Stantec

IDIQ CONTRACT

# DAM SAFETY AND PUBLIC WORKS

CONTRACT NO. 4400027092

**PREPARED FOR:** LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

**PREPARED BY:** STANTEC CONSULTING SERVICES INC.

JUNE 22, 2023

# DOTD FORM: 24-102

(Revised January 1, 2023)

**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 IN-ACCURATE INFORMATION ON THE DOTD FORM 24-102, MAY BE CONSIDERED NON-RESPONSIVE.

| | | |
|---|---|---|
| 1. | Contract title as shown in the advertisement. | **IDIQ CONTRACT FOR DAM SAFETY AND PUBLIC WORKS STATEWIDE** |
| 2. | Contract number(s) as shown in the advertisement | No. 4400027092 |
| 3. | State Project Number(s), if shown in the advertisement | N/A |
| 4. | Prime consultant name (name must match as registered with the Louisiana Secretary of State where such registration is required by law) | Stantec Consulting Services 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) | EF.0003506 |
| 6. | Prime consultant mailing address | 1200 Brickyard Lane Suite 400, Baton Rouge, LA 70802 |
| 7. | Prime consultant physical address (existing or to be established, if location is used as an evaluation criteria) | 1200 Brickyard Lane Suite 400, Baton Rouge, LA 70802 |
| 8. | Name, title, phone number, and email address of prime consultant's contract point of contact | **Jon Keeling, PE**<br>**Principal, Project Manager**<br>**(859) 940-2854 \| jon.keeling@stantec.com** |
| 9. | Name title, phone number, and email address of the official with signing authority for this proposal | **Daniel Gilbert, PE**<br>**Vice President, Principal-in-Charge**<br>**(859) 230-6396 \| daniel.gilbert@stantec.com** |

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

| | | |
|---|---|---|
| 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. |  <br>Signature above shall be the same person listed in Section 9:<br><br>Date: June 22, 2023 |
| 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. | **Firms(s):** / **Firm(s)'%:**<br>**Civil Design & Construction, Inc.** — **10%**<br>**Marmillion/Gray Media, Inc.** — **5%** |

12. **Past Performance Evaluation Discipline Table:**

As indicated in the advertisement, insert the completed table here. The percentages for the prime and sub-consultants must total 100% for each past performance evaluation discipline, as well as the overall total percent of the contract.

The **only** 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 (please specify).

| Past Performance Evaluation Discipline(s) | % of Overall Contract | **Stantec Consulting Services Inc.** | **GeoEngineering Inc. (Geo)** | **Civil Design & Construction, Inc. (CD&C)** | **ECM Consultants, Inc. (ECM)** | **Marmillion/Gray Media, Inc. (Gray)** | Each Discipline must total 100% |
|---|---|---|---|---|---|---|---|
| Geotech* | 60% | 80% | 20% | 0% | 0% | 0% | 100% |
| Survey | 8% | 0% | 0% | 100% | 0% | 0% | 100% |
| Environmental** | 20% | 100% | 0% | 0% | 0% | 0% | 100% |
| CE&I/OV | 5% | 10% | 0% | 0% | 90% | 0% | 100% |
| Right-of-way | 1% | 0% | 0% | 100% | 0% | 0% | 100% |
| Other - Public Involvement | 5% | 0% | 0% | 0% | 0% | 100% | 100% |
| Other - Cost Estimating | 1% | 0% | 0% | 100% | 0% | 0% | 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% | 68.5% | 12.0% | 10.0% | 4.5% | 5.0% | |

*As the discipline table does not directly correlate with the assumed services, mechanical, structural, civil, geotechnical, and risk assessments are presented under the "Geotech" evaluation discipline.

**Hydraulics, hydrology, and environmental and permitting are presented under Environmental.

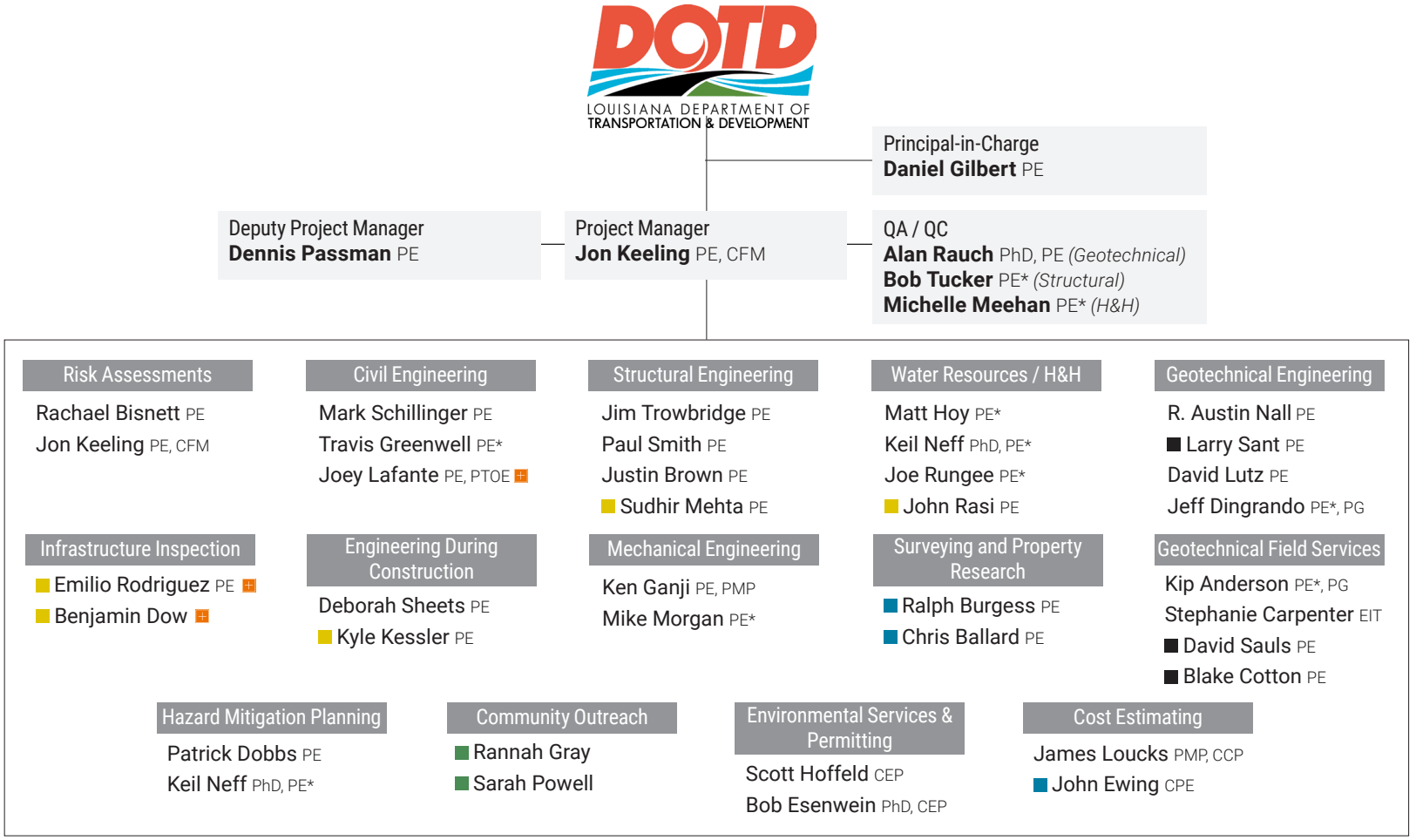
13. **Firm Size:**
For all firms that are part of this team, indicate the approximate number of personnel to be committed to this contract, by DOTD Job Classification and the total number of personnel within the firm that could provide support, if needed. If a specialized job classification is required and not included on the DOTD job classification list, specify “Other (please specify)” and include the classification title inside the parentheses.
The DOTD Job Classification(s) to be used can be found at the following link:
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/CCS/Job_Qualification/Job%20Classifications%20with%20Descriptions.pdf

| Firm Name | DOTD Job Classification | Number of personnel committed to this contract | Total number of personnel available in this DOTD Job Classification (if needed) |
|---|---|---|---|
| Stantec Consulting Services Inc. | Administrative | 1 | 2 |
| Stantec Consulting Services Inc. | CADD Technician | 2 | 4 |
| Stantec Consulting Services Inc. | Engineer | 13 | 16 |
| Stantec Consulting Services Inc. | Engineer-Other | 10 | 14 |
| Stantec Consulting Services Inc. | Engineer Intern | 1 | 10 |
| Stantec Consulting Services Inc. | Environmental Prof | 2 | 5 |
| Stantec Consulting Services Inc. | Principal | 1 | 3 |
| Stantec Consulting Services Inc. | Supervisor - Eng | 9 | 12 |
| ECM Consultants, Inc. | Principal | 0 | 2 |
| ECM Consultants, Inc. | Supervisor Engineer | 2 | 7 |
| ECM Consultants, Inc. | Engineer | 2 | 10 |
| ECM Consultants, Inc. | Inspector - Certified | 2 | 6 |
| GeoEngineers, Inc. | Administrative | 1 | 4 |
| GeoEngineers, Inc. | CADD Technician | 0 | 1 |
| GeoEngineers, Inc. | Driller | 3 | 3 |
| GeoEngineers, Inc. | Engineer | 2 | 9 |
| GeoEngineers, Inc. | Engineer Intern | 1 | 3 |
| GeoEngineers, Inc. | Environmental Pro | 0 | 3 |
| GeoEngineers, Inc. | Principal | 5 | 6 |

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) |
|---|---|---|---|
| GeoEngineers, Inc. | Senior Technician | 1 | 1 |
| GeoEngineers, Inc. | Technician | 1 | 11 |
| Civil Design & Construction, Inc. | Surveyor | 1 | 3 |
| Civil Design & Construction, Inc. | Party Chief | 2 | 5 |
| Civil Design & Construction, Inc. | Instrument Man | 2 | 2 |
| Civil Design & Construction, Inc. | Rodman | 2 | 3 |
| Civil Design & Construction, Inc. | CADD - Operator | 1 | 1 |
| Civil Design & Construction, Inc. | Senior Technician | 2 | 6 |
| Civil Design & Construction, Inc. | Supervisor - Other | 1 | 1 |
| Marmillion/Gray Media, Inc. | Principal | 1 | 2 |
| Marmillion/Gray Media, Inc. | Graphics | 1 | 2 |

14. **Organizational Chart:**
Provide an organizational chart showing ALL **relevant** prime consultant and sub-consultant (if applicable) personnel assigned to the contract, area of project responsibility for each, and reporting lines for the purposes of this contract. An individual's role does not necessarily have to match their DOTD job classification identified in Section 13. **If applicable, identify all personnel performing traffic engineering analysis and/or QC of traffic engineering analysis by placing an asterisk next to their name. Include the certificates required by the Traffic Engineering Process and Report Training Requirements article of the Advertisement in Section 20**. It is acceptable to use an 11x17 format for Section 14.




Legend

ECM Consultants, Inc. GeoEngineers, Inc. Civil Design & Construction, Inc. Marmillion/Gray Media, Inc. Meets Work Zone Training Requirements

* PE registered outside Louisiana

15. **Minimum Personnel Requirements:**
Use the table below to identify both prime consultant and sub-consultant staff designated to work on this contract meeting the Minimum Personnel Requirements (MPRs) specified in the advertisement. Ensure the résumé reflects the required experience stated in the MPR. Make sure the P.E. discipline is also listed (highlighted in table) that is meeting the MPR; e.g. professional civil engineer should show the discipline of the license as civil if meeting that MPR.

| 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 and discipline meeting MPR/ certification & number (Ex: PE # - Civil) | State of license | License / certification expiration date |
|---|---|---|---|---|---|
| 1. | Jon Keeling, PE | Stantec | PE # 46008 - Civil | LA | 3/31/2024 |
| 2. | Jon Keeling, PE | Stantec | PE # 46008 - Civil | LA | 3/31/2024 |
| 3. | Jon Keeling, PE | Stantec | PE # 46008 - Civil | LA | 3/31/2024 |
| 4. | Mark Schillinger, PE | Stantec | PE # 46078 - Civil | LA | 3/31/2024 |
| 5. | James E. Trowbridge, PE | Stantec | PE # 16825 - Civil | LA | 9/30/2024 |
| 6. | Rachael Bisnett, PE | Stantec | PE # 46034 - Civil | LA | 3/31/2024 |
| 7. | Ralph Burgess, PLS | C&C INCORPORATED | PLS # 5040 | LA | 9/30/2024 |
| 8. | Ken Ganji, PE | Stantec | PE # 42674 - Mechanical | LA | 9/30/2024 |

16. **Staff Experience:**
Résumés shall be provided for all prime and sub-consultant personnel listed in Sections 14 and/or 15 of the proposal. Résumés of personnel not identified in Section 14 or Section 15 of the proposal should not be included and will not be evaluated. Résumés should be limited to 2 pages per person. Any certificates required by the advertisement are to be placed in Section 20.

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |  |
| NAME | **Daniel Gilbert** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **16** | |
| TITLE | **Vice President, Regional Business Leader, US South** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **5** | |
| DEGREE(S) / YEARS / SPECIALIZATION | **BS / 2003 / Civil Engineering** | | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **PE.0046099 / LA / 03/31/2024** *(initial registration KY, 25728, 2007)* | | | |
| YEAR REGISTERED | **2021** | DISCIPLINE | **Civil** | |
| Contract role(s) / brief description of responsibilities | Principal-in-Charge. Responsible for final review, approval, and successful implementation of the contract. | | | |
| 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 years of experience in the applicable MPR(s). | | | |
| 03/16-Ongoing | **City of Newport News Waterworks On-Call Dam Inspection and Engineering On-call Services (2016-2021) \| Newport News, VA**<br>Advisor, Quality Manager, Subject Matter Expert and Independent Reviewer. Provided senior leadership and oversight for an on-call contract for dam safety inspections and engineering services for the client's dam portfolio of six regulated dams. Services included performing studies, evaluations, investigations (including geotechnical exploration and modeling), inspections, watershed modeling, modifications, and dam improvements on an as-needed basis. | | | |
| 09/12-12/21 | **TVA Dam Safety Assurance Program \| TN, NC, GA, AL**<br>Program Manager and Principal in Charge. Responsible for overseeing the contract compliance, program scoping, project delivery, quality assurance and program communications. Also served as technical lead and subject matter expert on numerous task orders. Projects included inspections, geotechnical and geological investigations, instrumentation programs, global stability assessments, seismic evaluations, overtopping analysis, internal erosion evaluations, spillway evaluations, risk assessments (PFMAs, SQRAs, QRAs), modification design, risk-informed design, engineering during construction and routine dam safety program support. Supported TVA in programmatic decisions related to dam safety program involving prioritization of mitigations, interim risk reduction measures, feasibility studies, conceptual alternative development and decision-making frameworks. Program support has also included updates of O&M manuals, STIs, Instrumentation Monitoring Plans and periodic reviews, EAPs and routine dam safety reviews. | | | |
| 07/21-12/21 | **System-wide Assessment Study for Kentucky River Locks and Dams \| Multiple Locations, KY**<br>Advisor, Quality Manager, Subject Matter Expert, Independent Reviewer, Project Manager. The Kentucky River Authority is charged with developing comprehensive plans for the management of the Kentucky River Basin which includes maintaining 14 lock and dam structures on the Kentucky River. Performed variety of roles with responsibilities for assessment, renovation design, and permitting and construction support. Served in Engineer of Record, Project Manager or Principal in Charge for the design and construction of 4 dam replacement projects (Dam Nos. 3, 8, 9 and 10), 4 lock renovations (Lock Nos. 1-4) and comprehensive assessment of the entire lock and dam system. Also have overseen several mitigations and repairs to the system involving upper and lower approach/guard walls, abutment repairs, sluice gates and lock maintenance. | | | |

16. **Staff Experience:**

| 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 years of experience in the applicable MPR(s). |
|---|---|
| 01/14-09/15 | **Tennessee Valley Authority Embankment and Floodwall PMF Design at Four TVA Dams \| Grainger, Loudoun, and Rhea Counties, TN**<br>Principal in Charge and Quality Manager. Led design of floodwalls and/or embankment to raise 4 main stem dams on the Tennessee River three to six feet at each of the main dams and saddle dams along the reservoir rim. Project also included evaluation and design modification for several concrete non-overflow gravity structures at each site. The earth and rockfill structures combine for a total length of 17,000 feet and exhibit heights that range up to 100 feet. Stability mitigations included both post-tensioned anchors to address global instability and grouted bar anchors to address concrete dam neck instability along concrete lift joints. The projects were performed under an aggressive schedule and required to support licensing requirements for the Watts Bar Nuclear plant. Project was performed in accordance with TVA and FERC requirements. |
| 09/16-Ongoing | **Programmatic Dam Safety Services for Mobile Area Water and Sewer System \| Mobile, AL**<br>Served as Civil Engineer for the investigation, inspection, assessment, design and implementation of mitigation measures for the chute spillway and embankment dam at Big Creek Lake Dam (80' tall, 5,000' long embankment dam with a gated chute spillway on the left abutment). Condition assessment consisted of review of project records, geotechnical investigation, stability analyses, breach modeling, flood routing, operations assessment and internal erosion evaluation. The assessment was used to perform a PFMA and risk-screening where Daniel served as the Civil SME. Based on the condition assessment and risk-screening, further studies were performed to address identified data gaps and further characterize existing conditions with the chute spillway underdrain system and elevated piezometric conditions in the dam foundation. Camera inspections were performed of the underdrain system, instrumentation was installed beneath the concrete chute spillway slabs at key locations and the underdrain system was reviewed in depth. PFMs were refined based on these findings. A monitoring plan was developed for the chute spillway, weirs were installed at seepage locations and additional instrumentation was installed to reduce risk. Design modifications included a replacement gate hoist system for the 7 tainter gates and a seepage berm along the embankment. Project is currently in construction. |
| 07/19-Ongoing | **Bachman Lake Dam and Spillway Improvements Project \| Dallas, TX**<br>Civil Engineer for the assessment and design modification of Bachman Dam. Project includes geotechnical investigation, spillway assessment, global stability analyses, breach modeling, flood routing, and sedimentation assessment. Based on this assessment a PMFA was performed to inform future modifications. Daniel supported development of the detailed PFMs, participated in the PFMA workshop, developed risk-prioritization and was a contributor to the PFMA report. The assessment and PFMA were used to inform design modification of the dam including spillway replacement, seepage mitigation, scour mitigation and abandonment of the lake drain. The spillway will be replaced with a new labyrinth weir, stilling basin and outlet channel. |
| 03/19-12/21 | **Chatuge (and Nottely) Dam Spillway Evaluation and Risk Assessment \| Clay County, NC**<br>Civil Engineer for the stability evaluation for Chatuge and Nottely Dam. This includes a records review, inspection, condition assessment, investigations and engineering evaluations to support a PFMA, QRA and design modifications. As a Civil SME, Daniel has provided expert elicitation and engineering input to the support the QRA and development of IRRM and development of long-term mitigation measures. Daniel supported the development of detailed PFMs, construction of event trees and was a contributing author to associated reporting. Performed conceptual alternative development, development and design of interim risk reduction measures. Project is ongoing with evaluation of long-term mitigation and risk assessment. |
| 10/14-09/16 | **Boone Dam Seepage Mitigation \| Washington and Sullivan Counties, TN**<br>Project Manager and Subject Matter Expert. In 2014, a sinkhole appeared at the toe of TVA's Boone Dam, an embankment structure built on karstic limestone, with turbid seepage in the tailrace. Stantec supported TVA's response including 24-hour surveillance and a comprehensive investigation of the active internal erosion failure mechanism with the completion of over 50 boreholes and the installation of over 65 piezometers across the site. Daniel oversaw engineering studies that included a hydrogeology assessment, groundwater seepage modeling, and slope stability analysis. Mitigation alternatives were developed, and an expert panel participated in a risk assessment to identify potential failure modes, quantify dam safety risks, and rank remediation alternatives. Several designs supported the modification of the dam in preparation for final mitigations, which included a dam lowering, site civil, and utility packages. Daniel served as Project Manager and was accountable for project delivery, emergency response, design, and risk reduction measures. Additionally, he managed engineering services which included field studies, planning, risk reduction, design, test grout study, and site characterization. An extensive test grouting program was also undertaken at the site. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Jon Keeling** PE, CFM | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **28** |
| TITLE | **Senior Principal and Project Manager** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **1** |

| | | | |
|---|---|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | | **BS, MS / 1992, 1994 / Civil Engineering, Civil Engineering** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE.0046008 / LA / 03/31/2024** *(initial registration KY, 20185, 1998)* | |
| YEAR REGISTERED | **2021** | DISCIPLINE | **Civil** |

MEETS MINIMUM LADOTD PERSONNEL REQ.

| | |
|---|---|
| Contract role(s) / brief description of responsibilities | Project Manager. Will serve as primary point of contact and manage the schedule, budget, scope, and subcontractors. Meets MPRs 1, 2, and 3. |
| 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 years of experience in the applicable MPR(s). |
| 03/16-Ongoing | **City of Newport News Waterworks On-Call Dam Inspection and Engineering On-call Services (2016-2021) \| Newport News, VA**<br>Project Manager, Technical Lead. Leads projects and technical tasks for an on-call contract for dam safety inspections and engineering services for the client's dam portfolio of six regulated dams. Services included performing studies, evaluations, investigations (including geotechnical exploration and modeling), inspections, watershed modeling, modifications, and dam improvements on an as-needed basis. |
| 11/17-02-22 | **FEMA National Dam Safety Program – Technical Assistance (TA) Program Support \| Nationwide**<br>Dam Safety Subject Matter Expert. Provided technical support to NDSP, which included technical input and assisting with presenting a two-day dam safety training course for FEMA Region IV staff, developing, and presenting DSS-WISE Lite dam break model training webinars to FEMA Region X partners, and providing review/ technical input on updates to existing EMI training courses on seepage and internal erosion at dams (IS 874, IS 875, and IS 876). |
| 06/18-12/21 | **White Rock Dam Spillway Capacity Evaluation and Maintenance Repair Design \| Dallas, TX**<br>Technical Lead. Led the development of repair plans and spillway capacity evaluation on a high hazard dam near downtown Dallas. Specific work being performed for the spillway capacity evaluation includes hydrologic and hydraulic analyses, PMF study evaluation, and development of potential rehabilitation alternatives to address spillway capacity of the dam. The repair project at the dam includes field surveying; utility coordination; permit coordination with TCEQ, and development of construction documents and technical specifications for repairs to the earth embankment and concrete service spillway. |
| 09/16-01/21 | **Lookout Lake Dam Rehabilitation \| Dade County, GA**<br>Project Manager, Engineer-of-Record. Supervising the assessment of a Category I, high hazard dam. The project involves developing design plans for dam modification to lower its hazard classification according to Georgia Safe Dams Program requirements and guidelines. The project also involved developing construction specifications, performing construction quality assurance services, and submitting as-constructed documents to Georgia SDP. A report was prepared summarizing the evaluation and provided recommendations for a path forward. |

