine the dam hazard classification via hydrologic and hydraulic studies and breach analyses. Biddable construction plans,including estimated quantities, cross-sections, plan and profile sheets, siphon and spillway details and specifications were generated by our office. The project management portion included construction inspection, soils testing and survey measurements.

TEAM MEMBERS INVOLVED: Kurt Nixon, Jared Boogaerts

Ardaman				Past Performance Evaluation Discipline (s)*	Geotech
Project name	Mid-Breton Sediment Diversion			Firm responsibility (prime or sub?)	Sub
Project number	N/A	Owner's name	Coastal Protection & Restoration Authority (CPRA)		
Project location	Plaquemines Parish, LA		Owner's Project Manager	Brad Barth, PE	
Owner's address, phone, email	150 Terrace Avenue, Baton Rouge, LA 70802; 225.342.4553; bradley.barth@la.gov				
Services commenced by this firm (mm/yy)	08/18	Total consultant contract cost ($1,000's)		$2,800	
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)		$20	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: The Mid-Breton Sediment Diversion will reconnect the Mississippi River to the deteriorating deltaic wetlands in the Breton Sound Basin. The project will be located in Plaquemines Parish, Louisiana, on the east side of the Mississippi River and is intended to divert sediment rich water from the Mississippi River to create new land in the Breton Sound Basin. This project will include a gated diversion structure in line with a realigned segment of the Mississippi River Levee, diversion channel and conveyance levees, inlet and outfall channels, and state highway bridge. **Ardaman is performing the geotechnical investigation for the project, including field investigations (soil boings and CPTS) and engineering analyses (global stability, settlement, seepage, and pile capacity).** Ardaman is supporting the permit process and geotechnical consultant to Stantec for this project.

Ardaman has completed several Geotechnical Investigation Phases, inclusive of soil borings and/or CPTs in the Mississippi River, batture, the protected side of the Mississippi River Levee, and within the marsh area beyond the Hurricane Protection back levee.

Ardaman has conducted preliminary geotechnical engineering analyses during the 5% and 15% Design Phase inclusive of stability, seepage, and settlement analyses. The project in currently in the 30% Design Phase.

TEAM MEMBERS INVOLVED: Mark Woodward

Ardaman				Past Performance Evaluation Discipline (s)*	Geotech
Project name	**Cheniere Spillway and Bridge Replacement**			Firm responsibility (prime or sub?)	Sub
Project number	H.008226.6	Owner's name	LADOTD		
Project location	Ouachita Parish, LA			Owner's Project Manager	Sarah Moss, PE
Owner's address, phone, email	1201 Capitol Access Rd, Baton Rouge, LA 70802; 225-379-1100; sarah.moss@la.gov				
Services commenced by this firm (mm/yy)	12/14	Total consultant contract cost ($1,000's)		$245	
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)		$237	

Describe the project including the firm's role and members involved. (Highlight members to be used in this proposal.)

FIRM'S ROLE: The original Cheniere Spillway and Bridge was constructed in 1944 for the purpose of fish preservation and recreation. The water shed has an area of approximately 98,500 acres. The existing spillway is about 60-feet-wide and is made up of six gates, each of which is 10-feet-wide; four are six-feet-tall and two are 9-feet-tall. The existing gate is tied in on either side to the existing bridge abutments, which are protected by concrete covers. These abutments contain cracks and fissures, some of which have been observed to allow the migration of water from the upstream to the downstream side, thereby bypassing the spillway. Additionally, the top of the spillway currently serves to support Highway 3033, which crosses along the top.

The proposed spillway and bridge replacement project would demolish the existing spillway and bridge and replace them with a larger and more robust spillway just north of the existing location. The proposed spillway is 120-feet-wide, it houses two 7.5-feet-wide roller gates, two 29-feet-wide fixed weirs, and two 17.5-feet-wide downward opening weir gates. The channel bottom would be at about EL. +54-inches, with the top of dam at about EL. +77-inches. It is further understood that a series of cut-off sheet pile walls will extend about 14-feet below the bottom of the base slab.

Ardaman performed the following services: Conducted a seepage analysis for the cutoff wall of the proposed spillway and for the proposed temporary cofferdams to be used during construction operations, developed pile capacity curves for the bridge abutments and spillway supports, conducted stability analysis for the new roadway embankment, estimated consolidation and related settlement due to the proposed embankment in the area of the existing spillway, provided geotechnical recommendations for the design of the training/wing walls, made geotechnical recommendations for the temporary cofferdams and made recommendations for construction procedures deemed appropriate for the project. Ardaman is currently providing construction phase services for this project.

TEAM MEMBERS INVOLVED: Mark Woodward

18. Approach and Methodology:

1 Stage 1: Planning / Environmental | 2 Stage 2: Scope and Budget Development | 3 Stage 3: Design | 4 Stage 4: Construction Proposal Services | 5 Stage 5: Construction Support

Stage 1: Planning / Environmental

Stage 1 of the proposed project will lay the groundwork for all other activities on the job. This detailed evaluation of the existing conditions at the project sites will determine what alternatives are necessary and feasible. After reviewing all available documentation and performing a site visit for each site, our team will focus in on understanding the H&H conditions at each site and the existing deficiencies or issues on each embankment, conduit, spillway, etc.

Our team has extensive experience in a vast array of H&H modeling software from which we can select based on project specific needs and client requests. Both FNI and Dewberry have comprehensive knowledge in the use of the full suite of HEC packages and the ArcGIS tools that underlie their use. We expect to use HEC-SSP, HEC-HMS, HEC-RAS (both 1-D and 2-D), along with MetVUE for rainfall distribution analysis for all the dams under review. It is feasible that HEC-FIA, HEC-FDA, or HEC-LifeSim may be beneficial in limited cases in the analysis. On this project, the H&H analysis will include evaluating frequency events and PMF storms. The criteria for these evaluations are well established in the LWI Guidance on Modeling Methodology and Regional Probable Maximum Precipitation Study documents. Existing models and hydrologic parameters being developed for the LWI initiative will be used to the extent practical to more efficiently analyze the basins under consideration. Our team has significant experience developing models in accordance with LWI criteria. For example, during the development of the Amite River Numerical Model, Dewberry implemented the procedures of HMR52 within the HEC-MetVUE environment which allowed concentric design storms to be developed and moved around the watershed to optimize hydrologic response. These procedures can be easily applied to this project leveraging the findings of the Regional Probable Maximum Precipitation Study For Oklahoma, Arkansas, Louisiana, and Mississippi Final Report, dated August 2019, to develop inflow design floods for the reservoirs.

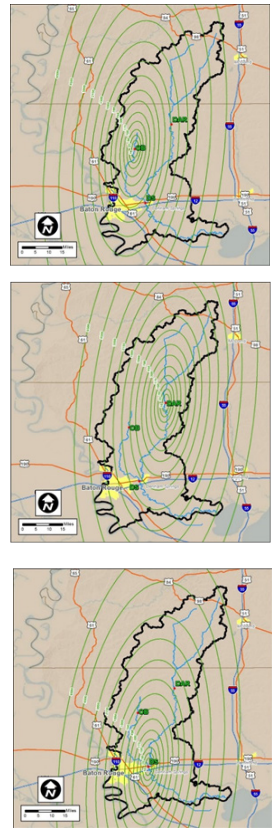


Figure 1: Various concentric storms over the HUC8 watershed as developed for the ARBNM for LA DOTD

The other early assessment of existing conditions has to do with identifying potential failure modes (PFMs) and performing a semi-quantitative risk analysis (SQRA). Objectives of the risk-based analysis include obtaining information to develop an action plan for assessing the consequences of failure, protection of human life, plans for reduction of property damage and recommendations to mitigate potential environmental damage. The risk analysis results form the basis for ranking and prioritizing the recommended repairs , rehabilitation, and/or modifications of the dam and/or other appurtenances. The team, led by our risk analysis leader George Kelly, has specific expertise in FERC and USACE risk analyses, Potential Failure Mode Analyses (PFMA), risk management, risk facilitation and vulnerability studies for dams, will utilize the LWI Risk Analysis Guidance for the project.

Our team is very experienced with conducting environmental impact assessments and preparation of all levels of NEPA documentation. We are reasonably confident that all the projects will fall within the USACE's 404 permitting constraints for Nationwide permit 3, Maintenance of previously permitted structures and have based our approach on this assumption. If more extensive environmental assessments and effort is required because of the complexity or magnitude of potential impacts, our team can assist with that level of analysis and documentation as well.

With a clear understanding of the existing conditions and risks associated with each project, the team will then proceed to develop detailed alternatives for reducing flood risk and reducing the risk of catastrophic dam failure. When formulating alternatives, it will be necessary to continuously balance a range of different factors. Allowing each dam to pass the PMF event first, we would consider alternatives that either increase the flood detention within the surcharge pool or increase the discharge capacity of the spillway structure(s). However, with the added goal of mitigating more frequent flood risk, it may be necessary to avoid increasing 100-year base flood elevations upstream and downstream of the dams.