16. **Staff Experience:**

| 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 years of experience in the applicable MPR(s). |
|---|---|
| 06/19-Ongoing | **Bachman Lake Dam and Spillway Improvements Project \| Dallas, TX**<br>Technical Lead. Led rehabilitation design for a significant hazard dam. Phase 1, conducted in 2019, involved performing a five-year dam safety inspection to meet TCEQ requirements, reviewing and evaluating design criteria , and a gap analysis of existing information to determine the path forward for final design. Later phases will involve updating dam hydrologic and hydraulic analysis, permit coordination, and developing bid documents. |
| 08/20-12/22 | **Gwinnett County DWR Dam Safety Programmatic Services \| Gwinnett County, GA**<br>Senior Reviewer, Independent Technical Reviewer. Served on a team that conducted inspections, visual evaluations of dam spillway structures, and developed plans for rehabilitation improvements at 10 NRCS watershed dams. The project consisted of engineering, permitting, bid support, and engineer-of-record services during construction for the repair and rehabilitation of outlet control structures and associated principal spillway pipes. |
| 09/16-Ongoing | **Programmatic Dam Safety Services for Mobile Area Water and Sewer System \| Mobile, AL**<br>Technical lead. Field inspection, assessment, and evaluation of current dam safety issues at Big Creek Dam, a high hazard water supply dam in Alabama. Assisting in performing a potential failure mode analysis of the dam, providing recommendations to client regarding their dam safety program, and providing dam safety training to staff. |
| 06/13-06/17 | **TVA Dam Safety Assurance Program \| TN, NC, GA, AL**<br>Senior Water Resources Engineer. Assisted the project team in developing and updating key dam safety documents associated with projects that are part of TVA's Dam Safety Assurance Program (DSAP). These documents included Supporting Technical Information Documents (STID) and instrumentation Performance Report and Monitoring Plans (PRMP) for Chatuge, Chickamauga, Normandy and Nottely Dams. Also responsible for Independent Technical Review of project deliverables. |
| 09/18-Ongoing | **Chatuge and Nottely Dam Spillway Evaluations and Risk Assessment \| TN**<br>Project Manager and Hydrology/Hydraulics Task Reviewer. Reviewed hydrology and hydraulic tasks for dam spillways in support of TVA's Dam Safety Assurance Program. Each spillway had identified dam safety deficiencies that were evaluated in a Risk Informed Decision Making (RIDM) framework. The scope involved performing hydrologic and hydraulic modeling of spillway capacity, structural evaluation of spillway chute elements, developing initial concepts for spillway rehabilitation alternatives, and performing Potential Failure Mode Analysis (PFMA) for each spillway. Jon also performed risk analysis and expert elicitation to support risk estimates for various failure modes, as well as risk evaluation of proposed spillway alternatives. |
| 06/12-06/16 | **Dam Breach Analysis and Hazard Assessments \| Various Locations, NY**<br>Technical Manager. Responsible for technical management and coordination of hydrologic and hydraulic modeling and hazards assessment for this project, which involved eight dams across western New York. The dams were identified by NYDEC as having various deficiencies with regards to state dam safety regulations. Project involves field reconnaissance for dam condition assessment, hydrologic and hydraulic modeling of each dam and receiving stream, and dam breach analysis to support hazard assessment and evaluate deficiencies. Inundation mapping will be developed to support the assessments, and will also be used in the development of emergency action plans for the dams in order to meet NYDEC regulatory requirements. In addition, operations, maintenance and inspection plans will be developed or updated for each dam. |
| 06/12-11/13 | **Dam Breach Analysis, Inundation Mapping and LiDAR Acquisition for Various NRCS Dams \| Statewide, KY**<br>Project Manager. Hydraulic engineer and project manager responsible for dam breach analysis and inundation mapping for 16 dams identified as potential high hazard structures. Oversaw the development of hydrologic and hydraulic models (NRCS SITES model) for dam break analysis to support the determination of failure and risk index values for various loading conditions at each dam; and assisted the NRCS in scoring/ranking each dam in terms of repair or rehabilitation needs and risk. Developed failure and risk indices using NRCS methodology and procedures for potential failure modes, including static, hydrologic, and seismic conditions. Jon managed a multidisciplinary staff in reviewing original design parameters, as-built information, and existing conditions at each dam, and determining of loss of life estimates and economic, social, and environmental impacts due to failure to support risk index development. For dams with identified deficiencies, he assisted in development and preliminary analysis of alternatives for proposed improvements. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Dennis Passman** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **25** |
| TITLE | **Principal, Water Resources Area Manager** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **4** |

| | | | |
|---|---|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | | **BS / 1993 / Civil Engineering** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE.0027987 / LA / 9/30/2024** | |
| YEAR REGISTERED | **1998** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Deputy Project Manager. Will assist the Project Manager with scheduling, budgeting, client discussions, and associated tasks. | | |

| 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 years of experience in the applicable MPR(s). |
|---|---|
| 6/2021-Ongoing | **Minors Canal and Shell Canal Floodgate Complex \| Terrebonne Parish, LA**<br>Deputy Project Manager. Assist with coordinating the design team's effort in the development of plans and specifications for two floodgates and appurtenances at the Minors Canal and Shell Canal East locations. Specific details of the design to include floodgate receiving structure foundations, temporary by-pass channels, guide walls, pile clusters, and associated work that will be a part of the Flood Risk Reduction, Morganza to the Gulf of Mexico Project located in Terrebonne Parish, Louisiana. Dennis is also responsible for the budget tracking, accruals, and invoicing to the client. |
| 03/20-Ongoing | **West Shore Lake Pontchartrain Pump Stations and Drainage Structures \| St. Charles Parish, LA**<br>Deputy Project Manager. Assisted with the preparation of the plans and specifications. Dennis was also responsible for the budget tracking, accruals, and invoicing to the client. As part of the Hurricane and Storm Damage Risk Reduction Project for the Parishes of St. Charles, St. John the Baptist, and St. James, this project involved the design of 2-2,000cfs and 2-800cfs pump stations and drainage structures with intake and discharge channels, t-walls, wing walls, levee tie-ins, access roads and bridges, a draw bridge, and associated work at four locations: Hope Canal, Reserve Relief Canal, I-55 Canal, and Prescott Canal. |
| 01/18-Ongoing | **CPRA Mid-Breton Sediment Diversion (BS-0030) \| Plaquemines Parish, LA**<br>Transportation Team Lead. Responsible for management of his team to incorporate the LA 39 highway realignment and bridge over the proposed sediment diversion complex and conveyance channel. Also providing coordination between CPRA, DOTD, and District personnel, oversight of traffic analysis, corridor studies, conceptual planning and design, highway signage, detour roads, access roads, maintenance of traffic to accommodate evacuations during a hurricane, specifications, quantities, and opinions of probable construction costs. CPRA’s Mississippi River Mid-Basin Sediment Diversion Program is a major effort to accomplish the goals of the 2007 Master Plan and subsequent 2012 and 2017 Master Plans for a Sustainable Coast. Within this Program, the Mid-Breton Sediment Diversion (MBrSD) Project was identified as an important project to divert sediment-laden Mississippi River water into the Breton Sound Basin by re-establishing a connection between the Mississippi River and the Basin to build, sustain, and maintain land. |
| 11/17-Ongoing | **Mississippi River Re-Introduction into Bayou Lafourche Pumping Capacity Improvements Project \| Donaldsonville, LA**<br>Lead Engineer. Led efforts associated with the overall site improvements. Specific responsibilities include developing a Basis of Design Report, Plans and Specification, Quantities, and Estimate for a vehicular access ramp to the new pump station, a pedestrian access bridge to the existing pump station, grading, drainage, parking, and utility relocations. The pump station was recently permitted for construction. |

16. **Staff Experience:**

| 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 years of experience in the applicable MPR(s). |
|---|---|
| 09/13-11/16 | **Comite River Diversion Project, Bayou Baton Rouge Drop Structure \| Baton Rouge, LA**<br>Project Manager. Responsibilities included oversight of surveys, site reconnaissance, geotechnical investigations, design and production of plans and specifications for the Bayou Baton Rouge reinforced concrete drop structure, guide levees, disposal areas, haul/access roads, temporary drainage, and a portion of the diversion channel through the project site. Specific tasks also included providing assistance with utility relocations and right-of-way drawings, preparation of a Design Documentation Report (DDR), detailed quantities, and cost estimates, and coordination with multiple entities. |
| 09/07-09/12 | **Carrollton Levee Floodwall and Levee Enlargement \| Orleans Parish, LA**<br>Project Manager. Responsible for the preparation of plans and specifications of approximately 10,450 linear feet of levee enlargement and approximately 2,850 linear feet of new floodwall, including flood gates. Also responsible for the coordination between several agencies, including both the New Orleans and Vicksburg Districts COE, sub-consultants, and clients which was critical to the success of the project. Project tasks included horizontal and vertical design of the floodwall and levee enlargement, drainage analysis, earthwork, quantities, cost estimates, and the preparation of Right-of-Entry drawings.<br>Due to funding, the Corps removed the floodwall and floodgates from the scope of serves after the 35% submittal. The levee enlargement and associated features i.e. access ramps, review of impacted utilities, levee surfacing, coordination, quantities, and estimates, were carried on through final plans and construction. |
| 06/10-06/16 | **USACE MVN 5-Year IDIQ \| Multiple Locations, LA**<br>Project Manager. Indefinite Delivery, Indefinite Quantity Contract for general design support services primarily within the limits of the New Orleans District. Dennis served as the overall contract manager in which eight task orders have been awarded. Types of work involved in the task orders included levee inspections, a diversion channel, construction administration, and an embedment within the New Orleans District. Duties as contract manager also consisted of coordination between multiple team members, and invoicing. |
| 02/09-07/11 | **Bayou Dupont Marsh Creation Project \| Plaquemines/Jefferson Parishes, LA**<br>Project Manager. Oversaw team providing construction administration and inspection for the Office of Coastal Protection and Restoration (OCPR) to create approximately 500 acres of sustainable marsh in a rapidly eroding and subsiding section of the Barataria Landbridge. The project consisted of transporting sediment from the Mississippi River by pumping the spoil material through a pipeline that required jacking and boring under both a railroad and a highway and placing the material in the areas specified by the OCPR. |
| 03/10-10/10 | **Grenada Dam Downstream Face Drainage Pipes \| Grenada County, MS**<br>Project Manager. Provided plans and specifications for the removal of existing drop inlets, outlets, and buried downstream face drainage pipes at the Grenada Dam and replacing it with new drop inlets, outlets, and buried drainage pipes. Specific tasks included coordination with all local, State, and Federal authorities, determining the layout of the structures, preparing a sequence for the construction, and preparing detailed quantity estimates. |
| 05/06-01/07 | **Delta Management at Fort St. Phillip \| Plaquemines Parish, LA**<br>Project Manager. Responsible for a project designed to enhance marsh growth by diverting fresh water and sediment through crevasses into shallow, open water receiving areas. Three crevasses were constructed in each of the two areas. Earthen terraces were constructed to further trap sediment, promote the marsh-building process, and offset land loss. Dennis and his team provided construction administration for this project, including such tasks as submitting all forms and reports, meetings and coordination with contractors, shop drawings and submittals, on-site interpretation of documents, and all construction inspection duties. |
| 02/05-12/05 | **Capital Lake Improvements and Arsenal Modifications \| Baton Rouge, LA**<br>Project Manager. Prepared plans for drainage improvements and minor pavement repairs to the Capitol Access Road and Capitol Lake Drive. The design incorporated improved bank stabilization, as well as added paved walk and cart paths to provide access between the North Capital Park complex and the Capitol Building. Design also included bank stabilization and drainage improvements to the Governor's Mansion property along the lake. Dennis oversaw all tasks, including surveying, design, including plans and specifications, permitting and construction administration. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Alan Rauch** PhD, PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **18** |
| TITLE | **Vice President** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **14** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **PhD / 1997 / Civil Engineering; MS / 1990 / Civil Engineering; BS / 1986 / Civil Engineering** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **PE 0046827 / LA /9/30/2024** |
| YEAR REGISTERED: **2022** / DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | QA/QC - Geotechnical. Expert in civil and geotechnical engineering who will provide quality control/quality assurance for the civil and geotechnical engineering services. |

| 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 years of experience specified in the applicable MPR(s). |
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| 07/12-10/17 | **TVA Dam Safety Assurance Program \| Tennessee Valley Authority (TVA) \| Various Locations, TN, AL, NC, GA, VA**<br>QA/QC / Geotechnical Reviewer. Responsible for establishing analysis methods, developing guidance documents, resolving technical issues, and providing programmatic technical review of project findings for a comprehensive dam stability assessment program. He assisted with performing stability and internal erosion evaluations for 22 dams during the program, including visual inspections, field explorations, laboratory testing, seepage modeling, slope stability analyses, liquefaction assessments, seismic stability analyses, internal erosion evaluations, and monitoring systems implementation. Structures included concrete gravity dams, earthen embankments, rockfill dams, lock walls, floodways, and spillways. |
| 07/14-09/16 | **Douglas Saddle Dam Seepage Mitigation \| Tennessee Valley Authority (TVA) \| Sevier County, TN**<br>Principal/Design Lead. Provided technical oversight for analyses, developed seepage models and methods for quantifying the factor of safety for soil heaving, and led the design effort for mitigations at five of the 10 saddle dams included in the project. Each is a homogeneous embankment underlain by steeply dipping, thinly laminated shale bedrock. Under flood pool conditions, seepage through the shale could cause soil heaving at the toe of the downstream slopes. Weighted berms of graded stone were constructed to provide additional stability to four saddle dams. At the tallest structure, 14 deep relief wells were installed to address artesian pressure conditions. Asphalt paving and extensions to a concrete floodwall raised the crest at three of the saddle dams. |
| 01/18-05/19 | **Fort Loudoun Dam Internal Soil Erosion Study and SQRA \| Tennessee Valley Authority (TVA) \| Lenoir City, TN**<br>Technical Lead/Subject Matter Expert. Principal author of the project report, and served as a subject matter expert for a semi-quantitative dam risk assessment (SQRA).Constructed in the 1940s, Fort Loudoun Dam includes a 120-foot-tall embankment section that is 2,640 feet long. The Stantec team evaluated dam seepage and the potential for internal soil erosion within the embankment and foundation. Historical photographs, construction records, inspection logs, soil borings, soil gradations and index properties, piezometric data and trends, seepage model results, and other information were integrated to assess dam conditions. The team inspected the dam embankment and identified wet areas, possible seepage outbreaks, and drainage features condition. The findings centered on observed seepage areas, the potential for cracking within the cutoff trench, and karstic solution features within the foundation rock. |
| 01/21-Ongoing | **Chatuge Dam Spillway Quantitative Risk Assessment \| Tennessee Valley Authority (TVA) \| Hayesville, NC**<br>Geotechnical Subject Matter Expert for the risk assessment team and a principal author of the QRA report. The spillway at Chatuge Dam has a 1,350-ft long concrete chute founded on soil. TVA undertook a quantitative risk assessment (QRA) to characterize the expected performance of this structure for a range of discharge flows. A key consideration was the capacity of the underdrain system, and the potential to develop uplift pressures. Special studies were undertaken to support the risk assessment, which included instrumentation installed under the spillway slab to measure hydraulic pressures during spilling events. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
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| 09/17-12/19 | **Big Creek Lake Dam Evaluation \| Mobile Area Water & Sewer System \| Mobile, AL**<br>QA/QC/Geotechnical Reviewer. As part of an updated engineering assessment, Alan provided senior technical review for the field reconnaissance, detailed slope stability and seepage analyses, and an internal erosion evaluation for the dam and spillway. Project entails comprehensive dam safety services for the primary water supply reservoir for Mobile. The dam is a 5,000-foot-long and 75-foot-tall earthen embankment structure. The project included a reinforced concrete chute spillway with seven gates. |
| 05/18-Ongoing | **Mactaquac Dam PFMA and Quantitative Risk Assessment \| Fredericton, New Brunswick**<br>Subject Matter Expert. The Mactaquac Dam project includes a rockfill dam, two concrete spillways, and a six-turbine powerhouse. Severe concrete expansion due to AAR has reduced the operating life of the facility, and recent hydrologic studies have indicated the need to increase spillway capacity. Stantec was retained to develop solutions for extending the life of the facility. A multi-phase risk assessment was completed to support project decisions, consistent with CDA guidance. The quantitative risk assessment was consistent with FERC Level 4 standards and USACE/USBR best practices guidance. Alan served as a Geotechnical Subject Matter Expert for the PFMA and quantitative risk assessment. |
| 01/16-07/19 | **Watauga Dam Internal Soil Erosion Evaluation and SQRA\| Tennessee Valley Authority (TVA) \| Carter County, TN**<br>Technical Lead/Subject Matter Expert. This dam is a 330-foot tall, rockfill structure with a compacted clay core. Stantec assessed the vulnerability of the dam's core to seepage and internal soil erosion. No seepage exits have been observed, but critical areas are buried beneath the massive rockfill shell of the dam embankment. Potential internal erosion mechanisms were systematically evaluated using historical design and construction records, numerical seepage models, and data from a network of installed piezometers. Potential dam safety risks were cataloged, documented, and assessed. Key findings focused on crest settlements and cracking, the effectiveness of the embankment filters, potential for seepage through a talus deposit that was left under part of the dam core, and elevated piezometer readings in the left abutment. Alan was the technical lead for the project and the principal author of the findings and recommendations. Later, Alan served as a subject matter expert for a semi-quantitative risk assessment (SQRA). |
| 08/06-10/13 | **Kentucky River Dam No. 3 and Lock Nos. 3 and 4 \| Kentucky River Authority \| Franklin and Owen Counties, KY**<br>Engineer of Record. Led efforts to characterize the existing conditions at these 170-year old timber, stone masonry, and concrete facilities. Extensive geotechnical explorations and testing of rock core was completed. Alan then led the design effort for a replacement dam, which consists of a concrete-filled, cellular sheet pile structure, which was constructed without extensive dewatering. Unique features of the design include a cast-in-place concrete connection between the new dam and the historic lock wall, and a steel master pile system with lightweight fill that forms a downstream training wall. |
| 10/15-04/18 | **Beaverdam Creek Dam \| Western Virginia Water Authority (WVWA) \| Roanoke, VA**<br>Geotechnical Design Lead. Stantec was retained to design improvements to Beaverdam Creek Dam, which impounds water supply for the Roanoke area. Built in 1925, the 73' tall embankment dam did not meet current stability criteria and had inadequate spillway capacity. Stantec's design included a new, larger concrete chute spillway, an earthen toe berm with a graded filter, and drainage improvements. Alan led the design for the embankment modifications. |
| 10/15-06/19 | **Eagle Creek Flood Basin - Maumee Watershed Conservancy District \| Findlay, OH**<br>QA/QC/Geotechnical Reviewer. The Eagle Creek Flood Basin is designed to reduce flood risks. The detention structure captures and temporarily stores stormwater runoff in the upper Blanchard River watershed. The dam is a nearly four-mile long, 35-foot tall embankment structure, with principal and auxiliary spillways. The dam crosses an alluvial flood plain, which required careful assessment of the foundation conditions. Challenges included optimizing the design to meet dam safety criteria, while recognizing that flood storage will be infrequent, rapid, and temporary. Alan provided senior technical review for the geotechnical aspects of the project. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Bob Tucker** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **8** |
| TITLE | **Senior Structural Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **30** |

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| DEGREE(S) / YEARS / SPECIALIZATION | | | **BS, MS / 1983, 1998 / Civil Engineering, Structural Engineering** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | | **PE 25690 / KY* / 6/30/2024** |
| YEAR REGISTERED | **2007** | DISCIPLINE | **Civil** |

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| Contract role(s) / brief description of responsibilities | QA/QC - Structural. Expert in structural engineering who will provide quality control/quality assurance for the structural engineering services. |
| 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 years of experience specified in the applicable MPR(s). |
| 10/19-Ongoing | **GCMC-Sabine Region: SATOC Orange County, Coastal Storm Risk Management and Ecosystem Restoration A-E Services \| USACE-Galveston District \| Orange County, TX**<br>Drainage Structures Design Team Lead. Led the design of the three representative gated drainage structures that provide a template for the design of the proposed 13 additional structures required for the 2A reach of the hurricane flood protection line. The three structures taken to 95 percent design included two through-levee multiple gated culverts and a five-gate floodwall structure. |
| 06/19-02/20 | **Structural Inspection of Outlet Control Structures and Principal Spillway Pipes \| Gwinnett County, Georgia \| Gwinnett County, GA**<br>Structural Team Leader/Senior Reviewer. Led the structural team and reviewed above water (including within the structure) and underwater inspections of 15 outlet control structures (OCS) and principal spillway pipes (PSPs) at 15 NRCS dams. Deliverables included inspection and recommendation reports for the rehabilitation of the OCS and PSPs. The recommendations are utilized by GCDWR to rehabilitate the sites. |
| 02/20-08/20 | **Dam Outlet Works Maintenance \| Gwinnett County Department of Water Resources \| Gwinnett County, GA**<br>Independent Technical Reviewer. Reviewed structural aspects of the rehabilitation of OCSs and PSPs at 10 NRCS watershed dams. The rehabilitation consisted replacements/repairs to extend the service life of the structures, including re-lining the PSP’s gate replacement, concrete repairs, and access improvements. |
| 06/04-07/08 | **Canton Lake Auxiliary Spillway \| OK**<br>Structural Team Leader. Due to an assessed hydraulic deficiency (the potential for PMF overtopping), a fuse-gated auxiliary spillway and channel was designed to increase discharge capacity. Managed concept and early design phases led the structural team for diaphragm wall remediation, highway bridge, and wet well structure. When construction was completed in 2017, the Canton Lake Dam Auxiliary Spillway was one of the largest fuse-gated spillways in the world. |
| 06/05-01/06 | **Red River Basin Chloride Control Project \| TX**<br>Senior Structural Engineer. This project was designed to control natural chloride brine emissions at ten major source areas to improve water quality for municipal, industrial, and agricultural use. Improvements included the design and construction of low flow dams, pump stations, and diversion pipelines to impoundment facilities. Served as Project Structural Engineer for phases 9 and 10 of this multi-phase project. |

*PE registered outside of Louisiana

16. **Staff Experience:**

| 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 years of experience in the applicable MPR(s). |
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| 10/06-12/06 | **Arkansas City Hwy 77 Bypass Levee Sluice Gate Assessment \| KS**<br>Senior Structural Engineer. Provided structural assessment of a 1930 era 84-inch-diameter sluice gate structure which had been experiencing major serviceability issues in addition of exhibiting extensive structural distresses. As no record drawings were available, the assessment included a site investigation which included developing detailed dimensioned drawings. The project further included an analysis of the capacity of the structure with regards to its diminished condition, a written report to the owner, and coordinating with USACE and municipal officials to establish the basis for replacement funding. |
| 11/04-06/05 | **Arkansas City Flood Protection Project \| KS**<br>Senior Structural Engineer. Supported the design of the flood protection system for the city of Arkansas City, Kansas. The project structural requirements included three sluice gated gravity drainage structures, a spillway, the refurbishment of a circa 1940 pumping station, an access bridge, and numerous secondary structures. |
| 04/04-10/04 | **Augusta Flood Protection Project \| KS**<br>Senior Structural Engineer. Responsible for the design of the flood protection system for the city of Augusta, Kansas. Structural facets included a four sluice gate gravity drainage structure, a spillway, T-wall type floodwall monoliths, and three road closure structures. |
| 02/04-04/04 | **50'-0" Stop Log Lift-Beam, Robert S. Kerr Lock & Dam Maintenance Area \| OK**<br>Structural Engineer. Assisted with designing a 50-foot stop log lift beam for use on the McClellan–Kerr Arkansas River Navigation System. The scope required a design less prone to pick up actuation problems and permanent beam deformation due to racking in the stop log slots. The design eliminated or greatly reduced these issues. |
| 06/02-08/02 | **Heyburn Dam Intake Structure \| Polecat Creek, OK**<br>Project Engineer. Contributed to the design of a maintenance slide gate for an intake structure constructed in 1948. He wrote the scope of work for the in-the-wet installation and provided QC on the four-foot by five-foot gate design and track system. |
| 02/01-04/01 | **Columbia Lock & Dam, Ouachita River \| US 165 Columbia, LA**<br>Structural Engineer. Assisted in designing the heat straightening repair of the main strut and strut bracing of a tainter gate damaged because of a barge impact. There were significant cost savings in utilizing the FHWA approved technique. |
| 11/98-03/99 | **Swan Lake Environmental Management Program, Pool 26 \| Calhoun County, IL**<br>Project Team Leader. Led the design of two combination bridge-gate structures that involved cellular sheet pile abutments, pre-stressed concrete plank bridge structures, precast gate sills for underwater construction, and a slide gate system integral with the bridge structure. The project also included two pumping stations and ancillary structures. |
| 04/97-02/98 | **Bayou Rapides Pumping Station \| Alexandria, LA**<br>Structural Engineer. One of three Principal Structural Design Engineers of the combined pumping station and gravity drainage structure replacing an obsolete station located in downtown Alexandria, Louisiana. This structure, covered as the lead story of the October 7, 2002 issue of "Construction News," magazine, included several innovative types and methods of construction for this type of structure including a U-frame configuration and the use of soil-nailed tie-backs in soft soils for the braced excavation and permanent wing walls. |
| 02/97-08/97 | **Sicily Island Bayou Pumping Station Project \| LA**<br>Primary Structural Engineer. Responsible for the design of the pumping station portion of this $10 million project located in the Tensas Basin area of Louisiana. The twin-diesel operated 750-CFS pumping station included two 13,500 HP diesel engines, a service bridge, a 10-ton capacity bridge crane, a twin 48-inch diameter steel pipe system, and numerous ancillary features. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Michelle Meehan** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **16** |
| TITLE | **Senior Project Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **0** |

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| DEGREE(S) / YEARS / SPECIALIZATION | | | **MS / 2007 / Civil Engineering; BS / 2005 / Civil Engineering** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | | **PE 27681 / KY* / 6/30/2024** |
| YEAR REGISTERED | **2011** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | QA/QC - Hydraulics & Hydrology. Expert in hydraulics and hydrology who will provide quality control/quality assurance for these services. | | |

| 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 years of experience specified in the applicable MPR(s). |
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| 01/8-Ongoing | **FEMA Regions II, III, IV, V, VII and X Flood Insurance Studies and DFIRM Mapping \| FEMA Regions IV and V**<br>Senior Project Engineer. Performs hydrologic and hydraulic analyses or technical review for countywide floodplain map modernization and RiskMAP efforts in numerous communities in New York, Virginia, Kentucky, Ohio, Iowa, and Alaska. Projects involve redelineation of effective floodplains; establishing new flood hazard boundaries; incorporation of leverage studies and Letters of Map Change (LOMCs); assisting with program support; performing levee analysis utilizing the Levee Analysis and Mapping Procedures (LAMP); assessment of riverine tie-ins; performing new hydrologic and hydraulic modeling to varying levels of detail (1-D Steady, 1-D Unsteady, 2-D Unsteady; approximate studies, limited detailed studies, and detailed studies including floodway analysis), and coordination with local community partners. Project deliverables include development of H&H submittal packages as well as updated county-wide DFIRM mapping and revised Flood Insurance Study reports. Projects include, but are not limited to Warren and Washington Counties, NY, Albemarle County, Virginia, Floyd, Harrison, Pendleton, and Grant Counties, Kentucky, Athens, Butler, Greene, Sandusky, and Seneca Counties, Ohio, Lee and Des Moines Counties Iowa, and Ketchikan County, AK; |
| 09/20-03/21 | **Flood Damages Averted \| Kingsport and Elizabethton, TN**<br>Senior Project Engineer responsible for using steady-state HEC-RAS modeling data developed by TVA to create a HEC-LifeSim model to evaluate damages downstream. The results of the modeling were used by TVA to evaluate the potential damages resulting from flooding in the absence of Boone, Watauga, and South Holston Dams. |
| 09/20-11/21 | **Boltz Lake Dam-Phase I Preliminary Condition Assessment \| Dry Ridge, KY**<br>H&H Technical Lead. Led H&H components of this project to evaluate Boltz Lake Dam. The project consisted of evaluating the capacity of the dam's spillway in its current state, performing a breach analysis and evaluating downstream impacts, and identifying conceptual alternatives to bring the dam into compliance with state dam safety standards. Hydraulic modeling was performed using HEC-HMS and 1-D Unsteady HEC-RAS. |
| 03/19-Present | **Chatuge Phase 1 Spillway Risk Analysis and Project Planning Document \| NC**<br>Senior project engineer. Performing a hydraulic analysis and uplift study of an existing spillway and conducting a follow-up quantitative risk assessment. Michelle updated 1-D unsteady hydraulic modeling of the area downstream of the spillway (using HEC-RAS) and used the modeling to create a HEC-LifeSim model of the area to evaluate potential loss of life and economic damages. She also completed hydraulic analysis of the spillway (using HEC-RAS, Z-PROF, and SpillwayPRO), computed stagnation pressures and seepage flows through joints and cracks of the spillway relative to the spillway’s underdrain capacity, and reviewed inputs and outputs for the QRA (associated with the @Risk models). The risk assessment will be used to evaluate alternative design options for the spillway that reduce risk to acceptable levels. |