Our team has familiarity with the sites in this Group and understand the broad issues as follows:

- **Black Bayou Structure Hardening and Runoff Retention Improvements:** Our understanding is that the primary intent is to reduce flood risk by stabilizing the dam and spillway and not significantly adding to either spillway discharge capacity or reservoir storage, unless the hydrologic analysis results suggest otherwise. The existing service spillway appears to be in poor condition with little in the way of energy dissipation and erosion protection and the proximity of Hosston Vivian Road (Highway 2) to the dam alters the risk profile of the structure. A labyrinth spillway should be considered as it will decrease the footprint of the needed spillway and possibly reduce the area of potential impact on Highway 2. Historically, extensive debris on the spillway has been observed and will be considered during the design phase. It may also make staging the construction of a new spillway more cost effective as it could leave most of the existing spillway operational during construction. Any spillway replacement will include appropriate gate discharge capacity to allow for better lake level control for reservoir vegetation management purposes. Furthermore, the dam embankment should be evaluated for seepage and stability. The upstream slope appears to have sustained some wave erosion.
- **Caney Lake Flood Surcharge Management:** The hydraulic adequacy of this dam is unknown, but the reservoir management structure appears to be very small with limited discharge capacity. The reservoir looks to have a significant amount of flood surcharge pool, but even minor rises in the water surface elevation are likely to impact numerous residential properties around the reservoir. The dam embankment appears to be relatively well maintained. The primary intention is to add additional gates for reservoir vegetation control as well as the possibility of producing lake drawdowns in advance of forecasted events. The relatively small drainage area is unlikely to provide sufficient warning during actual events to effect any real benefit, so it would have to be based solely on forecasts, which adds risk to the operations from potential missed forecasts. Depending on the ability of the dam to pass the appropriate design flood, adding an additional spillway such as a labyrinth spillway may prove to be a more cost effective means of addressing the flood risk concerns in the surcharge pool. The potential impact on highway 34 downstream will have to be considered as its capacity at Caney Creek is limited.
- **Bayou Cocodrie Runoff Retention and Critical Infrastructure Improvements:** This structure is more of an in-line drop structure in the bayou with little or no development upstream. The primary intent is to replace the existing structure with a multiple gated pipe structure with larger capacity and better control for both reservoir vegetation management and low flow release operations. Basic hydrologic analysis is planned as long it does not demonstrate the need for significant improvements beyond those listed.
- **Iatt Lake Drawdown Improvements:** Similar to Bayou Cocodrie, our understanding of the primary intent is to simply upgrade the existing hydraulic facilities, including the replacement of an existing sluice gate and the addition of a new weir gate to allow for increased drawdown prior to a forecasted event as well as to better facilitate planned drawdowns for reservoir vegetation control. Similar to Caney Creek Dam, the limited drainage area will force the drawdown to be based on forecasts rather than actual rainfall amounts, adding risks to the operations. If the hydrologic analysis shows additional spillway capacity is needed, then several options can be considered.

- **Turkey Creek Retention Improvements and Critical Infrastructure Hardening:** Similar to Black Bayou dam, our understanding is that the primary intent is to reduce flood risk by stabilizing the dam and replacing the existing spillway and not significantly adding to either discharge capacity or storage, unless the hydrologic analysis results suggest otherwise. A labyrinth spillway should be considered as it will decrease the footprint of the needed spillway and possibly make staging construction of a new spillway more cost effective. Any spillway replacement will include appropriate gated discharge to allow for better lake level control for lake vegetation management purposes. Additionally, the embankment is in poor conditions with significant erosion present on the upstream slope. The field inspection and geotechnical investigation will determine what improvements are needed for the embankment. This dam's unique hydraulic characteristics related to downstream backwater issues from the Ouachita River and its tributaries will need to be taken into account in the review.

Stage 2: Scope and Budget Development for Design, Construction and Permitting

The most critical decision in this project is to identify the preferred alternative and plan for the later phases of the project. Proper scope, budget and schedule development, along with project management planning, is the foundation for any good project. FNI project manager Brad Kirksey has overseen the design of over $220 million in dam construction upgrades, rehabilitations and new dam projects. Our team leadership is unparalleled in the region for their technical expertise in dam safety design and construction oversight, therefore, they know not only how to put together a detailed plan that will work for LADOTD, but also how to document and communicate risks and seek opportunities for added value all the while sticking to a well thought out schedule. It has been our experience that construction costs will drive the overall project cost, but often times engineering and/or permitting could drive the project delivery schedule. Therefore, those issues will be given special attention, respectively, when developing a comprehensive plan of action.