*PE registered outside of Louisiana

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
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| 11/16-06/20 | **Lookout Lake Dam Rehabilitation \| Trenton, GA**<br>Senior Project Engineer. Performed dam breach analyses on existing conditions to confirm hazard classification and on proposed modifications to the dam to evaluate whether the alternatives could lower the hazard classification. Analyses were performed using dam breach capabilities within unsteady HEC-RAS. |
| 06/19-12/20 | **Dam Breach Analysis and Consequence Assessment \| Central Queensland, Queensland**<br>Project technical lead. Overseeing dam breach analysis, inundation mapping, and consequence assessment for a tailings dam and return water dam at the South Walker Creek mine site in Central Queensland. This project utilized HEC-HMS to develop inflows (using Australian Rainfall and Runoff (ARR) Guidelines) and outflows associated with a breach of the dams. The dams were evaluated both individually and together with a cascading breach scenario. The flow hydrographs were used in FLO-2D, which is capable of simulating a breach of tailings material and water as hyper-concentrated sediment flow. The results were used to develop inundation mapping and evaluate consequences of a breach in accordance with ANCOLD guidelines. |
| 10/16-Ongoing | **Programmatic Dam Safety Services for Mobile Area Water and Sewer System (Big Creek Dam) \| Mobile, AL**<br>Senior Project Engineer. Oversaw hydrologic and hydraulic analysis of a high hazard water supply dam. Hydrologic analysis included creating a watershed model, calibrated using rainfall and stream gage data. Hydraulic modeling was performed using unsteady HEC-RAS to run with- and without-breach scenarios. Modeling results were used to prepare inundation mapping and update the dam's Emergency Action Plan. Future work phases will include performing a table-top exercise of the EAP with local officials. |
| 09/12-12/12 | **Dam Breach Outflow Hydrograph Development for TVA Dams \| Various Locations, TN**<br>Project Engineer. Assisting with developing dam breach outflow hydrographs for Fontana Dam in Tennessee for assumed failures of the concrete structure and dam embankment during an earthquake combined with a storm event. This work was performed in coordination with engineers from Barge, Waggoner, Sumner, and Cannon who utilized the results to determine warning times at Watts-Bar Nuclear Plant downstream. This work involved applying an operating guide to determine water levels and resulting outflows (in HEC-HMS 3.3) during a flood event up to the assumed time of the earthquake event resulting in instantaneous failure. Post-failure outflows were then determined in HEC-HMS and unsteady HEC-RAS. |
| 06/12-12/12 | **Dam Breach Analysis and Hazard Assessments \| Multiple Sites, NY**<br>Senior Project Engineer. Assisted with the hydrologic and hydraulic analysis of eight dams using HEC-HMS and unsteady HEC-RAS. Her contributions consisted of reviewing analyses and documenting and resolving technical issues. The assessments helped determine if the dams met safety requirements of the New York Department of Environmental Conservation (DEC), and identified needed repairs and/or rehabilitation so the client could prioritize funding. |
| 09/16-03/18 | **Statewide Dam Safety Evaluations \| Statewide, OH**<br>Senior Project Engineer. Responsible for reviewing dam breach analysis performed for Blue Rock Dam and performing dam breach analysis for Guilford Lake Dam as part of a larger project to assess performance and prepare Emergency Action Plans for a suite of dams for the ODNR. Dam breach analysis consisted of HEC-HMS watershed modeling and unsteady HEC-RAS modeling. Michelle was also responsible for development of a risk prioritization system (for potential future use by ODNR) that would allow for ranking of the dams within the program. The developed tool was based on U.S. Bureau of Reclamation's Risk-Based Profile System, with modifications made to address ODNR's dam inventory, program initiatives, and future usability of the tool. |
| 09/19-01/21 | **South Fork Little River Flood Control Structure \| Hopkinsville, KY**<br>Water Resources Engineer. Assisted with modeling review of a potential flood-retarding structure to reduce flooding for a downstream community. The project involved hydrologic and hydraulic modeling for the base condition, as well as with the proposed structure in place. Dam breach modeling was also performed for various return-period events to evaluate a worst-case breach scenario and its impacts on the downstream population. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Rachael Bisnett** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **13** |
| TITLE | **Principal** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **0** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **BS, MS / 2008, 2010 / Civil Engineering (Structural Emphasis), Civil Engineering (Geotechnical Emphasis)** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **PE.142323 / LA / 3/31/2024** *(initial registration IL, 062.066106 , 2015)* |
| YEAR REGISTERED: **2021** / DISCIPLINE: **Civil** | |

MEETS MINIMUM LADOTD PERSONNEL REQ.

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| Contract role(s) / brief description of responsibilities | Risk Assessment. Expert in dam safety risk assessments will serve as a senior technical expert for risk assessments. Meets MPR 6. |
| 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 years of experience specified in the applicable MPR(s). |
| 03/19-12/21 | **Chatuge Dam Spillway Evaluation and Risk Assessment \| NC**<br>Risk Advisor. The Tennessee Valley Authority is performing a Quantitative Risk Assessment and issue evaluation study for the gated chute spillway at Chatuge Dam. Rachael is a risk advisor to the joint project team, responsible for coordination between the subject matter experts and facilitation team, providing recommendations for quantitative risk analysis best practices, and reviewing development of the risk model. |
| 07/21-09/21 | **Eraring Ash Dam Internal Erosion Risk Assessment \| Origin Energy Eraring \| Eraring, NSW, Australia**<br>Internal Technical Reviewer. Stantec performed an internal erosion risk assessment for the ash storage dams at the Eraring Power Station using the Piping Toolbox method to calculate probability of failure for each credible initiating mechanism. Rachael provided independent technical review for the analysis. |
| 07/21-11/21 | **Cherokee Dam SQRA \| Tennessee Valley Authority \| TN**<br>Independent Quality Control Geotechnical Reviewer. TVA performed a Semi-Quantitative Risk Assessment for Cherokee Dam as part of their Dam Safety Risk Informed Decision Making Program. Rachael performed an independent quality review of the draft report for conformance with TVA standards and industry best practices for risk assessment documentation. |
| 03/21-05/21 | **Harwoods Mill Dam Third Party Review \| Newport News Waterworks \| Newport News, VA**<br>Geotechnical Reviewer. The Stantec team conducted a third-party independent review of final design for modifications to Harwoods Mill Dam focused on constructability, potential construction and project risks, and overall design approach according to industry standards. |
| 10/20-Ongoing | **Confidential Project \| Confidential Client**<br>Risk Assessment Lead. Stantec is the engineer for developing the reference dam raise design for additional flood storage. The dam is a concrete gravity dam with gated spillway. The project design follows risk informed design practices using quantitative risk assessments in accordance with Queensland and ANCOLD guidance. Rachael is responsible for revising the baseline risk assessment, developing the upgrade risk assessment, and facilitating the workshops. Event trees are developed for each credible potential failure mode and nodal estimating performed by expert elicitation in workshops. Spillway gate reliability is incorporated into the annual probability estimates for all flood partitions. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 03/20-Ongoing | **Santee Cooper North Dam, South Dam, and Spillway Stability Analyses \| Santee Cooper \| Moncks Corner, SC**<br>Project Technical Lead. Leading design team to perform spillway and dam stability analyses to evaluate the potential impact of increased tailwater levels. Piezometer threshold values are also being reevaluated. The Santee Spillway, North, and South Dams impound Lake Marion. The spillway is a 3,400-foot-long Ambursen dam with 63 radial gates. The North Dam is a 4.25-mile-long hydraulic sluice fill embankment, and the South Dam is a 2.6-mile-long compacted clay embankment. |
| 03/16-Ongoing | **City of Newport News Waterworks On-Call Dam Inspection and Engineering On-call Services (2016-2021) \| Newport News Waterworks \| Toano, VA**<br>Project Technical Lead. Little Creek Dam is an approximately 100-foot-high homogeneous silty sand embankment dam that impounds water for municipal supply. Rachael led the emergency response after observation of sand boils at the downstream toe of the dam in early 2020. The reservoir has been temporarily drawn down to mitigate the internal erosion issue and enhanced inspections and monitoring are being performed. Stantec prepared an evaluation of remediation alternatives including concept designs and cost estimates and is developing the detailed remediation design. |
| 03/20-11/20 | **Normandy Dam SQRA \| Tennessee Valley Authority \| Lexington, TN**<br>Geotechnical subject matter expert for the semi-quantitative risk analysis of Normandy Dam. Responsible for reviewing data and background information related to geotechnical and geology aspects, brainstorming potential failure modes, participating in the SQRA workshop, and drafting and reviewing the SQRA report. |
| 12/18-04/21 | **West Gellibrand Reservoir Upgrade \| Barwon Water \| Victoria, Australia**<br>Internal Technical Review. Stantec is the engineer of record for upgrades to the West Gellibrand Reservoir following a quantitative risk assessment which indicated that the risk associated with internal erosion and overtopping of the embankment exceeded tolerable risk guidelines. Rachael reviewed the final QRA to confirm design criteria for the upgrade design; development of geotechnical parameters and analyses (slope stability and seepage) for the upgrade design; final design for conformance with best practices for design and construction of filters in embankment dams; and potential failure modes associated with an active landslide in the left abutment and developed risk mitigation strategies during construction for the landslide. Support for engineering services during construction included responding to geotechnical and dam safety related contractor requests for information. |
| 02/17-09/19 | **White Swan Reservoir Risk Assessment and Risk Reduction Option Study \| Central Highlands Water \| Victoria, Australia**<br>Project Technical Lead. The White Swan Reservoir is an extreme consequence category off-stream reservoir constructed around 1950 and impounded by primary and subsidiary earth and rockfill embankments which serves as the main terminal reservoir for the Ballarat (Australia) Water Supply System. Specific responsibilities included assessment of geotechnical material parameters; slope stability analyses; quantitative assessment of potential failure modes under steady-state, flood, and earthquake conditions, including internal erosion and piping failure modes using the Piping Toolbox; review of potential loss of life calculations; evaluation against tolerable risk guidelines; and recommendations for additional works. Developed a geotechnical investigation program to collect additional data for refinement of the risk assessment. Stantec developed risk reduction options for the reservoir following the Risk Assessment. The risk reduction options address the identified risk-driving potential failure modes and an opinion of probable construction cost was prepared for each option to evaluate risk mitigation in accordance with ALARP principles. |
| 11/11-Ongoing | **Red Rock Hydroelectric Project \| Western Minnesota Municipal Power Agency (WMMPA) / Missouri River Energy Services (MRES)**<br>Lead Geotechnical Engineer and Project Technical Lead. Design responsibilities included: development of geotechnical investigation program; assessment of geotechnical material properties for design; slope stability and seepage analyses; direction and review of finite element analyses for design of retaining walls, deep excavations, and earth support systems; presentation of design to regulatory agencies and external review board; development of civil drawings and technical specifications; and development of design criteria for alternative contractor technical proposals. Participated in three FERC Potential Failure Mode Analyses (PFMA) to evaluate PFMs associated with a potential uncontrolled release of the reservoir during construction and operation of the hydropower project at the existing dam. Field engineer responsibilities included: oversight of pre-construction geotechnical investigations; oversight of diaphragm wall, secant wall, tie-back anchor, and initial soil excavation construction activities; providing field direction for pre-excavation grouting program, including treatment of a 3-to-5-foot voided horizon with artesian flows; review of blasting plans; and foundation geologic mapping. Prepared dam safety surveillance and monitoring reports during construction; reviewed contractor submittals and RFIs; and responsible for ongoing coordination with client, regulatory agencies, and external review board. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Mark Schillinger** PE, CFM | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **3** |
| TITLE | **Senior Associate** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **11** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **BS, MS / 2008, 2011 / Civil Engineering, Civil Engineering (Hydraulics and Hydrology)** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **PE.46078 / LA / 3/31/2024** *(initial registration SC, 31569 , 2014)* |
| YEAR REGISTERED: **2021** / DISCIPLINE: **Civil** | MEETS MINIMUM LADOTD PERSONNEL REQ. |
| Contract role(s) / brief description of responsibilities | Civil Engineering Lead. Will lead the civil engineering team for design and completion of deliverables. Meets MPR 4. |

| 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 years of experience specified in the applicable MPR(s). |
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| 08/20-Ongoing | **Gwinnett County DWR Outlet Works Maintenance Improvements \| Gwinnett County, GA**<br>Project Manager, Senior H&H Engineer, Erosion and Sediment Control Designer. The Stantec team is supporting rehabilitation improvements at ten Natural Resources Conservation Service (NRCS) watershed dams. The project consists of engineering, permitting, bid support, and engineer of record services during construction to repair and rehabilitate ten outlet control structures and associated principal spillway pipes. The project was started after successful completion of structural inspections of 15 dams. The rehabilitation consists of in-kind replacement/repairs to extend the service life of the structures, including re-lining the PSPs, gate replacements, concrete repairs, and access improvements. Mark oversees work planning documents, on-site environmental surveys, permitting, and coordination with multiple agencies, including USACE, Georgia EPD Safe Dams Program, Gwinnett County P&D, and NRCS. He's also providing public outreach support, ten construction drawing sets (civil, structural, and ESC drawings), technical specifications, design reports, water control alternatives analysis, structural and hydraulic calculations, cost opinions, bid support services, and engineer of record services during construction. |
| 03/20-Ongoing | **Bird Lake Dam Removal \| Gwinnett County DWR \| Lilburn, GA**<br>Project Manager and Senior Design Engineer. Mark managed the removal of a 31-feet-high embankment dam. Due to identified deficiencies, risk to the public, and downstream structures if the dam inadvertently breached, the City decided to remove the dam and stabilize the inundated stream and pool area. On behalf of the City of Lilburn, Gwinnett County Department of Water Resources (DWR) managed the project. To support the removal, the Stantec team developed construction documents (plans, specifications), design calculations (hydraulics and hydrology), and completed permitting (USACE 404, GA EPD stream buffer variance, and land development). The team also led field efforts that included a geotechnical exploration of the embankment and environmental surveys for wetlands, streams, and threatened and endangered species. |
| 05/20-01/21 | **Lookout Lake Dam Rehabilitation \| Dade County \| Trenton, GA**<br>CQA Manager. The Stantec team performed dam breach and detailed alternatives analyses, design, and construction services to rehabilitate a dam. The design consisted of lowering the dam, constructing a new self-priming siphon system serving as the principal spillway, constructing a new auxiliary spillway, and geotechnical improvements. Mark reviewed submittals, provided RFIs, daily field reports, and led weekly client construction calls. |
| 10/19-11/19 | **Georgia Subdivision Dam \| Gwinnett County, GA**<br>Project Manager. Stantec developed high-level construction opinions for repairing or breaching of a Subdivision Dam located in Georgia. The 20-ft high earthen embankment dam was deemed to be in poor condition due to multiple deficiencies including seepage, undermining of the auxiliary spillway, and a non-functioning principal spillway. Due to the high priority of the cost opinions, Stantec provided a deliverable within an accelerated schedule of only two weeks. Mark served as the Project Manager and a technical reviewer for the cost opinions. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
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| 11/19-05/20 | **John Sevier Dam Interim Risk Reduction Measures-Right Embankment \| Rogersville, TN**<br>CQA Manager and Senior Engineer. A run of the river dam located in the Southeastern United States experienced periodic overtopping along an earthen embankment adjacent to the overflow spillway. Due to the potential risk of failure, the team designed an interim grouted riprap repair and provided construction oversight, on an accelerated schedule, to restore the embankment crest. Deliverables included construction plans, quantity estimates, specifications, excavation permits, contractor work plans, quality control plans, and supporting hydraulic calculations developed from start to finish in less than two months. Mark led and reviewed multiple design deliverables and served as the CQA Manager during construction. |
| 06/20-07/21 | **Lake Louisa Emergency Action Planning \| Louisa County, VA**<br>Senior Engineer. Blue Ridge Shores Property Owners Association (POA) owns and maintains Lake Louisa Dam-a 600-ft long, 25-ft high earthen embankment that impounds the 280 acre Lake Louisa. Stantec developed an Emergency Action Plan (EAP for the dam and facilitated an emergency drill. The purpose of the emergency drill was to educate the attendees (ex: VDOT, VCDR, dam owner, multiple emergency management personnel, and NOAA) on dam safety concepts, potential dam failure modes, and provide a hands-on interactive environment where the functionality of the EAP can be testing using an emergency event simulation impacting Lake Louisa Dam. As part of the drill, Mark presented on dam safety concepts and potential failure modes and afterwards wrote the After Action Report to document the performance of the drill and recommendations on where the EAP may be improved. |
| 09/19-12/19 | **Lake Louella Third Party Review \| GA**<br>Civil and H&H Engineering Review. Stantec provided third-party review for 30 and 60 percent design plans to rehabilitate a high-hazard embankment dam. The multi-faceted scope included reviews from a geotechnical, civil, hydraulic, and structural engineering perspective focused on the project’s design approach, constructability, value engineering opportunities, and maintenance requirements. Mark reviewed engineering plans, technical specifications, bid documents, and supporting information. At the client’s request, Mark also completed the senior review and directed the independent construction cost opinion developed based on constructed dam projects, RS Means, and engineering judgment. |
| 06/18-08/18 | **Dam Decommissioning for Confidential Client \| Southeastern United States**<br>Permitting Lead. The project involved decommissioning 30-foot-high earthen levees (regulated as dams) and associated spillway structures located near a major river, cooling lake, and within a coastal flood zone. Mark developed a permit strategy and technical memorandum to show local regulators that decommissioning would minimally impact floodplain limits. The strategy allowed construction to proceed in a timely manner and avoid a more costly and time-consuming FEMA Letter of Map Revision floodplain permit process. |
| 09/17-10/17 | **Levee Stability Evaluation for Confidential Client \| Southeastern United States**<br>Project Engineer. Prior to a major hurricane event, the Owner implemented emergency measures to stabilize a CCR levee located adjacent to a stream. Mark and the engineering team evaluated the impacts of the emergency measures from a geotechnical, hydraulics/erosion, and permitting perspective. Mark provided the technical guidance and senior review for the development of a hydraulics and hydrologic model and calculations to estimate the potential and frequency for erosion at the base of the stream and along the levee’s embankment. |
| 09/13-12/13 | **Emergency Action Plan (EAP) Inundation Project \| TN**<br>Project Engineer. The scope included updating the flood mapping component of system-wide updates for TVA’s emergency action plans (EAPs). Mark was responsible for completing dam break analyses in HEC-RAS for multiple dams for three select scenarios: sunny day failure, probable maximum flood with non-failure, and probable maximum flood with failure. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Travis Greenwell** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **6** |
| TITLE | **Geotechnical Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **5** |

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| DEGREE(S) / YEARS / SPECIALIZATION | | **BS / 2012 / Civil Engineering** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE 33925 / KY* / 6/30/2023** | |
| YEAR REGISTERED | **2018** | DISCIPLINE | **Civil** |

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| Contract role(s) / brief description of responsibilities | Civil Engineering. Will support the civil engineering team with design deliverables (ex: cost estimates, drawings, specs, etc.) |
| 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 years of experience specified in the applicable MPR(s). |
| 09/18-04/19 | **Robert C. Byrd Locks and Dam Harbor Explorations \| USACE-Huntington, WV**<br>Project Engineer. Responsible for development of the work plan for assessing and monitoring subsurface conditions during field exploration. Installed the automated data acquisition system (ADAS) consisting of 10 tiltmeters along the sheet pile wall. Development of threshold and warning levels to be utilized during drilling based upon ADAS obtained data. Responsible for directing and documenting drilling, hydroexcavation, and pressure grouting operations. |
| 06/18-09/18 | **TVA Watauga Dam Supplemental Evaluation of Vulnerability to Internal Erosion \| Carter County, TN**<br>Project Engineer. Assisting in evaluating potential seepage mechanisms in a rockfill and clay core dam. Performed surface water and groundwater sampling along with water level gauging. Synthesized historic observations and recent field data to develop work plan for evaluation of potential failure mode. |
| 06/18-09/18 | **TVA Instrumentation Record Drawings \| Multiple Locations, TN**<br>Project Engineer. Responsible for the revision and updates to the project record drawings for three TVA dams. Project responsibilities included Ocoee No. 1, Ocoee No. 2, and Chickamauga Dams. These hydroelectric facilities consisted of rockfill embankment dams, earthfill embankment dams, concrete gravity dams, and roller compacted concrete structures. The record drawings included updates and revisions to include historic and recent modifications to each site. The modifications included the incorporation of new dam safety instrumentation and dam modifications. |
| 08/18-09/18 | **TVA Cherokee Dam Toe Drain \| Grainger and Jefferson Counties, TN**<br>Project Engineer. Responsible for the revision and updates to the project instrumentation record drawings. The record drawings included historic and recent modifications to dam safety instrumentation for Saddle Dam 1 and the North and South embankments. |
| 06/18-12/19 | **Green River Lock and Dam No. 3 Renovation \| Rochester, KY**<br>Project Engineer. Responsible for development of General Conditions and Technical Specifications. Assisted with development of construction drawings and construction cost opinion for the renovation that included reinforced concrete cutoff wall, lock miter gate removal, sheet pile wall, concrete weirs, grout bags, and passive rock anchors. |

*PE registered outside of Louisiana

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Joey Lefante** PE, PTOE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **15** |
| TITLE | **Traffic Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **0** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **BS / 2008 / Civil Engineering; ATSSA Work Zone Traffic Control Flagger, Technician & Supervisor** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **37244 / LA / 9/30/2024** |
| YEAR REGISTERED: **2012** / DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Civil Engineering. Will support the civil engineering team in the areas of transportation and traffic engineering. |

| 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 years of experience specified in the applicable MPR(s). |
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| 01/14-12/16 | **Permanent Canal Closures and Pumps Project (PCCP) \| New Orleans, LA**<br>Traffic Engineer. Designed and detailed traffic control plans for construction site access points in conjunction with the PCCP project in New Orleans, Louisiana. He planned haul routes for construction vehicles and delivery trucks to access the sites, and verified the feasibility of the routes using AutoTURN software. Joey developed traffic control plans for both the duration of the construction, as well as for specific tasks, such as road closures due to equipment positioning. Joey also participated in finalizing the site layouts by determining locations for the various buildings such that delivery and fuel trucks could access the different parts of the site properly. |
| 08/11-Ongoing | **SR 82 Improvements and CFI at Daniels Parkway/Gunnery Road \| Lee County, FL**<br>Project Engineer. Stantec is on the team performing study and design for the reconstruction of a section of SR 82, currently a two-lane rural roadway. The improvements will modify the segment to a six-lane divided suburban highway with a CFI at the intersection of SR 82 and Daniels Parkway/Gunner Road. |
| 03/19-Ongoing | **DOTD Loyola Interchange Design-Build Project \| Kenner, LA**<br>Traffic Engineer. Performed VISSIM analyses of an Alternative Technical Concept (ATC) consisting of two new flyover ramps leading to/from the Airport on the east side of the interchange and the first Diverging Diamond Interchange (DDI) in Louisiana. Joey completed an IMR to meet FHWA access policy standards to move the project forward on the accelerated design-build schedule. Joey also led the traffic signal design effort, including specialized DDI operations and complete street accommodations such as sidewalks and a two-way cycle track. |
| 01/14-10/14 | **DOTD LA 511 Jimmie Davis Bridge Rehabilitation \| Bossier Parish, LA**<br>Traffic Engineer. This project required a full bridge closure for the emergency rehabilitation of Jimmie Davis Bridge. Joey performed traffic analysis for the designated detour route as part of the TMP and proposed locations for temporary signal installations during the bridge closure. The detour routes included city streets on both side of bridge. Based on his analysis, Joey then designed and detailed traffic signal plans for temporary signal installations. Each selected improvement was needed to handle rerouting of all bridge traffic to the detoured route with minimal permanent pavement changes. Joey coordinated with the City of Shreveport and Bossier City for the selection of temporary improvements in order to meet their individual needs. |
| 03/13-03/14 | **Perkins Road Segment 1 \| City of Baton Rouge \| Baton Rouge, LA**<br>Traffic Engineer. Performed traffic study for environmental document required to widen a 3.4 mile stretch of Perkins Road from a 2-lane roadwy to a 4-lane divided curb and gutter roadway with raised median, sidewalks, sewer, and subsurface drainage. The study projected traffic for future roadway conditions and real estate developments impacted by the widening. Joey used HCS, Synchro, and SIDRA analysis software packages to analyze signalized intersections, unsignalized intersections, roundabouts, and U-turns. He also assisted in the selection of proper locations for U-turns based on traffic circulation patterns and roadway access. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Jim Trowbridge** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **3** |
| TITLE | **Senior Project Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **48** |

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| DEGREE(S) / YEARS / SPECIALIZATION | | **BS, MS / 1973, 1974 / Civil Engineering (Structural)** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE 16825 / LA / 09/30/2024** | |
| YEAR REGISTERED | **1977** | DISCIPLINE | **Civil** |

MEETS MINIMUM LADOTD PERSONNEL REQ.