Another important consideration at this phase of the project is whether to use some form of alternate project delivery for completing the design, permitting and construction. It has been our experience that CMAR contracts, when structured properly, can be used in this sort of application to either save time on projects or reduce costs on projects. It can also save considerable costs if a single CMAR is used for multiple projects because they can negotiate better prices and better coordinate material and labor among the various projects if they involve similar construction elements. On the Bois d'Arc Lake Dam project, FNI worked side by side with a CMAR from the 60% design level onward to great success in building the first new large dam in Texas to be constructed in over 30 years. We propose to provide an analysis of the possible alternatives to assist LADOTD in structuring the construction contracts in an appropriate manner that fits within LADOTD requirements. This should be done once the construction alternatives are known for each dam.

Stage 3: Design

The preferred alternative for each site may vary significantly from one project to the next based on the results of the Planning Stage. Regardless of the selected alternative, we are confident that we have assembled the right team to deliver all projects in an efficient and cost effective manner. Our proposed Project Manager, Brad Kirksey, along with many other members of the team recently completed a similar project for the TSSWCB in which upgrades were designed concurrently for six high hazard dams around the state of Texas. These upgrades ranged from principal spillway replacements and embankment raises to overtopping protection with roller compacted concrete to a new labyrinth structural spillway. **All project elements (including conceptual and final design, surveying, geotechnical investigation, environmental permitting, etc.) was accomplished concurrently by FNI's team within approximately 18 months.**

The two keys to success during the design phase of any project are to 1) establish and execute a thorough work plan and 2) mitigate risks as early as possible. On projects such as these, the design criteria and necessary engineering will be well established once the preferred

alternative is selected. Therefore, the design process is predictable at the time of scope development and should progress incrementally from the project conception through constructable plans and specifications. The exception to this process occurs when unanticipated risks present themselves. Often, these risks present themselves as additional engineering costs or construction quantity uncertainty due to previously unidentified site conditions. In order to mitigate these risks, our team has identified a pool of exceptional local subconsultants to perform surveying services (Lazenby and Nixon) as well as geotechnical drilling and laboratory testing (Ardaman), as needed.

Stage 4: Construction Proposal Services

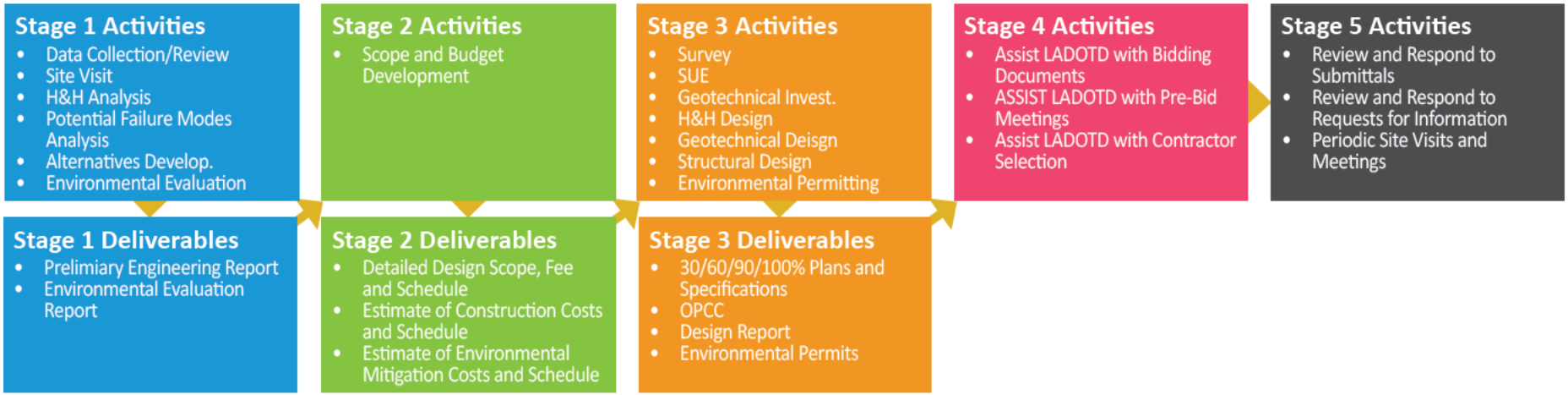
Our team brings extensive expertise preparing construction cost estimates for all phases of a project life cycle, from initial programming and budget estimates, to conceptual/schematic design, through final design quantity takeoffs and post-contract award support services such as change order estimates and claims analysis, and for all project delivery strategies including Design-Bid-Build, Design-Build, CMAR, Early Contractor Involvement, etc. This expertise will be utilized throughout the planning and design stages but is never more important than immediately prior to construction. Having a realistic opinion of probable construction costs (OPCC-AACE Class 1 or 2 typically) is critical to planning for the final stage of project implementation. Regardless of the project delivery mechanism selected, our team can assist LADOTD in whatever capacity is needed for Construction Proposal Services.