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| Contract role(s) / brief description of responsibilities | Structural Engineering Lead. Will Lead the structural engineering team. Meets MPR 5. |
| 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 years of experience specified in the applicable MPR(s). |
| 05/20-Ongoing | **West Shore Lake Pontchartrain (WSLP) Pump Stations and Drainage Structures, St. Charles, St. John the Baptist, and St. James Parishes, LA**<br>Lead Structural Engineer. Responsible for design criteria, Specifications, structural design methodoligies. Designed pile supported fuel tanks, pump station stop logs and a braced floodwall for hydraulic and soil stability loads. The WSLP project is part of a USACE system intended to provide 100-year-level storm protection to the east bank of St. Charles, St. John the Baptist, and St. James Parishes. The project consists of the construction of two 800 cfs and two 2,000 cfs pump stations with sluice gates at each pump station and a navigation gate for boat access. |
| 05/20-Ongoing | **Everglades Agricultural Area (EAA) A-2 Reservoir Pumping Station (S-623) Project**<br>Structural Engineer. Designed the foundation for fuel storage tank farm and intake guide wall retaining walls for Jacksonville A 2 Pump Station, 60 percent design phase submittal. This project involves the design of an above ground reservoir, pump station, various water control structures, and associated distribution canals. The Everglades Agricultural Area (EAA) includes a 10,500-acre above-ground storage reservoir and an adjacent 6,500-acre Stormwater Treatment Area. The A-2 Reservoir Pump Station required maximum flow capacity is 4,500 cfs, based on a maximum inflow of 3,000 cfs from the Miami Canal and a maximum inflow of 1,500 cfs from the NNR Canal. |
| 01/18 - 02/20 | **Houma Navigation Canal (HNC) Lock Complex and Flood Risk Reduction Project - Lock Chamber and Floodwall, Terrebonne Parish, LA**<br>Lead Structural Engineer. Responsible for structural design criteria, specifications and coordination with geotechnical engineer’s recommendations for design of in-the-wet construction of a braced steel pile floodwall, lock chamber walls and upgrade of the existing steel floating swing gate. The lock project consisted of upgrading and re-using the existing Buba Dove floating steel floodgate and pile supported receiving structure. The new floodwall design and constructability had to be coordinated with existing floodwall sheet piles and plumb and batter bracing piles. The ubique floodwall design consists of adjacent 54 inch diameter steel piles braced by a cast in place concrete cap and new battered brace piles placed over the existing wall brace piles. The in-the-wet lock chamber designed consists of a row of adjacent 24 inch square precast concrete piles fitted with guides and grout slots. The wall is braced by a cast in place concrete cap and steel plumb and batter piles. Design criteria and design methodologies required coordination with and satisfying US Army Corp Of Engineers requirements for storm surge and wave loads, load combinations and design methods. |
| 04/10 - 01/12 | **Buba Dove Floating Floodgate on the Houma Navigation Canal, Terrebonne Parish, LA**<br>Senior Structural Engineer. Provided design of the foundation structure supporting the floodgate. The foundation structure, gate receiving structure consists of a tubular steel jacket, permanent template, that braces the eight 90” steel pipe piles that support each side of the floating steel floodgate in the closed and ballasted position. The Houma Navigation Canal opening at the floodwall is 250 feet by 24 feet water depth. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 01/12-08/13 | **Construction of the Houma Navigation Canal, Bayou Grand Caillou, Bush Canal, and Placid Canal Floodwall and Floodgate Projects, Terrebonne Parish, LA**<br>Owner's Representative. Provided contract administration for the construction projects. Monitored and approved contractor's submittals of shop drawings, progress schedules and payment applications. Enforced contract documents and project technical specifications. Also oversaw construction progress of work, Quality Assurance and Quality control inspections and responded to contractor's RFI's. The projects consisted of steel floodwalls and floodgates for the Morganza to the Gulf Flood Risk Reduction system in Terrebonne Parish. |
| 08/14-08/16 | **Petite Caillou Canal Floodwall and Floodgate Project, Terrebonne Parish, LA**<br>Lead Structural Engineer. Responsible for design criteria, design, specifications and construction monitoring of the floodwall and floodgate project. Designs included the braced floodwalls, the floating steel swing gate and the gate receiving structures. This project included design for a roller gate closure across LA Highway 56 adjacent to the canal. The project also included a back up diesel powered generator located on top of the floodwall adjacent to Highway 56. |
| 06/17-06/19 | **Falgout Canal Floodwall and Floodgate Project, Terrebonne Parish, LA**<br>Lead Structural Engineer. Responsible for design criteria, design, specifications and construction monitoring of the floodwall and floodgate project. Designs included the braced floodwalls, the floating steel swing gate and the gate receiving structures. Softer clay soil conditions at this site required larger pipe piles for the braced floodwall and a unique receiving structure that included plumb and batter piles in a single jacket structure. The receiving structure was designed to support unbalanced lateral soil loads in addition to the lateral loads of the storm surge and waves on the barge gate. Poor soil conditions resulted in unstable soil mass below the floodgate that required pile supports to keep from flowing out from under the floodgate during storm surge loading. To hold the soils in place and resist the unbalanced soil stability force a unique horizontal steel tubular truss was designed. The truss spanned between and was laterally supported by the receiving structures and braced the vertical piles that support the weight of the floodgate in the ballasted condition. |
| 04/19-05/19 | **Barge Support Pipe Piles for Emergency Closure of Bayou Chene, St. Mary Parish, LA**<br>Project Engineer. Provided design of pipe piles to support the 400 feet long barge used to reduce flooding from the Atchafalaya River high water condition. The design required coordination and modifications based on availability of the large barge required to be sunk across the channel, the channel bottom contours, and availability of large diameter pipe piles required to support the barge. Steel sheet pile were installed in front of the barge to act as the temporary dam. The properties and design of the sheet pile and supporting pipe piles had to coordinated and adjusted based on the relative lateral stiffness of the two systems. |
| 02/20-11/21 | **Grand Bayou Floodwall and Floodgate Flood Risk Reduction Project, South Lafourche Levee District, Louisiana 3235, Galliano, LA**<br>**Lead Structural Engineer.** Led structural design including design criteria and specifications for steel floodwall, floating steel swing gate and receiving structure. The project is a part of the Flood Risk Reduction System connecting Terrebonne and Lafourche Parishes. |
| 02/19-02/21 | **Permanent Bayou Chene Floodwall and Floodgate Flood Risk Reduction Project, St. Mary Parish, LA**<br>Lead Structural Engineer. Led structural design which included a 460 feet long floating steel swing gate, receiving structures to support the gate against storm surge in the closed position and landing and storage piles to support the gate in the open and closed positions. |
| 06/19-01/21 | **Bayou Teche Floodwall and Floodgate Flood Risk Reduction Project, St Mary Levee District, Youngs Road, Morgan City, LA**<br>Lead Structural Engineer. Led structural design including design criteria and specifications for steel floodwall, floating steel swing gate and receiving structure. The project is a part of the Flood Risk Reduction System for St Mary Levee district. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |  |
| NAME | **Paul Smith** PE, MSCE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **5** | |
| TITLE | **Structural Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **3** | |
| DEGREE(S) / YEARS / SPECIALIZATION | | **BA, BS, MS / 2010, 2010, 2015 / Engineering Mathematics, Civil Engineering, Civil Engineering** | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE.0043690 / LA / 3/31/2024** | | |
| YEAR REGISTERED | **2019** | DISCIPLINE | **Civil** | |
| Contract role(s) / brief description of responsibilities | Structural Design. Will support the structural engineering efforts. | | | |
| 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 years of experience specified in the applicable MPR(s). | | | |
| 03/19-12/21 | **Chatuge Dam Spillway Evaluation and Risk Assessment \| Clay County, NC**<br>Project Engineer. Participated in the ongoing development of a qualitative risk assessment (QRA) for a spillway. The scope included a Potential Failure Mode Analysis (PFMA), site visit, and a risk assessment of PFMs determined to be risk-drivers. The joint project team consisted of several subject matter experts and supporting project engineers from TVA and Stantec who conducted multiple two-to-three-day long workshops. Paul was responsible for reporting on the structural condition and capacity of the spillway, reviewing and developing potential failure modes (PFM), and participating in meetings, and report development. As a result of the QRA, he also performed a repair mapping site visit and designed and oversaw Interim Risk Reduction Measure (IRRM) repairs. | | | |
| 01/19-12/19 | **Chatuge Dam Spillway Evaluation and Risk Assessment: Chatuge and Nottely Dams, Spillway Hydraulic Analysis and Uplift Study \| Clay County, NC and Union County, GA**<br>Lead Structural Engineer. Developed and performed structural assessments of reinforced concrete spillways. The assessments determined the strength and stability of the aging spillways based on modern codes/standards for normal conditions, various flood events, and seismic events. The analyses were performed to determine the point of failure, which required careful applicable load and safety factors assessments. This included the training and approach walls, spillway slab, crest and terminal structures, and the steel gate structure. Repair and replacement alternatives were developed to update the structures to current industry standards. | | | |
| 01/18-11/18 | **Chatuge Dam Spillway Evaluation and Risk Assessment: Chatuge and Nottely Dams, Spillway Gate Assessment \| Clay County, NC and Union County, GA**<br>Project Engineer. Assessed performance during extreme flooding load events for several aspects of existing spillway gates. The gates and supporting structure are constructed of steel members and operated by a motorized hoist that travels on overhead rails. Multiple scenarios involving water levels, gate location, and hoist location were considered using a combination of finite element models and hand calculations. | | | |
| 07/19-Ongoing | **Bachman Lake Dam and Spillway Improvements Project \| Dallas, TX**<br>Structural Subject Matter Expert. Assessed the structural condition, global stability, and failure mechanisms of a concrete spillway and masonry intake tower during normal conditions and flood events. The evaluation determined relative risk to the structural components of the dam and that foundation and structural failures to the spillway and intake tower conduit may lead to an uncontrolled release of the reservoir and subsequent failure of the embankment dam. | | | |

16. **Staff Experience:**

| 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 years of experience in the applicable MPR(s). |
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| 06/19-06/20 | **Kirwan Dam, Geotechnical Investigation and Testing \| Wayland, OH**<br>Project Engineer. Prepared the structural inspection program and documents. He collaborated with another project engineer and inspected the reinforced concrete slabs and walls forming the spillway structure. The inspection tasks consisted of visual observations, sounding of concrete, and recording observations. Paul was also responsible for compiling the inspection report to present the findings and make repair recommendations. |
| 01/17-Ongoing | **Gwinnett County DWR Dam Safety Programmatic Services \| Gwinnett County, GA**<br>Lead Structural Engineer. Led structural inspections of outlet control structures (OCS) and principal spillway pipes (PSP) at 15 municipal reservoirs. The scope included preparing inspection documents, performing the top side and rope access inspections within the OCS, and coordinating the diving inspection underwater. Structure conditions were reviewed, and individual inspection reports were created for each site documenting overall condition, deficiencies, and repair recommendations. |
| 02/19-Ongoing | **Rochester Dam Rehabilitation \| Rochester, KY**<br>Project Engineer. Designed concrete bulkhead walls in rock mill race and in the defunct masonry lock chamber to restore a constant weir crest of an old dam and lock structure. The strength and stability analyses were performed using a combination of finite element modeling software and worksheets created for the specific complexities of these structures. The structures were analyzed for normal loading, flood event, and seismic events. The bulkhead wall in the lock required socketing the wall into the existing masonry, while also protecting the existing lock gates for historic preservation. |
| 05/18-Ongoing | **SR1-Low Level Outlet Works \| Calgary, AB**<br>Lead Structural Engineer. Responsible for collaborating with other disciplines and organizing a team of structural engineers to complete the design of structural elements of the project. In addition, Paul performed the design of several components and reviewed the designs of the remaining structures. |
| 08/19-05/20 | **TVA JOF Process Water Basin \| Johnsonville, TN**<br>Lead Structural Engineer. Completed designs for two large process water basins at TVA’s Johnsonville Fossil Plant. The structures were unique due to their size and the large loads applied by the excavators and trucks servicing the structures. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Justin Brown** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **3** |
| TITLE | **Project Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **6** |

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|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | **BS / 2013 / Civil Engineering** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **PE.42395 / LA / 9/30/2024** |
| YEAR REGISTERED: **2018** / DISCIPLINE: | **Civil** |
| Contract role(s) / brief description of responsibilities | Structural Design. Will support the structural engineering team. |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 03/20-Ongoing | **West Shore Lake Pontchartrain \| St. Charles, St. John the Baptist, and St. James Parishes, LA**<br>Structural Design Engineer. Responsibilities include performing structural analysis and design calculations for the Drainage Structure Superstructure using SAP2000, STAAD.pro and Mathcad as well as Pile foundation analysis and design of the substructure using Lpile, GROUP and CWALSHT. Further responsibilities include Material Take-Off and Definitive Estimation of all parts of the project within the scope of the Drainage structure feature |
| 10/16-01/20 | **Houma Navigation Canal Lock Complex \| Terrebonne Parish, LA**<br>Structural Design Engineer. Responsibilities included performing structural calculations for the design of multiple flood protection structures. Designs include temporary retaining structures, braced floodwalls, OESP plumb and batter structures, precast concrete piles, and miscellaneous structural framing. |
| 01/19-01/20 | **Bayou Chene Flood Protection Structure \| St. Mary Parish, LA**<br>Structural Design Engineer. Responsibilities included performing structural calculations for the design of multiple flood protection structures. Designs include steel tapered Bent Plate floodwalls, OESP plumb and batter structures, and miscellaneous structural framing. |
| 05/18-10/19 | **Bayou Teche Flood Protection Structure \| St. Mary Parish, LA**<br>Structural Design Engineer. Responsibilities included performing structural calculations for the design of multiple flood protection structures. Designs include braced floodwalls, OESP plumb and batter structures and miscellaneous structural framing. |
| 01/18-03/19 | **Grand Bayou Flood Control Structure \| Lafourche Parish, LA**<br>Structural Design Engineer. Responsibilities included performing structural calculations for the design of multiple flood protection structures. Designs include braced floodwalls, OESP plumb and batter structures, and miscellaneous structural framing |
| 01/14-10/16 | **The MOX Project, DOE Savannah River Site \| Aiken, SC**<br>Structural Design Engineer. Responsibilities included performing detailed structural analysis and design for electrical and process commodity supports within the facility, completing structural steel designs for sections of the pipe racks and main process units which satisfy ANSI/AISC N690 Nuclear codes. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Matt Hoy** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **17** |
| TITLE | **Senior Principal** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **0** |

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|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | **BS, MS / 2003, 2005 / Civil Engineering, Civil Engineering** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **2011003311 / MO* / 01/01/2024** |
| YEAR REGISTERED: **2011** / DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Water Resources / H&H Lead. Will lead the Water Resources / H&H team with modeling, studies, and assessments. Has performed hydraulic evaluation and/or design of over 50 dam projects ranging in height from 15 to over 200 feet. |
| 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 years of experience specified in the applicable MPR(s). |
| 05/10-Ongoing | **FEMA Production & Technical Services \| Various Locations, US**<br>Project Manager, Technical Lead. Responsibilities have ranged from preparing HUC-8 watershed-wide HEC-HMS and HEC-RAS (1D/2D, steady/unsteady) models to managing floodplain mapping, RiskMAP and Levee Analysis and Mapping Plan (LAMP) projects. Several projects have included mapping of Special Flood Hazard Areas for leveed areas with pumped interior drainage. Managed FEMA's pilot LAMP project in Grand Rapids, MI and continues to provide management, review and advisory roles on LAMP and mapping projects across the country. Matt is experienced in all phases of FEMA's RiskMAP process, from Discovery through Mitigation Planning. |
| 02/09-11/11 | **TVA Shawnee Spillway Replacement \| Paducah, KY**<br>Project Manager/Engineer of record. Design of a new spillway system at the Shawnee Fossil Plant Ash Stilling Pond. The system included a siphon spillway emergency drawdown system and concrete inlet structures equipped with stoplogs that serve as the primary spillway. Concerns with the structural integrity of the existing outlet works required design of the new spillway system, reconstruction of a portion of the existing embankment, and grouting of the former spillway outlet pipe penetrations. The permanent spillway system included concrete inlet structures equipped with stoplogs to allow for regulation of permanent pool elevation, HDPE outlet pipes to resist material deposition, a filter diaphragm along the outlet pipes to intercept seepage along the pipes, and a concrete outlet headwall with energy dissipaters. This project involved development of permit documents, preparation of construction plans and technical specifications, supporting hydrologic and hydraulic analyses, and construction observation and testing services. |
| 09/13-Ongoing | **Downtown Levee Flood Protection Plan \| Des Moines, IA**<br>Project Manager and Technical Lead. Responsible for the evaluation and improvements design of more than 16 miles of earthen levees and concrete floodwalls in Des Moines, Iowa. Led the overall system evaluation and hydraulic modeling efforts along both the river and interior drainage system. Hydrologic frequency analyses performed using HEC-SSP. Hydraulic modeling including 1D and 2D unsteady-flow HEC-RAS modeling of three river systems. Models were calibrated and validated against observed data and approved by FEMA and USACE. SWMM models, with 2D overland flow representations, were used to evaluate the interior drainage and pumping system. Identified multiple projects to lower water surface elevations and reduce flood risk. Led development of a "Master Plan" of projects to address deficiencies. Oversaw application of USACE HEC-FDA/FIA models to perform risk and uncertainty analyses. Engineer of record for design of multiple phases of levee improvements. Leading development of Emergency Preparedness Plan (EPP) for FEMA accreditation submittal, using hydraulic model and LifeSIM results to inform evacuation planning and risk assessments. |

*PE registered outside of Louisiana

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
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| 04/18-Ongoing | **CPRA Mid-Breton Sediment Diversion \| Plaquemines Parish, LA**<br>Hydraulics Lead. This diversion project serves to rebuild coastal land in Southeast Louisiana. Responsible for coordinating surveying, river instrumentation and modeling efforts with various project design elements. Modeling includes HEC-RAS models of the Mississippi River to evaluate impacts of sea level rise on the project, CFD models of the diversion structure, and interior drainage modeling of local drainage features such as canals and pump stations. Participated as H&H lead in Semi-Quantitative Risk Assessment (SQRA), along with USACE and CPRA staff, for the project. |
| 01/13-12/16 | **Embankment and Floodwall PMF Design at Four TVA Dams Grainger \| Loudoun, & Rhea Counties, TN**<br>Hydraulic Engineer. Led the design team to raise the crests of four TVA dams to address potential overtopping due to revised Probable Maximum Flood elevations for the Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams. Led the development of the technical specifications for all dams, including both concrete floodwall and earthen embankment raises of approximately 5 feet. In addition, led the design of improvements and development of construction drawings at Cherokee Dam. Improvements included a dam raise as well as roadway and parking lot improvements. A fast-tracked schedule and accelerated project delivery were implemented to meet the new PMF requirements for the new flood protection measures. |
| 01/15-12/18 | **Western New York Dams \| Various Locations, NY**<br>Senior Project Engineer. Supported analysis of several dams in western New York state. Hydrologic models were first created using HEC-HMS to determine inflow hydrographs to the various low- and moderate-hazard dams. The hydrologic and hydraulic design criteria were evaluated for each dam to determine if they could convey the required design storm and meet low water drawdown requirements. In addition to conveyance and storage requirements, the auxiliary spillways were evaluated relative to erosion and headcut susceptibility. Breach analyses were then performed to determine the downstream inundation area and aid in assignment of a dam hazard classification. Due to the uncertainty associated with the selection of dam breach parameters, a sensitivity analysis was performed to evaluate the potential impacts of parameter selection on the outflow hydrograph and inundation area. Inundation mapping was prepared to detail the impacted areas. For dams that failed to meet New York state and NRCS criteria, remediation measures were evaluated and conceptual-level design plans were developed. |
| 01/17-12/17 | **TVA Dam Breach Analyses \| Various Locations, Tennessee**<br>Hydraulic Engineer. Supported the breach analysis of several high-hazard dams owned and operated by the TVA, including Norris, Blue Ridge, and Hiwassee Dams. Matt computed dam breach outflow hydrographs for instantaneous seismic failures of these during postulated flood events. Calculations were performed, checked, and documented in accordance with Nuclear Regulatory Commission (NRC) Quality Assurance program requirements. Rating curves were developed for the complex gate geometry at each dam and pre-failure dam outflows were assumed to follow the Flood Operating Guide (FOG) for each facility. Outflow hydrographs were developed using a combination of HEC-HMS and HEC-RAS, since the outflows were limited by the geometry of the downstream valley and impacted by submergence. Matt prepared a report summarizing the analyses in accordance with regulatory criteria. |
| 05/20-3/23 | **South Harbor Two-Dimensional Modeling Analysis \| Granite City, IL**<br>Senior Project Engineer. In support of the Tri-City Regional Port District‘s proposed South Harbor project, performed a 2D hydrodynamic analysis to evaluate the potential effects of the harbor and a nearby L-dike on passing barge traffic in the Mississippi River. This work involved close coordination with the USACE, and USCG, as well as the Port District. The model of the approximately 1.5-mile reach near St. Louis, Missouri compared favorably with velocity measurements and helped to alleviate concerns regarding transverse flows near the harbor. GIS applications were utilized in providing custom output displays to aid in conveying the results of the complex modeling effort to the client and public stakeholders. |
| 05/13-12/16 | **Permanent Canals Closures & Pumps Project \| New Orleans, LA**<br>Hydraulic Modeler. Responsible for hydraulic analysis and design of the $731M Permanent Canal Closures and Pumps design-build project. This project provides a long-term solution for reducing risk from a 100-year storm event by blocking Lake Pontchartrain surges from entering the canals with 18-foot high barriers and pumps, with a combined capacity of 24,300 cfs that convey rainwater from each canal into the lake. Performed 1D and 2D HEC-RAS and RiverFlo-2D hydraulic modeling of the canals, including storm surge considerations, to verify that the planned design flows could be conveyed without exceeding maximum allowable water surface elevations in the canals. Also optimized flow patterns to the gate structures and pump intakes and determined scour protection requirements. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Keil Neff** PhD, PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **3** |
| TITLE | **Principal, Water Resources Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **18** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **BS, MS, PhD / 1997, 2007, 2010 / Engineering Science, Environmental Engineering, Civil Engineering-Water Resources** | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **115015 / TN* / 1/31/2024** | | |
| YEAR REGISTERED | **2012** | DISCIPLINE | **Civil** |

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| Contract role(s) / brief description of responsibilities | Water Resources / H&H; Hazard Mitigation Planning. Expert in hydraulics and hydrology who will support the hydraulics and hydrology team with modeling, studies, and assessments; will support the team's hazard mitigation planning efforts. |
| 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 years of experience specified in the applicable MPR(s). |
| 3/20-12/21 | **Chatuge Dam Spillway Risk Analysis and Alternatives Development \| NC**<br>H&H Subject Matter Expert. As a hydraulic and hydrologic Subject Matter Expert, provided expert elicitation and supplemental analyses to support the Chatuge Dam Spillway Quantitative Risk Analysis (QRA), and development and selection of alternatives. Provided level-pool routings, applied flood frequency information, and performed erosion modeling and drainage adequacy calculations. Additionally, supported development of Potential Failure Modes (PFMs) and led development and application of event trees in @Risk models. To support the QRA, led team in performing a Downstream Consequences Analysis (DCA) associated with breach of the spillway. The second phase of this work included improving consequences estimation by advancing the hydraulic model (HEC-RAS) and consequences model (HEC-LifeSim). |
| 5/21-10/21 | **Periodic Reviews of Bureau of Indian Affairs’ Dams \| AZ**<br>Risk Facilitator. Assisted team through a potential failure mode analysis (PFMA) and risk analysis process. Met with the team prior to risk analysis to ensure engineering analyses were completed to support the team analysis and ensure the team composition was appropriate to develop credible risk estimates. Facilitated the team risk analysis, helping the team develop potential failure modes, event trees, strategies for estimating risks, and developing ranges of likelihood and consequence estimates. |
| 03/18-12/19 | **Flood Loadings for Final Design \| Shasta Lake, CA**<br>Hydrologic Specialist. Performed peer review, senior-level technical support and guidance, and document reporting of the Shasta Dam PMF, in which estimates were developed to support the final design associated with its proposed raise. As the primary input parameter for PMF development, Probable Maximum Precipitation (PMP) volumes were calculated following HMR 58/59. Hydrologic inputs were developed to characterize the sub-basins and river reaches in the Shasta Dam Basin for model parameterization. Precipitation and hydrologic inputs were incorporated into a hydrologic model to develop PMF estimates. Led team performing analyses of: precipitation frequency, storm template development, Reservoir Frequency Analysis (RMC-RFA), peak discharge frequency analysis (EMA), development of HEC-HMS and HEC-RAS models, and AEP-neutral application of precipitation frequency and storm templates in rainfall runoff model. Phase two, an Issue Evaluation study, included a detailed paleoflood study for application in statistical flood frequency models and used to adjust/reduce uncertainty of flood frequency estimates, specifically extremely rare annual exceedance probabilities. |

*PE registered outside of Louisiana

16. **Staff Experience:**

| 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 years of experience in the applicable MPR(s). |
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| 06/20-Ongoing | **Orange County Coastal Storm Risk Management (CRSM) Project \| TX**<br>Hydraulics and Hydrology Technical Lead. Supports the task leader and H&H teams by providing expert guidance, assistance, and review throughout the course of this project. Technical work consists of hydrologic and hydraulic modeling of the project domain for baseline, design, and future conditions to provide recommendations for the drainage system including any modifications to the proposed CRSM features, required storage, detention, conveyance and drainage infrastructure, and pump station requirements. This new levee system (26.3 miles of newly constructed levee and flood walls, 7 pump stations, 56 drainage structures, 32 closure gates located at road and railway crossings, and two navigable sector gates) to support the CRSM Project. A critical component of this project includes Interior Drainage Analysis and Modeling to evaluate any adverse impacts due to the proposed levee system on rainfall-induced flooding interior of, and adjacent to, the CRSM system and provide information necessary for specifying design elevations, conveyance structures and gates, and pump capacities. |
| 11/16 -12/19 | **Flood Hazard Issue Evaluation, Corrective Action, Comprehensive Review, and Final Design Studies \| Bureau of Reclamation Facilities in Western U.S.**<br>Technical Lead/Project Manager/Peer Reviewer. Led and supported dozens of flood hazard studies to support assessment and design modifications of Reclamation facilities in the Western U.S. Issue Evaluation studies (IEs) are conducted to improve risk estimates, and hydrologic IEs include meteorological analysis, paleoflood investigation and associated hydraulic modeling, statistical flood flow frequency analysis, and hydrologic modeling. To support Comprehensive Reviews (CRs), Keil led flood hydrology program and team (2017-2019) in evaluating flood risk of approximately 35 facilities each year. This included developing and/or evaluating flood estimates by combining peak flow, water surface elevation, and volume probability relationships with respect to their Annual Exceedance Probabilities, to support risk assessment of potential hydrologic-related failure modes. When it is determined that an action is necessary to reduce risk at a facility, a Corrective Action Study (CAS) is conducted. Keil conducted several CAS projects to update flood frequency estimates and reservoir routings, develop construction hydrographs, evaluate interim reservoir restrictions, and provide additional design and construction risk information. Keil provided senior-level technical support/guidance and performed peer review for Final Design (FD) flood risk projects. This included developing design flows to support specifications for dam and spillway modifications. Keil used multiple methods to develop flood frequency estimates to verify and quantify the hydrologic inputs and risks associated with proposed design components. Drafted Flood Hazard Section of Comprehensive Review Guidelines (2019) to provide improved process and methodology. |
| 6/19-12/19 | **Reclamation Dam Safety Advisory Team (DSAT) \| Bureau of Reclamation Facilities in Western U.S.**<br>Flood Hydrology Subject Matter Expert. Provided review, expert guidance, and concurrence of Comprehensive Reviews, Issue Evaluations, and Corrective Action Studies to support the Bureau of Reclamation’s Dam Safety Office and facilitate risk-informed decision-making. |
| 10/14-10/16 | **Downstream Consequences Assessments \| Multiple locations, AL, GA, KY, MS, NC, TN, VA**<br>H&H Lead. Led development of consequences methodology and directed project team to conduct downstream consequences assessments of flooding hazards for several dams in the TVA system. This included scenario development, GIS data acquisition and processing, hydraulic modeling, warning and evacuation estimations, and Hydrologic Engineering Center’s Flood Impact Analysis (HEC-FIA) modeling. Life loss and economic consequence results were incorporated in risk assessments. |
| 05/15-8/16 | **Dam Safety Inspections \| Multiple locations, TN, NC**<br>H&H Subject Matter Expert. Participated in TVA Dam Safety Formal Inspections. Work included 1) preparing and presenting project-specific information related to reservoir operations, flood history, hydrologic hazard, emergency action planning, and hydraulic capacity and spill; 2) inspection and performance evaluation of projects (powerhouse, galleries, sluice and spillways, non-overflow sections, earth embankments, and saddle dams); and 3) drafting hydrology section of formal inspection report. |
| 03/13-08/14 | **Emergency Action Planning Flood Inundation Mapping Updates \| Multiple locations, AL, GA, KY, MS, NC, TN, VA**<br>Engineering Team Lead. Responsible for model development and unsteady modeling of ten tributary reservoirs and associated river reaches in the TVA reservoir system. Collected bathymetric data utilizing RTK-GPS and kayak mounted echo-sounder. Developed a geo-referenced geometry in ArcGIS and integration with existing data. Developed unsteady flow analyses (HEC-RAS) for multiple flood scenarios. Emergency Action Plan map books were developed for all TVA facilities in the 40,000 mi2 basin and distributed to TVA groups, state, county and municipal emergency management organizations. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Joe Rungee** PhD, PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **2** |
| TITLE | **Water Resources Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **3** |

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|---|---|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | | | **BS, MS, PhD / 2012, 2014, 2019 / Civil and Environmental Engineering, Environmental Engineering, Environmental Systems** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | | **37617 / KY* / 6/30/2024 ; 126954 / TN* / 08/31/2024** |
| YEAR REGISTERED | **2022** | DISCIPLINE | **Civil** |

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|---|---|
| Contract role(s) / brief description of responsibilities | Water Resources / H&H. Water resources professional specializing in H&H modeling, stream restoration and channel design, tool development, and data mining. Will support water resources and H&H analysis and design. |
| 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 years of experience specified in the applicable MPR(s). |
| 10/21-03/22 | **I-69 Ohio River Crossing, KY**<br>Updated existing HEC-RAS 2D model to optimize proposed design to minimize construction cost. The resulting savings contributed to winning the contract. |
| 06/21-04/22 | **Chatuge Dam Spillway Issue Evaluation Study to Support Quantitative Risk Assessment \| TN**<br>Project Engineer. Developed spreadsheet to assess modes of failure for the spillway as part of a working group. Converted the spreadsheet to python-based script, performing 1442 simulations to assess the uncertainty in modes of failure. |
| 07/21-Ongoing | **Statewide Base Level Engineering \| TX**<br>Project Engineer/Subject Matter Expert. Developed hydrology methodology for using spatially varied precipitation for Rain-On-Grid 2D modeling, developed project standard of procedure, sit as the HEC- RAS 2D subject matter expert, modeler, and developed a suite of tools to improve modeling efficiency and consistency. |
| 07/22-11/22 | **Edmonson County Water District Lock and Dam 5 removal \| KY**<br>Technical Advisor. Met with clients and dam operators to assess risk of removing dams and develop strategy to assess and alleviate risk. |
| 01/23-02/23 | **Forget Me Not Creek Stream Restoration Project – Basis of Design (BOD) Memorandum, Manitowoc, WI**<br>Project Engineer. Developed HEC-RAS 2D model to assess and compare existing and proposed conditions. Model development included basin delineation, developing the terrain, hydrology (inflow and precipitation), infiltration, and surface roughness. |
| 02/23-04/23 | **Little Plover Stream Restoration Project – Basis of Design (BOD) Memorandum, Plover, WI**<br>Project Engineer. Developed HEC-RAS 2D model to assess and compare existing and proposed conditions. Model development included basin delineation, developing the terrain, hydrology (inflow and precipitation), infiltration, and surface roughness. |
| 12/22-04/23 | **Hominy Creek Restoration \| NC**<br>Project Engineer Updated effective model to corrected effective and assessed proposed channel improvement designs for no-rise certification. |

*PE registered outside of Louisiana

16. **Staff Experience:**

| 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 years of experience in the applicable MPR(s). |
|---|---|
| 11/22-04/23 | **Western Kentucky Wetland Repair \| KY**<br>Project Engineer/Surveyor. Participated in survey collection at site. Developed HEC-RAS 2D model of area considering original design, existing, and proposed conditions to assess shear stresses on dikes of interest over varying storm events. Model development included basin delineation, developing the terrain, hydrology (inflow and precipitation), infiltration, and surface roughness. |
| 04/22-06/22 | **Yellow River Bank Stabilization\| FL**<br>Project Engineer. Updated effective model, iterating over a series of proposed bank-stabilization designs for no-rise certification. |
| 11/22-Ongoing | **LAS2RAS LiDAR to HEC-RAS Bridge Automation \| TX**<br>Lead Engineer. Leading the development of a tool to incorporate LiDAR-derived bridge data into HEC-RAS 2D models |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **R. Austin Nall** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **1** |
| TITLE | **Geotechnical Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **8** |

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| DEGREE(S) / YEARS / SPECIALIZATION | | **BS, MS / 2012, 2013 / Civil Engineering-Geosystems, Civil Engineering** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE 41611 / LA / 09/30/2023** | |
| YEAR REGISTERED | **2017** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Geotechnical Engineering Lead. Will lead the geotechnical engineering team. | | |

| 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 years of experience specified in the applicable MPR(s). |
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| 03/21-Ongoing | **West Shore Lake Pontchartrain Pump Stations and Drainage Structures, St. Charles Parish, LA**<br>Geotechnical Engineer. Assists in managing the project, performing engineering analyses (global stability, settlement, pile capacities, unbalanced load calculations, preload program with wick drains), developing construction specifications, and performing technical reviews. Austin performed the geotechnical design for a segment of braced floodwall for the project. The project presented several geotechnical challenges as the project sites are located in virgin marsh deposits consisting of very soft, compressible clays and organics. Stantec's scope of work includes risk reduction features at four sites including two pump stations, four drainage structures, braced floodwalls, T-Wall transitions, levee sections, maintenance and electrical buildings, operations area, and access roads. Analyses for the project adhered to the latest guidelines set forth by the HSDRRS-DG, USACE Engineering Manuals, and LADOTD criteria. |
| 03/15-11/21 | **CPRA Houma Navigation Canal Lock Complex \| Terrebonne Parish, LA**<br>Geotechnical Engineer of Record. The Houma Navigation Canal Lock Complex consists of a new 800 ft. long lock system and upgrades to the existing 300 ft. wide barge-type floodgate. New construction will include braced floodwalls, barge gates, receiving structures, swing gate monoliths, sector gates, control buildings, I-Walls, nose piers, dredging, and mitigation. Has performed detailed geotechnical analyses for the project that include pile capacity/settlement; down drag; global stability of levees, banks, T-Walls, and monoliths, including unbalanced load determination; seepage cut-off walls; lateral pile capacities; retaining walls; settlements. A pile load test was performed as a part of the design phase and included several axial compression and tension load tests as well as a lateral load test on 66- and 90-inch diameter steel pipe piles. Analyses for the project must adhere to the latest guidelines set forth by the HSDRRS-DG and applicable USACE Engineering Manuals. The results of analyses and recommendations made for the project were presented in a geotechnical report sealed by Austin. Construction began in 2021. |
| 02/18-11/21 | **CPRA Mid-Breton Sediment Diversion \| Plaquemines Parish, LA**<br>Project Engineer. The Mid-Breton Diversion project (BS-0030) is located on the east side of the Mississippi River in Plaquemines Parish, LA and is intended to divert sediment rich water from the Mississippi River to create new land in the Breton Sound Basin. Project features will include a gated diversion control structure in line with a realigned segment of Mississippi River Levee, diversion channel and conveyance levees, inlet and outfall channels, and new segments of state highway to connect a new bridge. Assists in managing the project as well as supporting the permitting process, planning the field investigations (soil boings, CPTs), developing laboratory test programs, and performing engineering analyses (global stability, settlement, seepage, pile capacity, etc.). The project is currently moving into the 60% design phase. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
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| 07/18-11/21 | **Marmande Canal Floodgate \| Terrebonne Parish, LA**<br>Project Engineer. The Marmande Canal Floodgate Project consists of a new braced floodwall and steel swing gate structure located on Marmande Canal in Terrebonne Parish, LA. The project includes tying the new braced floodwall into two existing reaches of earthen levee. The project includes improving soils along the canal banks through use of wick drains to support the new levee tie-ins. Performed engineering analyses (axial and lateral pile analyses, braced wall analyses, global stability and settlement analyses of levee tie-ins, and wick drain design). |
| 09/20-08/21 | **Raccoon Bayou Levee Improvements \| Richwood, LA**<br>Geotechnical Engineer of Record. The proposed project consists of various drainage improvement features to reduce recurrent flooding associated with Raccoon Bayou within the project area. During heavy rain and flood events, water backs up into Raccoon Bayou and floods the project area. Managed the geotechnical investigation for the project which included soil borings and CPT soundings, laboratory testing, and performing engineering analyses (slope stability, settlement, seepage, road design). Improvements include a new earthen flood protection levee and adjacent drainage canal, a gravel service road, two new pump station control structures, new culverts, and the excavation and widening of an existing drainage channel. |
| 03/21-10/21 | **Dechene Road and Embankment \| Columbia, LA**<br>Geotechnical Engineer of Record. The proposed project consists of constructing a new gravel road, approximately 3,400 ft in length, through mostly undeveloped land. The gravel road will be built on top of a new embankment, approximately 2,200 ft in length, that will be raised from the existing grade of approximately El. +82 to +85 ft. up to El. +98 ft. The road and embankment are designed to DOTD standards. Managed the geotechnical investigation for the project which included soil borings, laboratory testing, and performing engineering analyses (slope stability, settlement, seepage, road design). |
| 08/16-10/21 | **Little Bayou Black Forced Drainage \| Houma, LA**<br>Project Engineer. The Little Bayou Black Forced Drainage project aimed to reduce recurrent flooding upstream of the new pump station by forcing drainage downstream using 2 pumps. The structure also included a tainter gate for use during non flood events. Managed the geotechnical investigation for the project which included soil borings, laboratory testing, and performing engineering analyses (slope stability, retaining wall analysis, settlement, seepage, lightweight fill). Construction was recently completed and the pump station is in use. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **David Lutz** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **3** |
| TITLE | **Geotechnical Project Manager** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **32** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **BS, MS / 2012, 2013 / Civil Engineering-Geosystems, Civil Engineering** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **PE 26686 / LA / 09/30/2024** |
| YEAR REGISTERED: **1996** — DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Geotechnical Engineering. Will support the geotechnical engineering team. |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 06/20-Ongoing | **Bachman Lake Dam and Spillway Improvements Project \| Dallas, TX**<br>Geotechnical Engineer. Inspector for the 117-year old Bachman Dam after seeps were reported by Dallas Water Utilities at several locations at the dam’s service spillway. During the inspection of the service spillway, minor seepage was observed and noted, and recommendations for monitoring of the seeps and the spillway were made for Dallas Water Utilities. The remainder of the 2,800-foot long earthen dam was also inspected. David also supervised drilling operations at Bachman Dam, which was being conducted concurrently as part of a new design for the dam’s service spillway, emergency spillway and dam embankment. The geotechnical investigation included six borings that were drilled (to supplement numerous historical borings drilled in the past) to depths up to 120 feet. The borings were used to collect soil and rock samples of the native clays and sands, as well as the embankment of the dam itself, which was primarily clayey. Lab testing was performed to assess the strength characteristics of the soil, including UU, CU triaxial tests, direct shear tests and consolidation tests. Soil classifications tests were also performed, including Atterberg limits, sieve analyses, and moisture content. All of the geotechnical data will be used in the analyses and final design of the new spillways and dam embankment. |
| | **Morris Sheppard Dam Inspection \| Palo Pinto County, TX**<br>**Geotechnical Engineer** Inspection of the geotechnical aspects of the annual dam inspection for Morris Sheppard Dam, which is owned and operated by the Brazos River Authority. Annual inspections of the approximately 80-year-old dam is required by the TCEQ. Inspections document the conditions of the dam, and compare items noted during previous inspections to the current day. Recommendations for maintenance are provided, as well as items that required continued monitoring. |
| 06/20-11/21 | **West Shore Lake Pontchartrain Pump Stations and Drainage Structures \| LA**<br>Senior Geotechnical Engineer. The WSLP project is part of a USACE system intended to provide 100-year-level storm protection to the east bank of St. Charles, St. John the Baptist, and St. James Parishes. The project consists of the construction of two 800 cfs and two 2,000 cfs pump stations with sluice gates at each pump station and a navigation gate for boat access. David's responsibility was to development the geotechnical-related specifications for the project, which included levees, pump stations, canals and access roads. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| | **Trinity Parkway \| Dallas, TX**<br>Deputy Project Manager for the Geotechnical Levee Engineer (GLE). Responsible for overseeing all geotechnical engineering analyses, laboratory testing program, and the geotechnical field investigation. The scope of work for the GLE was to investigation the impact that a proposed tollway might have on the adjacent levees of the Trinity River in Dallas, Texas. As the Deputy Project Manager, David was responsible for reporting on the progress of the field investigation and lab testing, and for presenting the results of the geotechnical analyses to the client (North Texas Tollway Authority), and to the City of Dallas and the U.S. Army Corps of Engineers. The geotechnical analyses included slope stability analyses of the levee and seepage analyses beneath the levee during projected maximum flood events (both pre- and post-construction). The results of the analyses were presented in a final report with geotechnical recommendations for construction of the parkway's bridges and embankments. Drilling was performed using continuous-flight and hollow-stem augers to collect soil samples, and mud-rotary drilling to collect rock core samples. Extensive laboratory testing was performed to assess the type of soils and their strength parameters, including consolidation tests, UU and CU triaxial tests, direct shear tests, Atterberg limits, and sieve analyses. Over 200 borings were drilling along the proposed alignment of the Trinity Parkway. |
| | **Post-Hurricane Katrina Levee Studies \| New Orleans, LA**<br>Geotechnical Engineer. Responsible for supervising the laboratory testing of soils collected for various task orders in support of the rehabilitation of levees throughout southeast Louisiana for the U.S. Army Corps of Engineers. Geotechnical investigations included thousands of borings and CPTs, and a corresponding large quantity of laboratory tests. Tasks order included levees, flood protection gates and related structures. |
| | **Trinity River Levee & Lakes, Dallas, TX**<br>Geotechnical Engineer. Assisting with the investigation to assess the condition of the Trinity River levees in Dallas, Texas as part of the Dallas Floodway Extension (DFE) project. The work was conducted for the City of Dallas and the U.S Army Corps of Engineers, and included more than 20 linear miles of levee embankments. The project also included 270 acres of interconnected swales and wetlands, as well as over 5 miles of new levees. The purpose of the project was to perform slope stability and seepage analyses of the levee in order to verify that they met City of Dallas and USACE requirements. Drilling included over 300 borings along the levee system using solid-stem and hollow-stem auger methods, as well as mud-rotary drilling. Samples were collected using split-spoon and Shelby tube sampling techniques; and rock samples were collected using mud-rotary drilling to collect NX rock samples. Extensive laboratory testing was performed to assess the type of soils and their strength parameters, including consolidation tests, UU and CU triaxial tests, direct shear tests, Atterberg limits, and sieve analyses. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |  |
| NAME | **Jeff Dingrando** PE, PG | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **23** | |
| TITLE | **Principal** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **0** | |
| DEGREE(S) / YEARS / SPECIALIZATION | | **BS, MS / 1997, 1999 / Geological Engineering, Civil and Environmental Engineering (Geotechnical Emphasis)** | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE 23177 / KY* / 09/30/2023** | | |
| YEAR REGISTERED | **2003** | DISCIPLINE | **Civil** | |
| Contract role(s) / brief description of responsibilities | Geotechnical Engineering. Will support the geotechnical engineering team. | | | |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 03/13-12/17 | **TVA Dam Safety Assurance Program \| Tennessee, Alabama, North Carolina, Virginia, and Georgia**<br>Senior Geotechnical Engineer. The Tennessee Valley Authority (TVA) is undertaking a portfolio-wide re-evaluation of the global stability of their existing hydroelectric and flood control dams. Assisted in evaluating global stability of earthen embankment dams at 18 TVA dam sites with many including multiple embankments (main dams, saddle dams, dikes) and/or concrete sections. The program required an aggressive schedule, and Stantec met all key schedule milestones. Major tasks included data review and gap analysis, field exploration, laboratory testing (soil and rock), material parameter development, seepage and stability analysis, threshold analysis, and conceptual retrofit design. Jeff supported work at all of the sites by developing laboratory testing guidance, providing quality control reviews, creating reporting templates, leading seismic analyses including interpretation of geologic profiles, and providing overall senior technical oversight. Cost: $35M (program value) |
| 03/2-Ongoing | **Big Creek Lake Dam Filter Berm Design (part of Programmatic Dam Safety Services for Mobile Area Water and Sewer System) \| Mobile, AL**<br>Senior Geotechnical Engineer. Stantec has designed a filter berm and blanket drain to mitigate seepage concerns along the embankment toe of Big Creek Lake Dam. Mr. Dingrando served as an Independent Technical Reviewer (ITR) for the design report and design drawings. He has also provided senior review of an exploration plan for internal erosion concerns within the embankment. |
| 02/22-11/22 | **Boone Dam, Semi-Quantitative Risk Assessment Support (Post-Implementation Evaluation) \| Johnson City, TN**<br>Senior Geotechnical Engineer. Performed a semi-quantitative risk assessment (SQRA) for Boone Dam to evaluate the concrete dam and embankment dam, after implementation of the seepage mitigation project. The SQRA consisted of a facilitated Potential Failure Mode Analysis (PFMA), a site visit, and a risk assessment of potential failure modes judged to be risk-drivers. A large group of facilitators and subject matter experts were assembled for an eight-day workshop to perform the SQRA. Stantec supported the seismic, geotechnical, geology, and instrumentation subjects by preparing background information for the site. Served as a geotechnical/seismology subject matter expert at the SQRA workshop and contributed to the SQRA summary report. |
| 01/22-12-22 | **Nickajack Dam, Independent Quality Control Review for Semi-Quantitative Risk Assessment \| Marion County, TN**<br>Independent quality control reviewer (IQCR). Performed IQCR for the report on the semi-quantitative risk assessment (SQRA) for Nickajack Dam. Stantec supported the geotechnical, hydrology, hydraulics, and consequences subjects by providing subject matter experts for IQCR. Served as a geotechnical subject matter expert to review the report and provide written comments. |

*PE registered outside of Louisiana

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 01/22-12-22 | **Tellico Dam Earth Embankments, Updated Seismic Response and Stability Analysis \| Loudon County, TN**<br>Senior Geotechnical Engineer. Updated the seismic stability analyses for the embankment sections of TVA's Tellico Dam. Included summarizing the design basis for current seismic stability analyses and parameters, performing ground response analyses using earthquake motions from TVA's 2020 seismic hazard analysis, and updating the seismic stability assessment for the Tellico Dam Right Rim Extension, Main Embankment, Saddle Dam 2, and Saddle Dam 3. This was a follow-up study to update seismic loading, ground response analyses, and liquefaction triggering analyses. The updated analyses demonstrated that select post-earthquake load cases did not meet acceptance criteria for slope stability. Led the geotechnical team that performed the analysis, prepared the calculation package, and made recommendations for additional studies. |
| 02/21-11/21 | **Douglas Dam, Semi-Quantitative Risk Assessment and Formal Inspection Support \| Sevierville, TN**<br>Senior Geotechnical Engineer. Performed a semi-quantitative risk assessment (SQRA) for Douglas Dam to evaluate the concrete dam, ten saddle dams, and one backwater dike. The SQRA consisted of a facilitated Potential Failure Mode Analysis (PFMA), a site visit (which also served as the formal inspection), and a risk assessment of potential failure modes judged to be risk-drivers. A large group of facilitators and subject matter experts were assembled for a seven-day workshop to perform the SQRA. Stantec supported the geotechnical and geology subjects by providing subject matter experts and preparing portions of the report for selected failure modes. Served as one of the geotechnical subject matter experts at the SQRA workshop and contributed to the SQRA summary report. Cost: $158K (fee) |
| 01/21-10/21 | **Toe Drain Assessment Support \| Multiple Sites, North America**<br>Senior Geotechnical Engineer. Stantec provided engineering support for TVA's Dam Safety Governance & Oversight's Phase 1 Toe Drain Assessment. Stantec reviewed the design, inspections, conditions, and instrumentation data available for the toe drains within the TVA earthen embankment dam inventory. The intent is to gain a better understanding of the toe drain systems, and for the information to be used in future risk assessments. Tasks included data collection and review, inventory review and standard checklist (including a ranking system) development, comparison of existing toe drain systems to current standards, and reporting. Mr. Dingrando served as a senior reviewer of each deliverable, and contributed to development of the standard checklist and ranking system. |
| 03/21-11/21 | **Douglas Dam, Semi-Quantitative Risk Assessment and Formal Inspection Support \| Sevierville, TN**<br>Senior Geotechnical Engineer. Performed a semi-quantitative risk assessment (SQRA) for Douglas Dam to evaluate the concrete dam, ten saddle dams, and one backwater dike. The SQRA consisted of a facilitated Potential Failure Mode Analysis (PFMA), a site visit (which also served as the formal inspection), and a risk assessment of potential failure modes judged to be risk-drivers. A large group of facilitators and subject matter experts were assembled for a seven-day workshop to perform the SQRA. Stantec supported the geotechnical and geology subjects by providing subject matter experts and preparing portions of the report for selected failure modes. Served as one of the geotechnical subject matter experts at the SQRA workshop and contributed to the SQRA summary report. Cost: $158K (fee) |
| 05/17-11/17 | **Structural Assessment of Beech River Projects Intake Towers \| Lexington, TN**<br>Senior Geotechnical Engineer. Participated in the evaluation of eight intake structures located at seven Beech River Project dams. This included assessing global instability and structural failure mechanisms acting during normal operations of the dams, flood events, and seismic events. Foundation and/or structural failures may lead to full or partial collapse of the tower, damage of the conduit, and subsequently failure of the embankment dam. Led the geotechnical team that developed foundation soil properties (strength, stiffness, bearing capacity), soil-concrete interface properties, and performed ground response analyses. Three design earthquake return periods were evaluated, and ground response analyses were performed to generate seismic inputs (i.e., response spectra) for the structural analyses. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Deborah Sheets** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **22** |
| TITLE | **Civil Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **32** |