Stage 5: Construction Support

Our team appreciates the opportunity to stay involved after design through the construction phase. It has been our opinion that the design engineer's involvement during construction is invaluable to both the Owner and the Contractor to better facilitate the implementation of the original design intentions and to evaluate changes in conditions or proposed modifications in order to reduce risks during construction. While inspection services are not included in the Scope of Work, FNI will represent the Owner's interests during construction while periodically observing and monitoring the construction activities.

Typical Schedule/Work Breakdown Structure

Without specific durations, a detailed schedule is difficult to prepare, but the work breakdown structure shown below indicates the relevant task order activities that will be required on each project, the order of work, and the anticipated deliverables.



19. Workload:

Firm(s)	Past Performance Evaluation Discipline(s)*	State Project Number	Project Name	Remaining Unpaid Balance**
FNI	Other	2000537810	LWI Region 2 Modeling - Task Order 1	$0
FNI	Other	2000603331	LWI Region 2 Modeling - Task Order 2	$4,737,215
Dewberry	Survey	2000412071	LA DOTD GIS Services	$1,292,948
Dewberry	Other	2000592978	LWI Task Order 2	$5,048,217
Dewberry	Other	2000614538	LWI Task Order 3	$2,173,258
Lazenby	Survey	4400012667	Retainer Contract for Professional Surveying Services	$589,914
		H.012033.5	TO #14 LA 143 and LA 594: Cross Bayou and Caney Creek Bridges	$21,397
		H.010616.5	TO #16 I-20: LA 544 Overpass Replacement	$11,913
Lazenby	Survey	440012668	IDIQ Contract for Hydrographic Surveying Services (Districts 04, 05, 08, 58)	$248,820
		H.008768.5	TO #13 Hydrographic Survey Monitoring of Existing Bridges	$27,411
Lazenby	Survey	4400015236	IDIQ Contract for Topographic Surveys-Statewide (Districts 04, 05, 08, 58)	$894,361
Lazenby	Survey	H.012541.5	TO #12 – LA 594: Overpass – I-20	$176,163
Lazenby	Survey	H.014646.5	TO #13 – I-20: US 165 – East of Garrett Road	$37,317
Lazenby	Survey	4400017710	IDIQ Contract for Topographic Surveys	No TO to date
Lazenby	Survey	4400019714	IDIQ Contract for Hydrographic Surveys (Districts 04, 05, 08, 58)	No TO to date
Lazenby	Road	440010428 H.004774.5	Kansas Lane- Garrett Road Connector & I-20 Improvement (Master Contract 5.A.#1, #2, #3)	$87,980
Nixon	Survey	4400017068	LWI Statewide Modeling - Task Order 1	$0.00
Nixon	Survey	4400017068	LWI Statewide Modeling - Task Order 2	$495,334

Firm(s)	Past Performance Evaluation Discipline(s)*	State Project Number	Project Name	Remaining Unpaid Balance**
Ardaman	Geotech	H.009266	I-10(LA 73 to LA 30) Route I-10 Ascension Parish (Original)	$21,050
			Supplement #1	$130,583
Ardaman	Geotech	H.011309.5	MacArthur Interchange Completion Phase II Route US 90-Z Jefferson Parish	$73,327
Ardaman	Geotech	H.012565, H.012891, H.014251, 252, 254, 256,257	Rural Bridge Replacement – Phase II, Districts 02, 03, 07, 61, 62	$314,618
Ardaman	Geotech	H.003370	I-220/I-20 Interchange Improvement and Barksdale Air Force Access Road	$4,179
Ardaman	Geotech	H.004273	I-49 Connector, Lafayette	$691,127
Ardaman	Geotech	H.010603.6	Mississippi River Bridge at Vicksburg, MS	$155,816
Ardaman	Geotech	H.004791	LA 23: Belle Chasse Bridge and Tunnel (HBI)	$289,796
Ardaman	Geotech	H.013942, 948, 985, 987, 988, 979	Rural Bridge Replacements - Phase I, Districts 04, 05, 08, 58; #259, 456	$162,923
Ardaman	Geotech	H.013897	I-10 / I-12 College Drive Flyover	$362,179
Ardaman	Geotech	H.003931.5	I-10 Calcasieu River Bridge	$552,882