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| DEGREE(S) / YEARS / SPECIALIZATION | | **BS / 1982 / Civil Engineering** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE 23087 / LA / 09/30/2024** | |
| YEAR REGISTERED | **1988** | DISCIPLINE | **Civil** |

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| Contract role(s) / brief description of responsibilities | Engineering During Construction Lead. Will lead on-site engineering services during 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 years of experience specified in the applicable MPR(s). |
| 06/16-Ongoing | **Mississippi River Re-introduction into Bayou Lafourche, Pumping Capacity Improvements Project \| Donaldsonville, LA**<br>Project Engineer. Prepared the proposed civil site drainage and road design drawings to access the new pump station. Currently reviewing shop drawings for compliance reviewing Requests for Information (RFI’s) and preparing change orders. |
| 10/19 -5/21 | **Bucktown Harbor Boardwalk and Marsh Overlook \| Jefferson Parish, LA**<br>Project Engineer. Coordinated the plans and specifications for an elevated boardwalk on Lake Ponchartrain, then continued with construction administration after contract award. Monitored and documented the performance of the construction contractor, worked with the inspector to verify that the work met the specifications, SWPPP, permits, monitored the schedule, reviewed and made recommendations on pay applications, and other actions necessary to assist the parish. |
| 9/18-19/19 | **Shintech Facility Access Roads \| Plaquemine, LA**<br>Project Engineer. Debby worked with the client to design and build access roads for the facility expansion. This task included design, construction oversight, bidding support, and contract administration. |
| 2/09-11/16 | **Gulf States Utility (GSU) Engineering Support Services \| Various Locations**<br>As part of a long-standing contract with GSU and Stantec, Debby assisted Gulf States Utility company on multiple projects. For these tasks, she provided construction administration and inspection services for the removal and replacement of railroad crossing at the plant entrance, emergency repairs on Scenic Hwy, and resurfacing GSU road. Activities included inspection of work and coordination with the contractor and owners. Prepared documentation, reviewed pay applications, and resolved on-site problems. The scope was expanded to include a pavement life-cycle study. |
| 04/07-08/13 | **Yazoo River Levee Setback and Structure \| Marksville, MS**<br>Project Engineer. Assisted in the preparation of design report, plans, specifications, quality control checks, and cost estimate for 1,600 feet of levee setback along the Yazoo River. The project includes a single conduit drainage control structure, a slide gate with operating gate hoist and metal walkway, concrete structure, and stilling basin. |
| 01/13-12/13 | **Angola Ring Levee & Mississippi River West Bank above Morganza Levee System Periodic Inspection**<br>Project Manager. As a project manager, Debby worked with a team of engineers across the country in a joint venture to conduct a periodic levee inspection. She worked with team members to prepare the Project Plan, Pre-inspection Packet, Periodic Report, and she participated in the inspection process. These large reports require extensive collection of system documentation, research, and knowledge of design criteria. She worked closely with the levee sponsor and the USACE. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 06/07-02/10 | **Carrollton Levee Floodwall and Levee Enlargement \| New Orleans, LA**<br>Project Engineer. Worked on the design for the approximately 2,850 linear feet of new floodwall and over 10,000 linear feet of levee enlargement. Project tasks included drawing production, preparing the Design Report which outlines the existing conditions, description of each proposed alignment, utility relocations, alignment impacts, Right-of Way information, quantity take-offs, and cost estimates. |
| 07/10-06/11 | **Arkansas River Levee Periodic Inspection \| Pine Bluff, AR**<br>Project Manager. As a project manager, Debby organized a team of experts in hydraulic, structural, mechanical, electrical, and geotechnical disciplines to conduct a detailed investigation and analysis of three levee segments and drainage structures. The inspection began with gathering historical information from original design documents and updating with remedial actions and modifications. The original design criteria were evaluated against current standards. Maintenance documents were reviewed and a visual inspection conducted. Based on the inspection results, potential consequences, the flood preparedness of the public sponsors, and recommendations were made in a Periodic Inspection Report and out-briefed to the USACE. |
| 04/08-10/08 | **Bluebonnet Exit Ramp \| Baton Rouge, LA**<br>Project Engineer: Debby was responsible for the construction oversight of the addition of an extra turning lane from Interstate 10 at the Bluebonnet Exit. She coordinated construction activities and final acceptance by LADOTD. |
| 02/10-10/10 | **Replacement Of the Grenada Dam Downstream Face Drainage Pipes \| Grenada County, MS**<br>Project Engineer. Completed plans and specifications for the replacement of the downstream drainage pipes in the downstream face of Grenada Dam. Detail designs such as concrete reinforcement details, grating, etc. will be completed. The technical specifications will be developed and furnished to the 95% completion. The structures to be designed consists of drop inlets for drainage system; layout of new drainage pipes; details of connections, inlets, and outlets; demolition plans; control of water plans during construction operations and supporting foundations and appurtenant items. |
| 05/06-06/07 | **Construction Administration and Inspection, Delta Management at Fort St. Phillip \| Plaquemines Parish, LA**<br>Project Manager. She was responsible for construction oversight during the construction of crevasses and earthen terraces in the marshes as specified by Louisiana Department of Natural Resources. She worked with the inspector to provide construction oversight and contract administration to include submitting all forms and reports, meetings and coordination with contractors, shop drawings and submittals, on-site interpretation of documents, and all construction inspection duties. |
| 03/08-08/11 | **Bayou Dupont Marsh Creation Project, (BA-39) \| Plaquemines/Jefferson Parishes, LA**<br>Project Engineer. As the Project Engineer, Debby worked closely with the Louisiana State Office of Coastal Protection and Restoration representative and the inspector to provide construction oversight and contract administration to include daily and weekly activities, forms, and pay application recommendations. For a project creating approximately 500 acres of sustainable marsh by pumping spoil material from the Mississippi River through a pipeline that required jacking and boring under both a railroad and a highway. At the end of the 270 c.d. project, Debby prepared the project completion report and review as-builts for completeness. |
| 07/05-11/06 | **Manchac Wildlife Management Area Prairie Shoreline Protection Project \| St. John the Baptist Parish, LA**<br>Project Engineer. Wave induced erosion to the shorelines of the landbridge caused of significant amounts of settlement of the existing structures and scour between the breakwaters. Debby prepared plans, specifications, and cost estimates for this project which modified the existing segmented breakwaters and added new sections to provide protection along the west bank of Lake Pontchartrain. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Ken Ganji** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **29** |
| TITLE | **Senior Principal, Mechanical Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **0** |

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|---|---|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | | **BS / 1998 / Mechanical Engineering** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE.0042674 / LA / 9/30/2024** *(initial registration IL, 062.056647, 2003)* | |
| YEAR REGISTERED | **2018** | DISCIPLINE | **Mechanical** |

MEETS MINIMUM LADOTD PERSONNEL REQ.

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| Contract role(s) / brief description of responsibilities | Mechanical Engineering Lead. Will lead the mechanical engineering team. Meets MPR 8. |
| 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 years of experience specified in the applicable MPR(s). |
| 06/18-Ongoing | **Mid-Breton Sediment Diversion \| Plaquemines Parish, LA**<br>QC Reviewer. Responsible for the QC review of the preliminary mechanical scoping studies and detailed design of five (5) new bi-directionally loaded tainter gates of approx. 14.6m (48-ft) wide by 13.7m (45-ft) high and their respective hoists for the diversion of sediment from the Mississippi River into the Mid-Breton basin for coastal restoration. |
| 06/16-Ongoing | **Springbank Off-stream Storage Project \| Alberta, Canada**<br>QC Reviewer. Performed QC review of conceptual design and tender plans and specifications of 20m (65.5-ft) wide by 4m (13.1-ft) high diversion inlet wheel gates and wire rope hoists, 1.2m (4-ft) wide by 1.6m (5.25-ft) high slide gates, and 24m (78.7-ft) wide by 5m (16.4-ft) high Obermeyer type spillway gates. Gates are to be installed at several features of the project including a diversion inlet structure, low-level outlet works, and service spillway. Services also included preparation of gate/hoist alternatives study for selection of final layout. |
| 01/18-12/18 | **Fishing Creek Hydro Station-Hoist Alternatives Budget Studies \| Great Falls, SC**<br>Lead Hydromechanical Engineer. Performed a site inspection and evaluations related to alternatives studies for improving efficiency and operating reliability of the existing spillway Stoney type gates at the Fishing Creek Hydro Station’s spillway. The spillway consists of twenty-two 13.7m (45-ft) wide by 7.6m (25-ft) high, screw stem hoist operated Stoney gates of 1920s vintage. Alternative hoisting arrangements were presented in a budget study report for incorporation in future upgrade projects. |
| 03/18-09/18 | **Wylie Hydro Station-Hoist Alternatives Budget Studies \| Fort Mill, SC**<br>Lead Hydromechanical. Performed a site inspection and evaluations related to alternatives studies for improving efficiency and operating reliability of the existing spillway Stoney type gates at the Wylie Hydro Station’s spillway. The spillway consists of eleven 13.7m (45-ft) wide by 9.1m (30-ft) high, screw stem hoist operated Stoney gates of 1920s vintage. Alternative hoisting arrangements were presented in a budget study report for incorporation in future upgrade projects. |
| 02/14-02/15 | **EB Campbell Dam Safety Review on Saskatchewan River (near Tobin Lake) \| Saskatchewan, Canada**<br>Project Manager. Project Manager for dam safety review report task, in regard to hydromechanical/gate equipment, supporting other Stantec operations. |

16. **Staff Experience:**

| 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 years of experience in the applicable MPR(s). |
|---|---|
| 07/17-06/18 | **Lake Houston Dam-Outlet Works Sluice Gate Study \| Coastal Water Authority \| Houston, TX**<br>Project Engineer. Lead hydromechanical engineer performed inspection and condition assessment of existing 0.9m by 0.9m (3-ft by 3-ft) manually operated cast iron sluice gate and developed alternatives for its rehabilitation/replacement. The study considered the use of the sluice gate for maintaining a water pool in the 963m long (3,160-ft) Ambursen type dam's hearth for stability. Upon further review by the client, it was determined that the sluice gate was no longer required and follow-up work included conceptual design of means for its abandonment/removal. Prepared detailed design for the abandonment work, which consisted of the installation of a fixed bulkhead on the upstream side of the sluice gate's portal in the dam. |
| 02/19-11/19 | **Rough River Dam Value Engineering Study \| Strategic Value Solutions, Inc. \| Falls of Rough, KY**<br>Project Manager; Lead Hydromechanical Engineer. Participated in value engineering study for U.S. Army Corps of Engineers, Louisville District's Rough River Dam Reconstruction. As a subcontractor to the value engineering study's facilitator (client), focus of study was on a new outlet works tower and re-alignment of the low level release tunnel through the dam, including review of 30% design prepared by the U.S. Army Corps of Engineers, Louisville District. |
| 03/19-Ongoing | **Callide Dam Radial Gates Risk Assessment \| Sunwater \| Bioela, Queensland, Australia**<br>Lead Hydromechanical Engineer. Participated in a site inspection and risk assessment workshop to identify the impacts related to potential malfunctioning spillway gates at the Callide Dam. The risk assessment centered around vibrations associated with the existing three pairs of counterweight automatically-operated spillway gates, each pair of radial gates 25.6m (84-ft) wide by 9.14m (30-ft) high, and their hydro-mechanical operating equipment. |
| 07/18-04/20 | **Bear Creek Sluice Gate Engineering Study \| Tennessee Valley Authority \| Vina, AL**<br>Lead Hydromechanical Engineer. Lead hydromechanical engineer for an engineering study to assess the deficiencies of the existing outlet tower sluice gates and operators and develop recommendations for their replacement/rehabilitation. Performed site inspection, condition assessment, identification of rehabilitation alternatives and associated cost and schedule estimates, and prepared a project planning document. Follow-on services included QC review of the rehabilitation design associated with the recommended replacement gate alternative from the previous phase. |
| 01/17-10/17 | **Raystown Lake Dam Value Engineering Study \| Strategic Value Solutions, Inc. \| Raystown Lake, PA**<br>Project Manager; Lead Hydromechanical Engineer. Participated in value engineering study for U.S. Army Corps of Engineers, Baltimore District's Raystown Lake Dam. As a subcontractor to the value engineering study's facilitator (client), focus of study was on spillway gates and temperature control (selective withdrawal) gates at the project site, including review of 60% design prepared by the U.S. Army Corps of Engineers, Portland District. |
| 08/18-Ongoing | **Sterling C. Robertson Dam Gate Improvement \| Brazos River Authority \| Franklin, TX**<br>Lead Mechanical Engineer. Ken is providing engineering services related to the replacement of the five existing spillway Tainter gates at the Sterling C. Robertson Dam impounding Lake Limestone. Services include the inspection of gate features including wire rope hoists and embedded parts (complete), preparation of plans and specifications for new/replacement Tainter gates (ongoing), and services during construction. |
| 09/18-12/18 | **Sterling C. Robertson Dam Tainter Gate Replacement Cost Analysis \| Brazos River Authority \| Franklin, TX**<br>Mechanical Engineering Reviewer (QC). Ken performed QC review for evaluation of Tainter gate repairs report (by others). Work included recommendations and cost analysis for various alternatives related to gate repair/replacement at the Sterling C. Robertson Dam's service spillway. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Mike Morgan** PE, P.Eng. | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **29** |
| TITLE | **Vice President, Mechanical Engineering** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **4** |

| | |
|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **130863 / TX* / 3/31/2024** |
| YEAR REGISTERED: **1994** / DISCIPLINE | **Mechanical** |
| Contract role(s) / brief description of responsibilities | Mechanical Engineering. Expert in mechanical engineering and will serve as a technical expert and advisor. |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 06/15-06/16 | **Powell Lake Dam Spillway Gate Rehabilitation \| Powell River, British Columbia**<br>Lead Project Engineer. Led engineering efforts for the rehabilitation of a 90-year-old gated spillway. The work included design and replacement of 19 radial gates measuring 24 feet wide by 13 feet high. Two different designs were provided for the gates, with seven gates capable of withstanding the 1:10,000 magnitude earthquake and the other twelve gates a more robust replacement design, still capable of being operated by the current hoisting equipment. New, reinforced trunnion anchorages were retrofitted to the existing piers to accommodate the increased seismic load. Other design features included vertical pier stability anchoring, spillway deck replacement, gate wire rope hoist design, traveling chain hoist rehabilitation design, electrical upgrades, and automation. |
| 07/96-Ongoing | **Radial Gate Inspection and Analyses \| Various States, PUD, Avista, Eugene Water & Electric, Virginia Power, City of Ann Arbor, MI**<br>Project Engineer. Performed several inspection and/or structural analyses of existing radial spillway gates at over 10 projects to verify conformance with FERC’s requirements regarding trunnion friction as brought about by the failure of the Folson Dam Spillway gate. Analyses ranged from basic hand calculations to 3D finite element analysis. Designed and prepared drawings for gate arm strengthening at Avista’s Noxon Dam, Grant County PUD’s Wanapum Dam and Lewis County PUD’s Cowlitz Dam. |
| 12/07-Ongoing | **Ruskin Dam Powerhouse Improvements Project \| Vancouver, British Columbia**<br>Project Engineer. Supported the $25 million design services for the Ruskin Powerhouse Improvement Project, an expected $350 million rehabilitation project for BC Hydro. The project includes the comprehensive rehabilitation, modernization, and improvements to the Ruskin powerhouse; a 1930 vintage plant housing three vertical-shaft, 35-MW, Francis-type turbines, and generators. Overall scope of the rehabilitation includes replacement of three turbine generator units, improvements to the project intakes, generating unit water conveyances, generating units, plant auxiliary equipment and systems, powerhouse structure, and auxiliary features. Specifically, the scope included development and evaluation of alternatives and preparation of final design for numerous project features in need of rehabilitation or upgrade including retrofit of new hydraulically-operated emergency wheel gates to the existing intake structures, rehabilitation of all mechanical and electrical equipment in the powerhouse, seismic upgrade of the powerhouse structure, seismic upgrade of the dam intakes, draft tube gate isolation system addition, slope stabilization and access bridge seismic upgrades. Stantec is presently performing bid assistance, negotiation assistance and construction management services for the entire powerhouse improvements project, consisting of 4 major construction and equipment contracts. Construction management services include review of contractor submissions, change management, shop and field inspections, and witnessing of commissioning activities. |

*PE registered outside of Louisiana

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Kip Anderson** PE, PG | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **23** |
| TITLE | **Senior Geotechnical Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **1** |

| | | | |
|---|---|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | | **BS / 1999 / Geological Engineering** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **PE 23678 / KY* / 06/30/2025** | |
| YEAR REGISTERED | **2004** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Geotechnical Field Services Lead. Will lead the geotechnical field services team. | | |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 09/16-Ongoing | **Programmatic Dam Safety Services for Mobile Area Water and Sewer System \| Mobile, AL**<br>Project Manager. Led various teams as Owner’s Engineer overseeing the initial geotechnical investigation in 2016, screening level slope stability analysis, needs assessment, PFMA, screening level risk evaluations (SRE), dam safety training, and dam safety program manual. In 2017-2018 additional drilling and instrumentation was performed along the dam and within the spillway to rule out any data gaps from the SRE. The SRE was then updated in 2019 along with any potential failure modes. A dam breach analysis, inundation mapping, and update to the existing EAP was completed. The dam safety manual and O&M manual was also updated. In 2019 the seven manual controlled spillway hoist were modernized with independently controlled “torque-tube” wire rope hoists which could be manually or remotely controlled. A new control building with cameras, lighting, and SCADA communications were also installed. Since 2016 Stantec has provided monthly instrumentation monitoring, automation of data collection, weir boxes, and annual dam/spillway inspections along with five-year underwater inspection of the spillway gates. A toe berm design is currently planned for 2024. |
| 09/12-12/21 | **TVA Dam Safety Assurance Program \| AL, TN, NC**<br>Project Manager. Led team that performed a “health check” of the existing dams via an in-depth field and laboratory testing program followed by finite seepage and slope stability modeling of the critical sections. Lead the geotechnical exploration at Chatuge, Nottely, Nickajack, Upper Bear Creek, and Cedar Dams to confirm subsurface stratigraphy, develop material properties (particle size, plasticity, moisture content, shear strength, deformation, stiffness, and permeability/ hydraulic conductivity parameters), explore geologic properties of the abutment and foundation bedrock, assist in the identification of failure planes, and provide means to measure piezometric conditions within the embankment, foundation soils, and bedrock to support the stability analyses. Oversaw the fieldwork consisting of more than 240 borings and instrumentation installation of more than 130 piezometers. The results of the analyses were provided to TVA along with conceptual retrofits for future design implementation. |
| 9/15 – 9/20 | **Evaluation of Vulnerability to Seepage and Internal Erosion of Watauga, Tellico, and Fort Loudoun Dam \| Various Locations in TN**<br>Project Manager. Led teams that performed internal erosion studies to evaluate the potential and/or occurrence of internal erosion through the dam embankment, foundation, and/or abutments. The projects was performed in accordance with TVA Safety, River Management, and Environment (SRME) Standard Programs and Processes document 27.001 (SRME-SPP-27.001, Rev. 0000). The evaluation included the following tasks: perform a seepage and internal erosion evaluation based on the available information, develop, and read existing piezometers, evaluate vulnerability of the embankment structure to internal erosion, perform hydrogeological assessment of the dam, and develop a geographical information system (GIS) database for future data management. The results of the internal erosion and seepage evaluation analyses were provided to TVA along with dam safety recommendations to better manage and mitigate any dam safety risks and to address any data gaps identified during the evaluation. |

*PE registered outside of Louisiana

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 01/19-11/22 | **Instrumentation Performance Report and Monitoring Plan (PRMP) Updates, Various Dams**<br>Project Manager. Led teams that performed Dam Safety Instrumentation Performance Report and Monitoring Plan (DSIPR&MP) report updates for 12 dams. Per SRME SPP 27.005, Dam Safety is required every five years to update the PRMP’s based on any new investigations efforts, engineering analyses, instrumentation monitoring performed, inspections, or any additional changes that may need to be incorporated since the previous PRMP report. The report updates provide a comprehensive plan of the current instrumentation system and an explanation on how the instruments indicate the dam is currently performing. Typical report updates included a summary of new PFMA workshops, engineering analyses, monitoring needs, behavior of instruments, history and monitoring frequency of the instruments, and recommendations for the repair or abandonment of unnecessary instruments, update/review of current threshold values, and revisions to instrumentation drawings. |
| 12/15-10/17 | **Stability and Internal Erosion Evaluation of Raccoon Mountain Pump Storage Facility, Tennessee, Marion County**<br>Project Manager. Led team that performed an updated seepage, stability, seismic, and internal erosion evaluations of the existing embankment structures at the pumped Storage facility. The project was performed in accordance with TVA Safety, River Management, and Environment (SRME) Standard Programs and Processes. The evaluation included: develop and execute surface geophysical exploration plan, develop field and laboratory testing plan, complete field explorations, and perform laboratory testing, prepare Surface Geophysical Data Report (GPDR), prepare Subsurface Exploration Data Report (SEDR), prepare Geotechnical Laboratory Data Report (GLDR), perform static seepage model through and beneath the embankment structures, perform 2-D slope stability analyses of the embankment structures in accordance with SRME-SPP-27.001, evaluate seismic performance with liquefaction and/or cyclic softening, post-earthquake, and deformation analyses (as required), evaluate internal erosion mechanisms within the embankment structures, and develop potential strategies for mitigating dam safety risk to address identified dam deficiencies with respect to slope instability, seismic instability, and internal erosion susceptibility. The results of the analyses were provided to TVA along with dam safety recommendations based on the seepage and stability assessment, internal erosion evaluation, and supporting analyses. |
| 03/06-09/07 | **Big Sandy River Levee \| Catlettsburg, KY**<br>Senior Project Engineer. Evaluated the proposed stability of a riverbank prior to failing and determining the engineering properties for the soil within the levee. He evaluated the stability for two conceptual design options. The first option consisted of regarding the existing slope and using a reverse graded filter blanket of crushed stone, and the second option looked at utilizing a steel piles with lagging retaining wall. UTEXAS and REAME slope stability software was utilized in the evaluation process. |
| 06/10-08/14 | **Mt. Vernon Ohio River Terminal Design \| Mt. Vernon, IN**<br>Stantec evaluated a long-term repair option of the existing river terminal structure. The existing 155-foot-long fixed bridge, 70-foot-long pivoting bridge, and 21-foot diameter land cell had been exhibiting downslope movement since the 1950’s. Slope instability and detrimental distress were observed along the bridge leading to the land cell. Likewise, a secondary containment dike located upslope of the land cell had developed tension cracks, a sheet pile retaining wall which was constructed in 1940’s to protect the abutment of the fixed bridge had failed, and the land cell supporting the fixed bridge was out of plume by approximately 1.5 feet. To monitor movement at the terminal Stantec developed a dock movement monitoring and response plan which included specific reporting trigger levels and monthly inspections. Stantec also evaluated six long term repair options that included conceptual level drawings/sketches, construction cost estimates and tentative schedules, reviewed environmental impacts, and developed a list of advantages-disadvantages for each option. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Stephanie Carpenter** EIT | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **8** |
| TITLE | **Civil EIT** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **0** |
| DEGREE(S) / YEARS / SPECIALIZATION | **BS / 2012 / Civil Engineering** | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **EI.0035186 / LA / 9/30/2024** | | |
| YEAR REGISTERED | **2022** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Geotechnical Field Services. Will support the geotechnical field services team. | | |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 2019-2022 | **Mid Breton Sediment Diversion \| Plaquemines Parish, LA**<br>Project EIT. The Coastal Protection and Restoration Authority is working on the Mid-Breton sediment diversion to restore the land building potential by delivering sediment from the Mississippi River back to the east side of the lower Mississippi river. The geotechnical team is tasked with design of the levees of the diversion that will tie-in to the Mississippi River levees. Responsible for preparation of the permit modification, drilling documents, safety documents, and schedule for the 30% geotechnical exploration. Her responsibilities during the geotechnical exploration included directing the drill crew in sampling 3” and 5” undisturbed samples, site safety, coordination of access issues, and coordination with the drilling subcontractor’s drill crew and personnel. After completing the 30% exploration, assisted with development and refinement of the consolidation and strength parameters. She also assisted with the stability analyses of the levees of the sediment diversion. Also prepared the geotechnical exploration for the Louisiana Department of Transportation and Development Hwy 39 relocation for the embankments, roadway, and bridge bents. |
| 2020-2022 | **Big Creek Lake Dam \| Mobile, AL**<br>Project EIT. Big Creek Lake Dam is a 5,000-foot long rolled earthfill embankment dam with a 1,100-foot long concrete spillway. Assisted with the 5-year formal inspection, annual inspection, and instrumentation repair. Responsible for instrumentation readings and repairing four vibrating wire piezometers. Repairs included replacing the automation boxes and putting an automated sensor one of the artesian piezometers at the toe of the dam. Completed instrumentation telemetry upgrades for all the existing vibrating wire piezometers. Also assisted with threshold evaluation for two new cross sections on the main embankment. Ms. Kinler helps complete monthly instrumentation memos. |
| 2022 | **Levisa Fork Basin Flood Damage Reduction Project \| Pike County, KY**<br>Project EIT. Levisa Fork Basin Flood Damage Reduction Project was a geotechnical subsurface investigation which consisted of forty borings along the proposed levee/floodwall alignment for the United States Army Corps of Engineers. Assisted with the subsurface exploration and was responsible for directing the drill crew during soil sampling and rock core for five borings. Completed daily safety meetings on-site and backfilling of borings with neat cement and grout. |
| 2021 | **Philpott Dam Landslide Remediation Design \| Henry County, VA**<br>Project EIT. Philpott Dam experienced an extensive landslide that entered the powerhouse and damaged the switchgear building, roadway, and parking lot in May 2020. The United States Army Corps of Engineers is working with Stantec to design a landslide remediation. Assisted with the subsurface exploration for the design of the relocated roadway and cut slope. The subsurface exploration included 8 borings and 3 piezometer installations. Responsible for directing the drill crew during soil sampling, rock core, and instrumentation installation. Performed daily safety meetings on-site. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 2021 | **Wabash Dikes Geotechnical Exploration \| Union County, KY**<br>Project EIT. The United States Army Corps of Engineers is constructing multiple dikes in the Ohio River to increase water flow and help with sedimentation. The project consisted of drilling 18 borings around Wabash Island on the Ohio River. Responsible for directing the drill crew during soil sampling of 5 soil borings on land and 10 soil borings from a floating plant on the Ohio River and completed daily safety meetings on-site. |
| 2019 | **Watauga Dam Geotechnical Investigation \| Carter County, TN**<br>Field Inspector. Watauga Dam consists of an earth and rockfill embankment, a fixed crest morning glory spillway and a low-level sluiceway discharge through a tunnel under the right abutment. The embankment is 900 feet in length and 332 feet tall. The investigation was associated with PFM 4, condition of concentrated leak erosion through transverse cracking caused by differential settlement near the left abutment. Responsible for preparation of the drilling documents, safety documents, and schedule, for the geotechnical exploration. During this investigation surface and borehole geophysical testing, sonic drilling, rock coring, and laboratory soil testing took place. Served at the on-site client contact and was on-site to coordinate the subcontractors and oversee the drill crews during soil sampling and rock coring. She also supervised the installation of open standpipe and vibrating wire piezometers. After completion of the field investigation, she completed the field investigation data report. |
| 2018-2019 | **Renovation of Green River Lock and Dam No. 3 \| Rochester, KY**<br>Resident Engineer. Green River Lock and Dam No. 3 consists of a lock placed in caretaker status in the 1960s and a timber-crib dam with Derrick Stone. The renovation consisted of restoring the historical crest elevation of the existing dam and deducing leakage through the structure to improve water supply especially during low-flow conditions. Coordinated with the owner and contractor and provided Engineering-During-Construction services. She observed construction activities for compliance with the design drawings and project specifications and maintained record drawings. |
| 2018-2019 | **Renovation of Kentucky River Lock and Dam No. 10 \| Winchester, KY**<br>Resident Engineer. Kentucky River Lock and Dam No. 10 consisted of the replacement of the concrete dam upstream of the original structure. Assisted with coordination of the contractor and provided Engineering-During-Construction services. She observed construction activities for compliance with the design drawings and project specifications. The construction consisted of underwater concrete placement, mass concrete placement, cofferdam construction, sheet pile driving, and dewatering. |
| 2016-2017 | **Lost Creek, Pin Oak, Pine and Dogwood Dams, FY17 Drilling, Sampling and instrumentation installation \| Henderson County, TN**<br>Field Inspector. Responsible for data mining of historical documents and cataloging the information to support stability evaluation of seven dams within the Beech River System. Served as a liaison for the GIS task associated with the work. Managed geophysical logging subcontractor and the drilling, sample collection and instrumentation installation of embankment soils to depths of approximately 103 feet at four of the seven dams. Oversaw drill rig setups on one of the embankment dams on the downstream face that required construction cribbing (wooden blocks) to provide a stable platform. Safety meetings conducted daily to review the tasks to be performed that day and identify possible associated safety issues. Supervised drill crew to install 7 nested piezometers and 8 single piezometers for a total of 22 piezometers at the four dams. |
| 2016-2017 | **Beech River Projects \| Henderson County, TN**<br>Engineering Designer. The Beech River Projects are a part of the TVA Dam Safety Assurance Program (DSAP). The project consists of the field investigation and stability evaluation of seven dams within the Beech River System. Responsible for data mining of historical documents and cataloging the information. She also served as a liaison for the GIS task associated with the work. |
| 2016 | **Chatuge Dam Engineering Support \| Clay County, NC**<br>Engineering Designer. The FY15 Chatuge Dam Stability analyses was performed to review and revise load cases which did not meet current criteria and update liquefaction and seismic analyses. Responsible for assessing internal erosion at the cross sections, evaluating and updating liquefaction results, and reporting of results. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Patrick Dobbs** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **3** |
| TITLE | **Senior Associate** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **12** |

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|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | **BS / 1999 / Geological Engineering** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **PE 0043270 / LA / 09/30/2023** |
| YEAR REGISTERED: **2019** / DISCIPLINE: **Civil** | |
| Contract role(s) / brief description of responsibilities | Hazard Mitigation Planning. Will lead the team's hazard mitigation planning efforts. |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 12/19-Ongoing | **State of Georgia CTP Program for Georgia Department of Natural Resources/Dewberry, Georgia**<br>Project Manager. Managing QA/QC of watershed modeling and FEMA project deliverables for the State of Georgia CTP Program. Modeling reviews include review of regression, gage, and rainfall-runoff (HMS) hydrologic modeling and 1D and 2D hydraulics modeling (RAS). |
| 2018 | **Guntersville Lake Watershed Risk Map QA/QC, Alabama Office of Water Resources, Alabama**<br>Project Manager. Managing QA/QC of watershed modeling and FEMA project deliverables, which including coordination with Tennessee Valley Authority and Atkins. Model reviews included pre- and post- review calls with the modeling lead. Model review meetings focused on solutions to model challenges. |
| 2017 | **MMC HEC-RAS Development for Pecos River Watershed, USACE Albuquerque District, New Mexico**<br>RAS Development Lead. Patrick was the RAS lead for producing a combination 1D/2D HEC-RAS model of the Pecos River from Santa Rosa, New Mexico to the Texas border. Model included approximately 220 river miles, 3 dams (Lake Sumner, Brantley Lake, and Lake Avalon), and 2 large 2D areas with one area encompassing the Rio Hondo and Rocky Arroyo through the City of Roswell, NM. Role included District coordination for acquisition of calibration and verification data and for utilizing a District developed HEC-HMS model during calibration. |
| 2016 | **MMC CWMS Development for Thames Watershed and Cape Fear River Watershed, USACE Wilmington and New England District**<br>Cape Fear RAS Development Lead. Patrick led the production of a 1D multi-reach HEC-RAS model for approximately 334 river miles, including 1 reservoir and two tributaries. Model creation utilized GeoRAS and ArcGIS and included close coordination with HMS, ResSim, and FIA teams. Effort also involved close coordination with the District to determine the best observed events for calibration and verification. |
| 2017-2019 | **Pickwick Lake Watershed Risk Map, Alabama Office of Water Resources, Alabama**<br>Project Manager. Patrick was the project lead overseeing all aspects of the project including technical solutions. Patrick regularly communicated with community stakeholders, including floodplain administrators and mayors to clearly communicate complex water resources concepts. |
| 2016-2019 | **Cahaba Watershed Risk Map, Alabama Office of Water Resources, Alabama**<br>Project Manager. Patrick actively managed the project including modeling of the Cahaba River, which is one of the nations most biodiverse rivers and Alabama’s longest free flowing river. Patrick’s technical guidance helped communicate significant base flood elevation changes to community leaders. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 2015-2019 | **Locust Fork Watershed Risk Map, Alabama Office of Water Resources, Alabama**<br>Project Manager. Patrick directed the project including coordination with the USGS for data collection to support the modeling of the Locust Fork of the Black Warrior River. Patrick’s role included outreach to community officials after the Christmas 2015 flood to validate ongoing H&H studies with observed data. |
| 2015-2018 | **Wheeler Lake Watershed Risk Map, Alabama Office of Water Resources, Alabama**<br>Project Manager. Patrick lead the project, coordinating closely with engineers and floodplain administrators in Huntsville, Athens and Decatur, Alabama. Patrick presented the Flood Risk Review, CCO, Resilience, and Mitigation Opportunities meetings. Patrick’s CCO meeting spurred a FEMA / Alabama EMA funded mitigation project in Hartselle, Alabama. |
| 2011-2015 | **Upper Alabama Watershed Risk Map, Alabama Office of Water Resources, Alabama**<br>Project Engineer. Patrick led the modeling of the Alabama River in the first Risk Map project for the state of Alabama. During the project Patrick led the formation of non-regulatory products at the State and National levels. Alabama River modeling was coordinated with a diverse stakeholder group, including wealthy home owners, USGS, and USGS emeriti. |
| 2015 | **State of Alabama Map Modernization, Alabama Office of Water Resources, Alabama**<br>Project Engineer. Patrick started his career during Map Modernization. Beginning with large scale computationally intensive hydrologic analyses and leading to riverine and coastal hydraulic analyses, Patrick’s map mod experience was a diverse starting point for a career focused on stakeholder engagement and mitigation opportunities. |
| 2016-2019 | **City of Muscle Shoals Sinkhole LOMRs, Muscle Shoals, Alabama**<br>Project Manager and Lead Engineer. Patrick prepared sinkhole LOMRs based on new topography and modeling methods to show reduced flood risk. The LOMRs remove homes, businesses and developable land from floodplain or floodway areas. City owned property is used to maximize floodway storage to avoid impacting privately owned property. Patrick conducted high level coordination with floodplain administrator, city engineer, and mayor. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Scott Hoffeld** CEP | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **3** |
| TITLE | **Senior Associate, Senior Project Manager** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **26** |

| | |
|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | **BA, MS / 1989, 1994 / Economics, Resource Management and Administration**<br>**Certified Environmental Practitioner (CEnvP) #02040408** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **N/A** |
| YEAR REGISTERED: **N/A** / DISCIPLINE | **N/A** |
| Contract role(s) / brief description of responsibilities | Environmental Services and Permitting Lead. Will lead environmental and permitting tasks. |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 12/05-06/06 | **Categorical Exclusion for Globalplex Internal Roadway Improvements \| Reserve, LA**<br>Project Manager. Project Manager for categorical exclusion from further documentation under the National Environmental Policy Act. The Port of South Louisiana proposes to improve the internal operations at its Globalplex facility by extending existing roadways and paving unimproved paths presently and wholly on the Globalplex property. The action will be partly funded by the U.S. Department of Housing and Urban Development, which triggered NEPA compliance. A Phase I Environmental Site Assessment was completed, as well as an environmental issues analysis. Because the project included improvements wholly on Port property, and no significant adverse effects were evaluated as likely from the issues analysis, a Categorical Exclusion was proposed by the Port and approved by the U.S. Department of Housing and Urban Development. No adverse effects were of concern; however, coordination with the USACE and LDNR was required as the project is located in the Louisiana Coastal Zone. |
| 09/12-06/15 | **DOTD I-210 at Nelson Road Interchange Improvements \| Lake Charles, LA**<br>NEPA Project Manager. Worked with the ABMB team during this project. He served as NEPA Project Manager for this aggressive seven-month NTP to FONSI, high-profile interstate interchange improvement project in Lake Charles, Louisiana. Project need is related to a new casino special traffic generator. Expedited work included completion of outreach, field work, and analysis of six build alternatives within six weeks of the NTP. Special NEPA documentation and review protocols were proposed by ARCADIS and approved by DOTD and FHWA, enabling environmental streamlining and reduction of schedule by over 55 percent. |
| 12/15-12/17 | **DOTD EA for the Dijon Extension Improvements \| Baton Rouge, LA**<br>Project Manager. Project Manager responsible for EA and public outreach for short connector roadway between LA 3064 (Essen Lane) and LA 1248 (Bluebonnet Boulevard) in Baton Rouge. The project involved coordination with the Our Lady of the Lake and The General hospitals regarding future development plans, as well as consideration of future bikeway plans for the City of Baton Rouge. |
| 02/16-12/17 | **EA for the Florida Avenue Improvements \| Orleans and St. Bernard Parishes, LA**<br>Project Manager. Scott was responsible for team coordination and public/stakeholder outreach oversight and agency coordination. The project alternatives include a new bridge over the Inner Harbor Navigation Canal, as well as optional roadway improvements, and neighborhood traffic calming for neighborhoods in the vicinity of the project alternatives, including 9th Ward of New Orleans. Key issues include truck traffic, property values, and environmental justice concerns. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 12/00-12/03 | **East-West Corridor Multi-modal Transportation Improvement Environmental Impact Statements \| New Orleans, LA**<br>Senior Environmental and Transportation Planner/NEPA Task Leader. Senior Environmental and Transportation Planner and NEPA Task Leader for a multi-modal transportation improvement project for a corridor that spans between the Louis Armstrong International Airport and the Central Business District of New Orleans. In accordance with a 1997 Major Investment Study for this Corridor, the LDOTD and Regional Planning Commission propose both highway and transit improvements. A hybrid NEPA compliance approach was developed and used to comply with the FHWA and FTA NEPA requirements for the project, which includes a joint scoping effort for both the highway and transit components, followed by separate NEPA studies. |
| 12/98-12/00 | **Jefferson Parish Roadway Improvement Program Management NEPA Studies \| Jefferson Parish, LA**<br>NEPA documentation Quality Assurance Coordinator. NEPA documentation Quality Assurance Coordinator for the Jefferson Parish Roadway Improvement Program, which consists of 47 individual road projects ranging from intersection improvements to new roadways. He was responsible for conducting scheduled reviews of environmental documentation and analyses prior to submittal to the LDOTD and FHWA, as well as coordinating the delivery of all environmental documentation between the DOTD and the consultants working on the effort, which number over 20. |
| 12/06-07/08 | **Individual Environmental Report (IER) Environmental NEPA Compliance \| Chalmette Loop Levee, St. Bernard Parish, LA**<br>Project Manager. Project manager for investigations and preparations for NEPA compliance documentation for the Chalmette Loop portion of the Lake Pontchartrain and Vicinity Hurricane Protection Project in St. Bernard Parish, Louisiana. The IER will investigate the improvement of 22-miles of levee, approximately 2,500 feet of floodwalls, a ramp for LA-46 over the levee, and the replacement or modification of all structures in the levee system. Earthen berms, T-walls, and T-wall caps atop earthen berms are the three principal alternative types or scales. Alignment options include straddling the existing alignment, and either a floodside or protected side shift. |
| 12/06-12/07 | **NEPA Documentation for Establishment of Temporary Housing Facilities \| New Orleans, LA**<br>Program Manager. Program Manager for related NEPA activities. From December 2005 thru February 2005, worked as lead NEPA documentation specialist in Orleans and surrounding parishes to establish group temporary housing facilities for residents displaced by Hurricane Katrina. Responsibilities included performing site reconnaissance; identifying potential environmental and socioeconomic constraints associated with the site; performing historical research on site use; identifying and performing necessary level of documentation; and determining overall site suitability for use as temporary housing facilities. |
| 01/07-06/08 | **Mississippi River Gulf Outlet Deep Draft De-authorization Study \| Louisiana**<br>Deputy Project Manager and Local Coordinator. Responsible for logistical arrangements, communications, and meeting participation associated with the Mississippi River Gulf Outlet De-authorization Study. The MRGO provides a bypass of the Mississippi River outlet to the Gulf from New Orleans. This dredged channel is maintained by the USACE and was seen by many as a contributing factor to flooding associated with past hurricanes. Congress mandated a study to de-authorize its use via a variety of alternatives. Passions related to the need for full closure were high but were in conflict to commercial interests. Provided assistance with the meeting to ensure that the USACE would be properly prepared for the unknown turn-out and public ire. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **Bob Esenwein** PhD, CEP | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **6** |
| TITLE | **Environmental Specialist** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **36** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **PhD / 1977 / Contemporary Analytical Value Theory; MA / 1974 / Contemporary Analytical Value Theory; MA / 1971 / Contemporary Analytical Value Theory; BA / 1969 / Contemporary Analytical Value Theory** **Certified Environmental Professional (CEP) #93055787** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **N/A** |
| YEAR REGISTERED: **N/A** / DISCIPLINE | **N/A** |
| Contract role(s) / brief description of responsibilities | Environmental Services and Permitting. Will support the environmental services and permitting team. |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 12/19-Ongoing | **Sterling C. Robertson Dam Tainter Gate Replacement Project \| Lake Limestone, TX** Environmental/Permitting Lead. Conducted a Waters of the U.S. investigation for the various locations near the dam to be used for the tainter gate replacement project and developed a United States Army Corps of Engineers (USACE) permitting strategy that minimized USACE Ft. Worth’s processing times to keep the overall project on schedule. He achieved this by coordinating and developing a construction and gate replacement plan which avoided Waters of the U.S. impacts by including lake dredging, dredged material placement, and wetland avoidance in Stantec’s design. All work was complied with USACE regulations implementing Section 404 of the Clean Water Act, State of Texas NPE, and water quality requirements. Robert is assigned to monitor gate replacement and prepare documentation for USACE on the replacement gat installation. He also will observe dredged material placement related to barge operations and the tug launching area. |
| 07/19-Ongoing | **Bachman Lake Dredging and Spillway and Dam Rehabilitation \| Dallas, TX** Permitting lead for dredging the lake to increase boater access to various areas of the lake and rehabilitation of the dam spillway and the dam itself. He secured USACE authorization for the dredging and dredged material placement and s coordination the permit application for demolition of the old spillway and construction of the new spillway. |
| 09/07-06/10 | **West Shore Lake Pontchartrain \| Laplace, LA** Provide technical support to project management. The project is a feasibility level study for providing hurricane storm surge protection to areas near and including the city of Laplace. Storm surge protection also is being contemplated for at-grade sections of the I-10 freeway traversing the Maurepas Swamp north of the city. Technical support tasks include planning and executing a technical outreach effort in conjunction with the local sponsor (Pontchartrain Levee District) management; identify research needs to respond to issues raised in interviews; and conduct research as needed to develop information necessary to evaluate project alternatives. |
| 02/06-06/09 | **Louisiana Coastal Protection and Restoration Technical Report \| LA** Project Manager. This comprehensive study, which was directed to be accomplished by the U.S. Congress, developed and evaluated the effectiveness and public acceptability of a variety of hurricane surge risk reduction projects across the Louisiana coastal area. Was assigned the task of preparing a separate appendix section summarizing the extensive report prepared by Dutch hydrologists and scientists addressing hurricane surge risk reduction in the Pontchartrain and Barataria estuaries; was assigned other review tasks for various parts of the report. The Coastal Protection report was selected for the USACE National Planning Award in 2010. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 09/18-08/20 | **Cedar Ridge Reservoir EIS USACE \| Ft. Worth, TX**<br>Project manager for this third party environmental impact statement (EIS), working with the USACE Ft. Worth District Regulatory Division to evaluate a major water supply reservoir proposed for west central Texas in the upper Brazos River watershed. Plans and organizes contractor work assignments and participates in conducting status and progress meetings with USACE and the dam's applicant, the City of Abilene, who is providing funding for the EIS. Bob also provides National Environmental Policy Act (NEPA) and 404(b)(1) guidance to the contractor team and supports the USACE Fort Worth District's project manager in developing EIS process work products. Budget and schedule responsibilities and reports to both the Applicant and USACE on the status of these key items. |
| 05/20-11/21 | **NEPA Compliant Environmental Assessment for the ARS Field Station Dam Rehabilitation Project Natural Resources Conservation Service \| Woodward, OK**<br>Environmental Lead. The ARS Field Station Dam has been determined to be unsafe and requires significant repair and rehabilitation which will require adjustments to the size of the structure at various locations. This NEPA-required environmental assessment is intended to provide the NRCS with information regarding unavoidable adverse effects to the biological, physical, and socioeconomic environments around the dam. Deputy project manager for Stantec's assignments on the assessment, which includes quality control and assurance; technical review of the NEPA document; cultural resource studies; and hazardous, toxic, and radioactive waste (HTRW) assessment. |
| 10/19-11/21 | **Pawnee Watershed Multiple Dam Sites Investigations \| Multiple Locations, KS**<br>Environmental Planning Lead. Robert was the environmental investigations lead for evaluating proposed earthen dam sites at five locations in the state of Kansas Pawnee Watershed. Work involved evaluating watershed biological and physical features, documenting potentially contaminated areas at or near proposed dam site locations, and identifying permitting requirements. |
| 08/93-12/05 | **Houston-Galveston Navigation Channels Widening and Deepening \| Houston, TX**<br>Project Director responsible for preparation of the environmental impact analyses in support of the USACE's supplemental draft and final statement of the overall project. Additional assignments included submitted recommendation to the port on the adequacy of environmental analyses of physical, biological, and socioeconomic environments relating to the overall project. Developed a cumulative impact methodology needed to evaluate the overall project and the value of using new work and maintenance dredged material beneficially to create and restore an intertidal marsh in the Galveston Bay estuary. Prepared and coordinated the USACE Section 10 permitting documents needed to develop a demonstration marsh (250 acres) that would demonstrate dredged material for marsh creation. Developed design criteria for the demonstration marsh used to later develop other beneficial use marsh sites.<br>Developed and participated in implementing beneficial use site monitoring, (adaptive) management, and maintenance plans for the beneficial use sites. Assisted in developing bioengineering parameters for intertidal marsh design in cooperation with the Beneficial Use Group resource agencies. These criteria were incorporated to the overall approach for constructing intertidal marsh. By 2005, approximately 900 acres of marsh and proposed marsh cells had been developed at three locations in Galveston Bay with the ultimate goal of constructing 4,250 acres of marsh from new work and maintenance dredged material associated with the widening and deepening project. |
| 01/10-12/12 | **Luce Bayou Interbasin Transfer Water Supply Project Third Party Environmental Impact Statement \| Liberty and Harris Counties, TX**<br>Project Manager. Led development of the EIS under SWG direction. Responsibilities included budget, and project management plan development and execution; preparation of Sections 1.0 and 2.0 of the EIS and preparation of various analyses for water resources, and cumulative impacts. |
| 05/02- 02/03 | **Spring Lake Dam Environmental Assessment \| San Marcos, TX**<br>Project Manager. Led the environmental assessment for repairs to Spring Lake Dam. His responsibilities involved preparation of a National Environmental Policy Act (NEPA) compliant document that also included a biological assessment of five federally listed endangered species identified in the vicinity of the dam. Bob also prepared the assessment, participated in the Section 7 Endangered Species Act consultation with the U.S. Fish and Wildlife Service, and led public meeting interactions on repair alternatives. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Stantec Consulting Services Inc.** | | |
| NAME | **James Loucks** PMP, CCP | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **23** |
| TITLE | **Senior Principal, Project Controls** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **22** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **BS / 1981 / Construction Engineering**<br>**Certified Cost Professional #2361, Project Management Professional (PMP)® #534386** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **N/A** |
| YEAR REGISTERED: **N/A** / DISCIPLINE: **N/A** | |
| Contract role(s) / brief description of responsibilities | Cost Estimating Lead. Will lead cost estimating tasks. |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 05/19-05/21 | **Little Bear Pump Station and Force Main D/M Document and Support Services \| Palmetto, GA**<br>Cost Estimator. Prepared a Class 4 OPCC in support of a 30 percent design submittal to construct a sewage lift station and approximately 20,100 linear feet (LF) of 12-inch forcemain from Little Bear Creek to the Ono Road Pump Station. The project is a component of a larger design-build project to pump wastewater from the Serenbe development and surrounding areas. |
| 12/01-12/14 | **Shasta Lake Water Resources Investigation EIS \| Central Valley, CA**<br>Cost Estimator. Led appraisal-level Class 4 cost estimates to support plan formulation phase designs of dam raise alternatives, including main concrete dam and earthen wing dam (embankment) modifications, dikes around the rim of the reservoir, spillway improvements, river outlet upgrades, temperature-control device (TCD) installation, and miscellaneous civil infrastructure improvements. He also led the feasibility-level cost estimates for the utilities relocations, recreation relocations, the Pit 7 powerhouse modifications, vehicular bridges, dikes, reservoir area clearing, and road relocations. |
| 01/13-12/13 | **San José-Santa Clara Regional Wastewater Facility Capital Improvement Plan (CIP) Program \| San Jose, CA**<br>Principal Estimator. The Stantec team provided program and project management services for the implementation of a 10-year capital improvement program (CIP). The daft plant master plan envisions a $2.2 million capital investment over the 30-year planning period, with $1.4 billion occurring in the next 10 years. Served as a principal estimator for the program, which included developing and reviewing cost estimates, taking into consideration escalation spiking, and providing auxiliary support to the City’s estimating team. The cost estimating effort for this program included 33 CIP projects. |
| 06/98-10/13 | **San Vicente Dam Raise \| Lakeside, CA**<br>QA/QC Team Lead. Reviewed all cost opinion deliverables from Stantec's teaming partner, prior to submission to the client. The $200M project scope consisted of a major roller compacted concrete dam raise plus related site infrastructure. |
| 05/18-12/18 | **Orville Dam Palermo Cold Water Pipeline \| Oroville, CA**<br>Cost Estimator. Developed Class 4 OPCCs for a 72-inch, six-mile conveyance pipeline considering both open cut and trenchless conditions, plus a new energy dissipation/flow control structure at the outlet. |
| 01/11-12/11 | **San Clemente Dam Removal \| Carmel Valley, CA**<br>Principal Estimator. Prepared detailed Class 3 and Class 2 cost estimates to support alternative analysis for the removal of a thin arch dam and upstream sediment deposits in the Carmel River including a river re-route bypass option. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Civil Design & Construction Inc.** | | |
| NAME | **Ralph Burgess** PLS | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **11** |
| TITLE | **Principal Land Surveyor** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **12** |

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| DEGREE(S) / YEARS / SPECIALIZATION | | | **BS / 2004 / Industrial Design & Supervision, Southeastern LA University** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | | **5040 / LA / 9/30/2024** |
| YEAR REGISTERED | **2010** | DISCIPLINE | **Land Surveyor** |

MEETS MINIMUM LADOTD PERSONNEL REQ.