* The past performance evaluation disciplines to be used are: Road, Bridge, Traffic, CE&I/OV, Geotech, Survey, Environmental, Data Collection, Planning, Right-of-Way, CPM, ITS, Appraiser and Other. If a firm has more than one past performance evaluation discipline for any single project, the firm can use multiple rows to express the remaining unpaid balance per evaluation discipline.

** Round to the nearest dollar. Do not round to the nearest thousands. If there are no active contracts with a remaining unpaid balance, place N/A in the Remaining Unpaid Balance column. LEAVING THE “REMAINING UNPAID BALANCE” COLUMN BLANK IS NOT ACCEPTABLE.

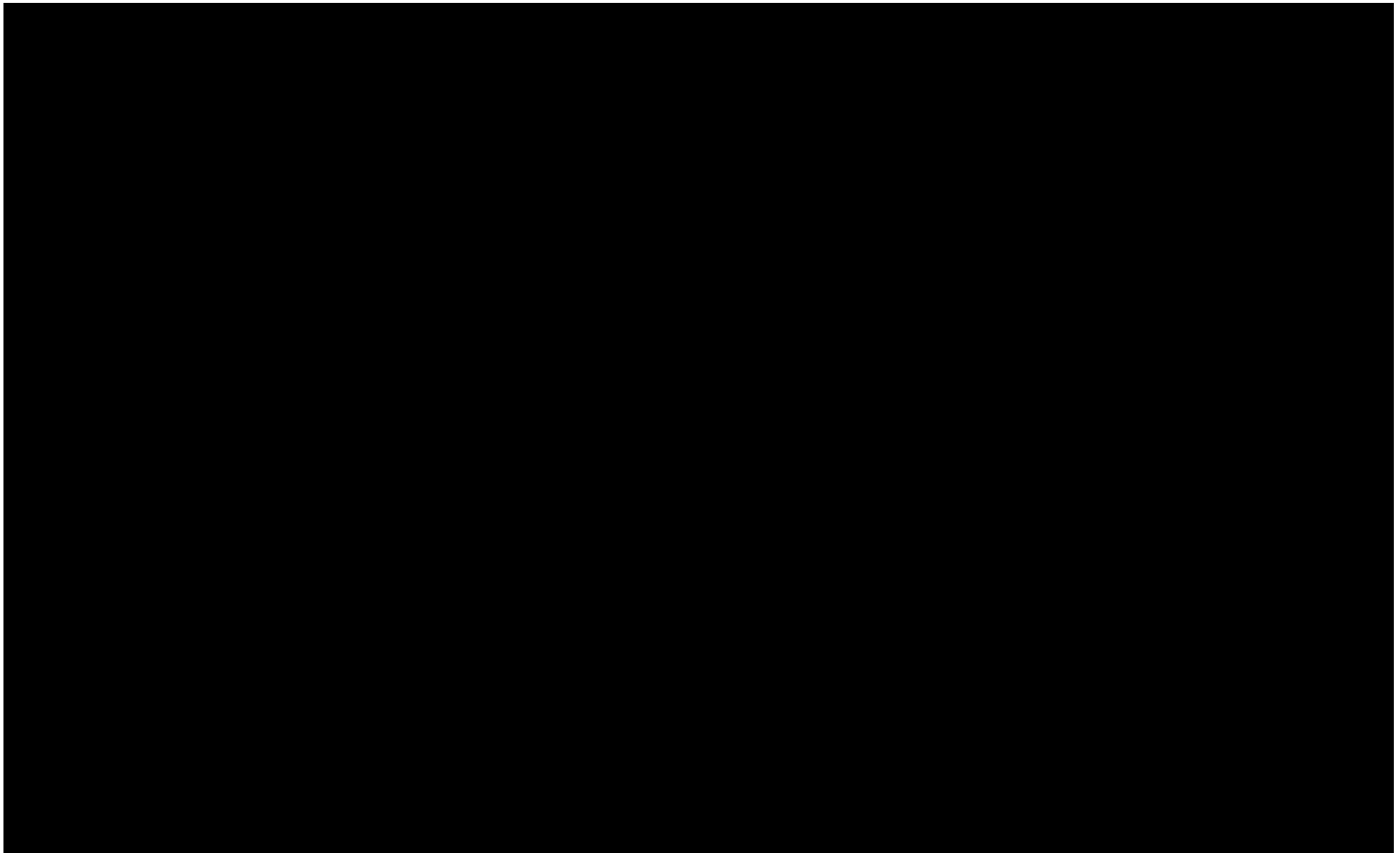
20. Certifications/Licenses:

If the advertisement requires submission of licenses and/or certificates, include them here. Otherwise, leave this section blank.

The first paragraph under Proposal Requirements on page 9 of the Advertisement states that licenses and certificates are not required to be submitted.

21. QA/QC Plan and/or Work Plan:

If the advertisement requires submission of a QA/QC plan or Work plan, include them here. Otherwise, leave this section blank.

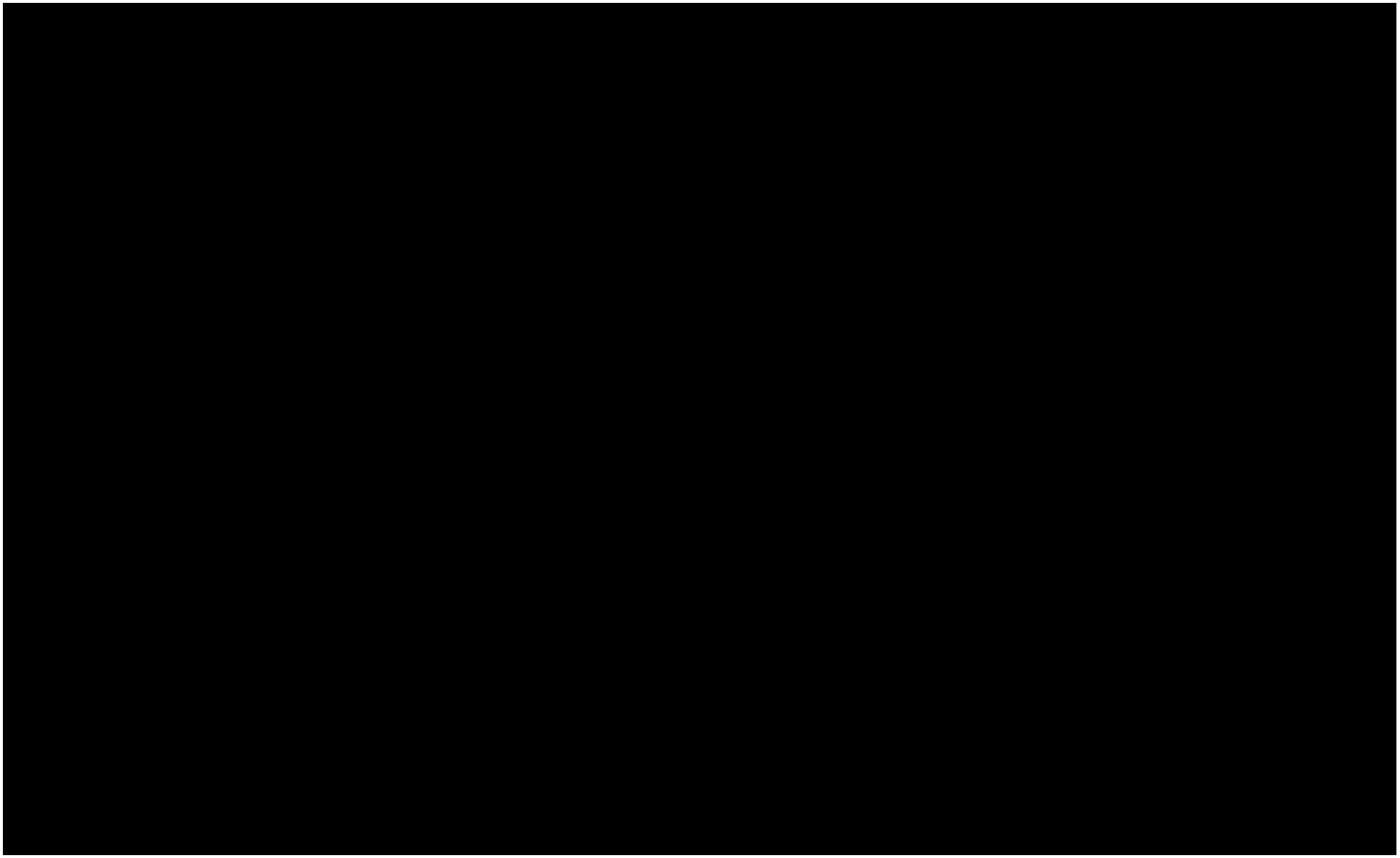


22. Sub-consultant information:

Firm Name	Address	Point of Contact and Email Address	Phone Number
Dewberry Engineers Inc.	9026 Jefferson Highway Suite 205 Birmingham, AL 35244	Sam Crampton scrampton@dewberry.com	404-308-1286
Lazenby & Associates, Inc.	2000 N. 7th Street, West Monroe, LA 71291	Jerry G. Lazenby jlazenby@lazenbyengr.com	318-387-2710
Nixon Engineering, LLC	1628 Benton Road Bossier City, LA 71111	Kurt Nixon knixon@nixoneng.com	318-747-9669
Ardaman & Associates, Inc.	101 Teal Street Rose, LA 70087	Rob Rousset, PE rrousset@ardaman.com	225-803-4560

23. Location:

If location is an evaluation criterion for this advertisement and the prime consultant intends to establish a local presence, describe the plan for doing so. Otherwise, leave this section blank.



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GUIDE TO ACRONYMS

ACEC American Council of Civil Engineering Companies
ADCP Acoustic Doppler Current Profiler
APWA American Public Works Association
ARBNM Amite River Basin Numerical Model
ASCE America Society of Civil Engineers
ASDSO Association of State Dam Safety Officials
AST Asphalt Surface Treatment
BCR Benefit-to-Costs Ratio
CCM Certified Construction Manager
CDT Construction Document Technologist
CE Categorical Exclusions
CFD Computational Fluid Dynamics
CFM Certified Floodplain Manager
CIP Cast-in-Place
CMAR Construction Management at-Risk
CPRA Coastal Protection and Restoration Authority
CPT Cone Penetration Test
DCR Dam Conservation and Recreation
DDCWSA Douglasville-Douglas County Water and Sewer Authority
DDR Design Documentation Report
DNR Department of Natural Resources
DRPS Difficult Run Pump Station
EA Environmental Assessment
EAP Emergency Action Plan
EIA Environmental Impact Assessments
EIS Environmental Impact Statements
EOR Engineer-of-Record
FEMA Federal Emergency Management Agency
FERC Federal Energy REgulatory Commission
GDM Geotechnical Design Manual
HSDRR Hurricane and Storm Damage Risk Reduction
HSDRRS Hurricane and Storm Damage Risk Reduction System
H&H Hydrologic and Hydraulics
LCRA Lower Colorado River Authority
LID Low Impact Development
LRFD Load and Resistance Factor Design
MG Million Gallons
MGD Million Gallon a Day
MIP Mapping Information Platform
NEPA National Environmental Protection Agency
NRCS Natural Resources Conservation Service
NTMWD North Texas Municipal Water District
O&M Operations and Maintenance
OPCC Opinion of Probable Construction Costs
OWRB Oklahoma Water Resources Board
PDT Project Development Team
PE Professional Engineer
PFMA Potential Failure Mode Analyses
PLS Professional Land Surveyor
PMF Probably Maximum Flood
QA/QC Quality Assurance/Quality Control
RCC Roller Compacted Concrete
ROW Right-of-Way
SARA San Antonio River Authority
SCADA Supervisory Control and Data Acquisition
SDP Safe Dams Program
SLO Sponsoring Local Organization
SME Subject Matter Expert
SQRA Semi-Quantitative Risk Analysis
SSA Storm and Sanitary Analysis
SUE Subsurface Utility Engineering
SWP Supplemental Watershed Plan
TA Technical Advisor
TCEQ Texas Commission on Environmental Quality
TRWD Tarrant Regional Water District
TSSWCB Texas State Soil and Water Conservation Board
TVA Tennessee Valley Authority
UBBR United State Bureau of Reclamation
USACE United States Army Corps of Engineers
USDA United States Department of Agriculture
USFWS United States Fish and Wildlife Services
USSD United States Society on Dams
UWRL Utah Water Research Laboratory
VIR Visual Inspection Report
WCID Water Control and Improvement District
WSLP West Shore Lake Pontchartrain
WTP Water Treatment Plant