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| Contract role(s) / brief description of responsibilities | Surveying and Property Research. Will provide services associated with land surveys and property research. Meets MPR 7. |
| 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 years of experience specified in the applicable MPR(s). |
| 02/22-11/22 | **H.02728.5 LWI Region 5 – Task Order #2**<br>Mr. Burgess was the Survey Manager for this project. CD&C as a sub-consultant on this project was responsible for topographic survey of various structures in Lafayette Parish, Vermillion Parish, and St. Mary Parish to help fill in data for the watershed model. The topographic data for this project was collected both traditionally and utilizing 3D Scanning. Mr. Burgess worked with sub-consultant, HDR as well as CD&C crews to obtain and incorporate all utility data as well. |
| 02/22-11/22 | **H.02728.5 LWI Region 5 – Task Order #3**<br>Mr. Burgess was the Survey Manager for this project. CD&C as a sub-consultant on this project was responsible for topographic survey of various structures in Lafayette Parish, Vermillion Parish, and St. Mary Parish to help fill in data for the watershed model. The topographic data for this project was collected both traditionally and utilizing 3D Scanning. Mr. Burgess worked with sub-consultant, HDR as well as CD&C crews to obtain and incorporate all utility data as well. |
| 09/21 – 03/22 | **H.014747 Southern University Ravine Protection, East Baton Rouge Parish**<br>Mr. Burgess was the Survey Manager for this project. CD&C as a sub-consultant on this project was responsible for topographic survey of the sites at Southern University. The topographic data for this project was collected both traditionally and utilizing 3D Scanning. Mr. Burgess worked with SUE sub-consultant, TBS, as well as CD&C crews to obtain and incorporate all utility data as well. |
| 07/20 – 04/21 | **H.001352.5 and H.002273.5 Comite River Diversion Bridge at LA 67, LA 19 and LA 19 Railroad Bridge, East Baton Rouge Parish**<br>Mr. Burgess was the Survey Manager for this project. CD&C as a sub-consultant on this project was responsible for topographic surveying the LA 67 and LA 19 sites of the Comite River Diversion project. This included merging of data from a previous survey on one portion of the site and field verifications of that data. The topographic data for this project was collected traditionally. |
| 01/18-01/20 | **H.004100 I-10: LA 415 to Essen Lane on I-10 and I-12, West and East Baton Rouge, LA**<br>Burgess was the surveying Manager for this project. CD&C as a sub-consultant on this project is responsible for topographic surveying the portion of I-10 in West Baton Rouge Parish beginning at the start of the project limits to a point just before the approach of the I-10 Bridge and the limits of the project along LA 415 including work on Tributaries of the Inter-coastal Canal. This work included using 3D Scanning for the bridge at I-10 bridge @ LA 415 as well as scanning every 500' for control verification and incorporation of the Mobile LiDAR for the I-10 pavement. |
| 7/17-12/18 | **H.010960.5-2, LA 30 Roundabout at Tanger I-10, Ascension Parish, LA**<br>Mr. Burgess served as Survey Manager for the project. Duties included meeting with LADOTD & Cardno, Inc for utility locations, coordination of crews and 3D terrestrial scanning crew along with office personnel, coordination. Special duties were merging of two state projects with project survey for final submittal to combine all projects together. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 01/16-08/16 | **H.005733.5 US 190 Superstreet, St. Tammany Parish, LA**<br>Mr. Burgess served as Survey Manager for the project. Duties included complete topographic survey and drainage map for this project including all utility coordination. The survey began at the intersection of US 190 and Holiday Square Frontage Road. From this point, the survey proceeded in a northerly direction along US 190 for approximately 2.9 miles to a point that is 700 feet South of Intersection of US 190 and E. Boston St. in Covington, LA. This project also included work in the Abita River and utilized 3D Terrestrial Scanning for the main route. |
| 10/15-12/18 | **H.003184.5 I-10 Texas State Line –East of Coone Gully, Calcasieu Parish, LA**<br>Mr. Burgess served as Survey Manager for the project. Duties included meeting with LADOTD, coordination of traditional crews and 3D terrestrial scanning crew, coordination of utility companies on the project, review and verification of drainage crossing I10, merging of existing topographic survey of bridges from LADOTD and final review of all survey data for submittals |
| 08/16-12/17 | **H.011235 I-49 South at Verot School Road, Lafayette, LA**<br>Mr. Burgess served as the Survey Manager for the project. Duties included meeting with LADOTD, and all consultants on the team, coordination of both traditional crews and 3D terrestrial scanning crew, coordination of survey crews with Cardno, Inc, utility locations on the project, met and review right of entry with landowners for project, review of drainage map, merging of existing topographic survey of the I-49 Connector project from LADOTD with current survey of project, review of apparent right of way mapping for prime consultant, and final review of all survey data. |
| 07//14-10/15 | **H.011088.5 I-110 North Street to Plank Road, EBR Parish, LA**<br>Mr. Burgess served as Survey Manager for the project. Duties included meeting with LADOTD, coordination of traditional crews and 3D terrestrial scanning crew, review and verification of drainage map, merging and final review of all survey data for submittals. Other special duties were coordinating with LADOTD District 61 for a rolling lane closure for location of drainage located in the interior of the project along the existing crash wall. Also, coordination with LADOTD Records and EBR City Parish regarding the research of all drainage structures that enter and leave the project area. |
| 04/17-07/17 | **H.010006.5-3 LA 58 Petit Caillou Bridge Rehabilitation (Sarah Bridge), Terrebonne Parish, LA**<br>Mr. Burgess served as Survey Manager on this project which included a complete topographic survey, utility coordination, channel cross-sections and the scanning of the existing vertical lift bridge for the design of its repairs/replacement. Project included data collection of the topography via traditional means and methods along with 3D terrestrial scanning and hydrographic surveying. |
| 03/14-06/14 | **H.008369 Cleo Road Roundabout, St. Tammany Parish, LA**<br>Mr. Burgess served as the project manager for the project. CD&C was responsible for the topographic survey that began approximately 2400 ft. NW of intersection of I-59 and US Hwy 1090 and ended approximately 1000 ft. NW of intersection of I-59 and US Hwy 1090. The survey also included 500 ft. of Cleo Road and 175 ft. of Avenue D. |
| 05/13-07/13 | **H.009288 LA 1 Railroad Bridge at DOW, West Baton Rouge, LA**<br>Survey Manager for this project located in West Baton Rouge Parish. The intent is to create a grade separation at the intersection of LA 1 and the railroad spur for DOW. CD&C is performing all of the topographic survey for this project including utility coordination and railroad coordination and permits so that CD&C can survey the spur and parallel line. |
| 10/14-12/14 | **H.011088.5 West Prien Lake, Lake Charles, LA**<br>Mr. Burgess served as the Survey Manager for this project. This project was to provide topographic survey for a new route to be constructed. Topographic survey and DTM was required along the proposed alignment including all utilities and all drainage with the survey limits. |
| 02/14-03/17 | **H.010620 I-49 Design Build**<br>Mr. Burgess managed and supervised all field work, utility coordination, and review of existing survey data for final topographic survey submittal. CD&C also produced ROW maps for the project. Mr. Burgess's duties for this portion also included title reports, review of property surveys and final submittal of final existing right of way plans. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Civil Design & Construction Inc.** | | |  |
| NAME | **Chris Ballard** PLS | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **8** | |
| TITLE | **Survey Project Manager** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **19** | |
| DEGREE(S) / YEARS / SPECIALIZATION | **BS / 2004 / Biological Science / Southeastern LA University** | | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **5033 / LA / 9/30/2024** | | | |
| YEAR REGISTERED | **2010** | DISCIPLINE | **Land Surveyor** | |
| Contract role(s) / brief description of responsibilities | Surveying and Property Research. Will provide services associated with land surveys and property research. | | | |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 09/21 – 03/22 | **H.014747 Southern University Ravine Protection, East Baton Rouge Parish**<br>Mr. Ballard is the Surveying Project Manager for this project. CD&C as a sub-consultant on this project was responsible for topographic survey of the sites at Southern University. The topographic data for this project was collected both traditionally and utilizing 3D Scanning. |
| 09/01/18-01/20 | **H.004100 I-10: LA 415 to Essen Lane on I-10 and I-12, West and East Baton** Rouge, LA<br>Mr. Ballard is the Surveying Project Manager for this project. CD&C as a sub-consultant on this project is responsible for topographic surveying the portion of I-10 in West Baton Rouge Parish beginning at the start of the project limits to a point just before the approach of the I-10 Bridge and the limits of the project along LA 415 including work on Tributaries of the Inter-coastal Canal. This work included using 3D Scanning for the bridge at I-10 bridge @ LA 415 as well as scanning every 500' for control verification and incorporation of the Mobile LiDAR for the I-10 pavement. |
| 04/17-07/17 | **H.010006.5-3 LA 58 Petit Caillou Bridge Rehabilitation (Sarah Bridge), Terrebonne Parish, LA**<br>Mr. Ballard served as the firms Survey Project Manager on this project which included a complete topographic survey, utility coordination, channel cross sections, and the scanning of the existing vertical lift bridge for the design of its repairs/replacement. Project included data collection of the topography via traditional means and methods along with 3D terrestrial scanning and hydrographic surveying. |
| 02/19-09/19 | **Bridge Replacements in East Feliciana Parish, Rural East Feliciana Parish, LA**<br>Mr. Ballard is serving Survey Project Manager for this project for East Feliciana Parish Police Jury. It includes the replacement of 2 bridges which were damaged from flooding and the repairs to many rural roadways throughout the parish. These projects are being funded through FEMA and all documentation has to be in accordance with FEMA's policies and procedures. |
| 01/17-12/17 | **H.012728.5 LA 443: Tangi River Bridge Replacement, Tangipahoa Parish, LA**<br>Mr. Ballard served as the Project Manager for this Project. Among the duties performed for the project were review of the crew work conditions, review & processing of the survey data, verification, and review of final submittal. CD&C completed a topographic survey which included all utilities with depths, all drainage, all building information including finish floor elevations, and all super/substructure of the bridge over the Tangipahoa River. Additional information regarding the river was located by traditional means upstream and downstream for the engineer's design of the new bridge. To utilize data collection of the failed bridge, 3D Terrestrial Scanning was incorporated in conjunction with traditional means to complete the topographic survey. Due to the nature of the project being an Emergency Bridge replacement all staff worked on this project non-stop until field work was completed in less than 3 weeks. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 09/17 -09/17 | **H.012650.5-1 District 62 Bridges, Livingston and Tangipahoa Parishes, LA**<br>Mr. Ballard served as a Survey Project Manager for this project which included 5 bridge sites in District 62. In addition to all of the existing data for the bridge and roadway at each site, each channel was cross-sectioned both upstream and downstream of the bridge. These included bridges over the US 190 Bridge over Gray's creek, 2 bridges on LA 442 both crossing East Hog Branch, LA 1063 over the Natalbany River, and US 51 over Ponchatoula Creek. Several of these bridges including the US190 one was surveyed utilizing 3D Terrestrial Scanning. |
| 10/15 - 12/18 | **H.003184.5 I-10 Texas State Line – East of Coone Gully, Calcasieu Parish, LA**<br>Mr. Ballard served as the Survey Project Manager on this project which is a 6-lane widening of I-10. Duties performed on this project included the review of the survey information from crew, verification of project delivery schedule, processing of data and final review of submittal of project. 3D Terrestrial Scanning was used in conjunction with traditional means and methods for the completion of this project. |
| 01/16 - 08/16 | **H.005733.5 US 190 Superstreet, St. Tammany Parish, LA**<br>Mr. Ballard served as the Survey Project Manager on this project. CD&C provided a complete topographical survey and drainage map along with utility coordination for the project. Project duties included processing of data, review of field notes and weeklies, & performing final punch list. This project also included work in the Abita River utilized 3D Terrestrial Scanning for the main route. |
| 10/15 - 01/16 | **H.011773 Hanks Dr/Landis Drive Pedestrian Improvements, East Baton Rouge Parish, LA**<br>Mr. Ballard served as the Survey Project Manager on this project that included a topographic survey and establishment of the ROW for Hanks Dr. for installation of new sidewalk. |
| 06/11 - 09/13 | **260-01-0028, H.002372 LA 42 Widening and Improvements, Ascension Parish, LA**<br>Mr. Ballard worked as a PLS on this project which included boundary and topography, establishing the existing ROW and acquisition of additional ROW. |
| 07/17 - 12/18 | **H.010960.5-2, LA 30 Roundabout at Tanger I-10, Ascension Parish, LA**<br>Mr. Ballard served as the Survey Project Manager on this project that includes a complete topographical survey, utility coordination and drainage, along with finish floor elevations of all buildings that fall within the survey limits. Project included data collection of the topography via traditional means and methods along with 3D terrestrial scanning. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **Civil Design & Construction Inc.** | | |
| NAME | **John Ewing** CPE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **13** |
| TITLE | **Cost Estimator** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **10** |

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|---|---|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | | | **Bachelor of Science / 2021 / Business Management** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | | **No. 3100008358-0811 / LA / 12/31/2023** |
| YEAR REGISTERED | **2010** | DISCIPLINE | **Cost Estimator** |

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| Contract role(s) / brief description of responsibilities | Will serve as Cost Estimator on this project. |
| 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 years of experience specified in the applicable MPR(s). |
| 06/18 – 05/19 | **Comite River Diversion – US 61 & KCS Bridges, EBR Parish, LA**<br>Mr. Ewing was the company's Lead Cost Estimator on these bridge projects which are part of the Comite River Diversion project. The project included roadway, bridges, and associated channel improvements. Mr. Ewing led the team in providing a complete contractor style estimate including all material costs and quotes, hauling and disposal quotes; labor and equipment prices; and all tasks and assemblies for these items. |
| 12/19-12/20 | **Comite River Diversion – Bayou Baton Rouge Drop Structure, EBR Parish, LA**<br>Mr. Ewing was the Lead Cost Engineer on this project which included bridge and roadway improvements as part of the Comite River Diversion project. Mr. Ewing helped provide a complete contractor style estimate including all material costs and quotes, hauling and disposal quotes; labor and equipment prices; and all tasks and assemblies for these items. |
| 05/19 – 03/22 | **Roosevelt Avenue Bridge, USACE Jacksonville District, San Juan, PR**<br>Mr. Ewing was the Lead Cost Engineer on this bridge project in San Juan, PR. The project required the demolition of an existing highway bridge over a large drainage channel and the construction of a new one. This site is a heavily congested urban area in San Juan. He led both the cost estimating and construction schedules for the project. The team developed a complete contractor style estimate including obtaining multiple material quotes, evaluating labor rates, shipping costs, and other unique requirements of such a massive project being constructed on an island. |
| 02/09 – 02/10 | **WBV 73 – Jefferson Parish, LA**<br>Mr. Ewing was the Lead Cost Engineer on this project on the West Bank Vicinity Levees in Jefferson Parish post Katrina. This project included both a bridge and roadway improvements as part of the levee improvements to increase flood protection. Mr. Ewing helped provide a complete contractor style estimate including all material costs and quotes, hauling and disposal quotes; labor and equipment prices; and all tasks and assemblies for these items. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **ECM Consultants Inc.** | | |
| NAME | **Sudhir Mehta** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **5** |
| TITLE | **Senior Structural Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **39** |

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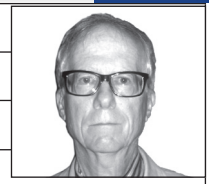
|---|---|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | | **BS/ 197 2/ Civil Engineering** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **18950 / LA / 3/31/2024** | |
| YEAR REGISTERED | **1980** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Structural Engineering. Will support the Structural Engineering team. | | |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 07/19 – 11/19 | **Low Sill Old River Gate Structure Dewatering Design, Contract No. W912-P8-16-D-0005, Task Order 0009 Concordia Parish, LA**<br>Project Structural Engineer. Performed structural stability investigation and analysis of pile foundation using CPGA program 3D pile analysis for the grouted Low Flow, Transition and Weir Monoliths, which are supported by steel H piles. He was also responsible for determining the stability of the existing wingwalls as well as ascertaining that an adequate factor of safety exists with respect to flotation of the stilling basin. Project concept involved construction of two earthen cofferdams across the width of the channel on either side of the low sill gated water control structure and simultaneously dewatering between the cofferdams to permit inspection by USACE. He prepared DDR, assisted in design development of Plans & Specs for sand cofferdam, design of access to the site on either side of the channel, developing design to dewater inflow and outflow simultaneously as well as coordination with Geotech engineers and USACE. |
| 05/17 – 09/19 | **Strain Road Bridge Over Drainage Bayou, Baton Rouge, LA**<br>Mr. Mehta served as a project engineer for a design study report that included comprehensive hydrologic and hydraulic analysis and preliminary and final design services for Strain Road Bridge over Drainage Bayou project. He was involved in preparation of a design report with two design alternatives that included the replacing of existing bridge with two 60 foot long, 8' x 8' box culverts with 150 feet of channel improvement and second included replacing existing bridge with a new 100 foot long bridge with some channel improvement downstream of the channel. Based on the cost benefit analysis first alternative was selected. He performed design and responsible for preparation of construction plans of two 8' x 8' box culverts and a two-lane asphaltic concrete roadway with subsurface drainage system. |
| ongoing | **Veterans (North and South) and West Esplanade Ave. Drainage Pump Station, Jefferson Parish, LA**<br>Structural Engineer. Performed structural engineering design for the three new steel H pile supported pumping stations with multiple axial flow pumps. Mr. Mehta also performed calculations of the system head loss and the NPSHA; layout of the pump station including geometrics of the suction chambers based on the pump selected and in conformance with HI standards. Design services include P&S and USACE 408 permit. Project site at each of the three pump stations is located in a close proximity of the existing flood protection and an earthen canal. Special precautions were needed for the flood protection stability and seepage issues. |
| 08/20 - ongoing | **West Shore Lake Pontchartrain Flood Risk Reduction Project, Segments WSLP 102 and 106, St. Charles Parish, LA**<br>Project Structural Engineer. The purpose of this project is to construct a 100-year level flood risk reduction system for the residents of the three parishes. The WSLP 102 and WSLP 106 of approximately 2 miles, is a part of 18.5 miles long West Shore Lake Pontchartrain project at its east approach. The salient features of this contract are earthen Levees, T-walls, and a Drainage Structure in the Montz canal with four (4) stainless steel sluice gates. The flood mitigation configuration is such that a portion of T-wall construction in this reach crosses the existing I-10 alignment and must be constructed under the I-10 east bound and west bound bridges. The scope of work of the WSLP 102 & 106 contracts includes engineering design, preparation of PS&E for all civil, structural, mechanical, electrical, and geotechnical engineering considerations. Mr. Mehta is responsible for all structural design for Flood walls, and gated drainage structure in Montz canal for both the segments. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 03/17-04/19 | **Drainage Box culvert, Phase I of Mounes Street (Dickory Avenue to Elmwood Park Blvd.), DPW-Jefferson Parish, LA**<br>Mr. Mehta performed structural analysis and design for the phase 1 of this four-phase project that includes 4,900 LF of 10'x8' box culvert from Dickory Ave. to Crochet Ditch. This first phase included approximately 1,280 linear feet precast 10'x8' box culverts which will tie-in to the existing box culverts from the Pump-to-the-River (PTTR) project. He also provided analysis and design for the concrete junction boxes and conflict boxes. |
| 2014 | **Caernarvon Freshwater Diversion Floodwalls, USACE New Orleans District, St. Bernard Parish, LA**<br>Mr. Mehta served as Structural Engineer responsible for the preparation of a design report to heighten floodwalls, swing gate and roller gate in the area near the Caernarvon Freshwater Diversion Structure. Construction and cost estimates for various alternatives. |
| 2014 | **Frontal Protection & Discharge Basin Modifications, Drainage Pumping Station No. 3, Sewerage & Water Board of New Orleans/Orleans Levee Board, New Orleans, LA**<br>Structural Engineer. Performed structural engineering design for this new 180 CFS drainage pumping station located at the east end of the W. Esplanade Canal, discharging into the 17th Street Canal. He performed calculations of the system head loss and the NPSHA; layout of the pump station including geometrics of the suction chambers based on the pump selected and in conformance with HI standards; layout of the suction and discharge piping; preliminary design of temporary earth retaining structures for the excavation based on the geotechnical investigation and analyses; structural design of steel H pile supported reinforced concrete suction basin and the structural concrete pump station. He also analyzed and design the pipe supports for the steel discharge pipes which cross and the existing flood wall overhead. |
| 2009 | **Drainage Pumping Station No. 19, Sewerage & Water Board of New Orleans, New Orleans, LA**<br>Structural Engineer. Planning, design, and construction of this multi-phase, multi-million-dollar project consisting of construction of a multi-cell box culvert suction canal, the width of which varies from 30 ft at the existing Florida Avenue drainage canal to more than 120 ft at the suction basin of the pump station. The pump station building is a structural steel and reinforced masonry building with copper roof and houses three 11'-0" diameter 1,200 cfs horizontal pumps and two 7'-0" diameter 350 cfs vertical pumps giving the pump station a capacity of approximately 4,300 cfs. The discharge basin consists of reinforced concrete discharge tubes with water passages that provide equal velocity transition as it changes shape from circular section at the diffuser to rectangular section at the discharge end. The suction elbows of horizontal pumps frame into reinforced concrete suction tubes designed to transition from a rectangular section at the trash screen to the circular section at the suction elbow.. The discharge end of the pump station was provided with electrically operated sluice gates to keep the surge from entering the water passages of the discharge tubes and flooding the city. Also included was relocation of 54" and 48" diameter steel sewer force mains and the water main respectively as well as S&WB of New Orleans high voltage underground cables. |

16. **Staff Experience:**



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| FIRM EMPLOYED BY | **ECM Consultants Inc.** | | |
| NAME | **John Rasi** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **11** |
| TITLE | **Senior Hydraulic Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **29** |
| DEGREE(S) / YEARS / SPECIALIZATION | **B.S. / 1978 / Civil Engineering; B.S. / 1975 / Construction** | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **20841/ LA / 3/31/2024** | | |
| YEAR REGISTERED | **1983** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Civil Engineering. Will support the Water Resources/H&H team with design deliverables (ex: cost estimates, drawings, specs, etc.) | | |

| 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). |
|---|---|
| Ongoing | **Dam Breach Analysis for 40 dams for Kentucky Watershed, NRCS, KY**<br>H & H Engineer. A sunny breach analysis is being executed for all NRCS Kentucky Dams. This is a joint effort with another engineering firm. The first forty dams assigned to ECM are currently being analyzed. Mr. Rasi has created all the breach hydrographs for the NRCS dams assigned to ECM for the breach analysis. He is currently reviewing the results of the first set of dam breach reports executed in HEC-RAS using unsteady flow. There are over 200 NRCS Kentucky Dams requiring a sunny day breach analysis. |
| Ongoing | **Lake Bennett Dam, (Woolly State Park) Centerville, NRCS AR**<br>H & H Engineer. Mr. Rasi performed an unsteady dam breach for all scenarios required by NRCS for this dam using the US Corps of Engineers’ HEC-RAS hydraulic computer model. An HEC-HMS hydrologic model downstream of the dam was developed. About twelve sub-catches were created. These sub-catchments were connected to the common discharge channel and routed downstream for storms periods from one year to one hundred years. The results of the HEC-HMS were used in a HEC-RAS model to provide water surface profiles to be used for an economic study which was done by others. Mr. Rasi also helped create the sub-catchment used in the dam design itself. The SCS unit hydrograph method was used. The NRCS SITES software was used to design this dam.. Mr. Rasi reviewed the dam design. |
| 30/19- 2021 | **Sims Creek and Haven Subdivision, Tangipahoa Parish Government, Tangipahoa Parish, LA**<br>H & H Engineer. Mr. Rasi provided H&H engineering design to resolve flooding in this Louisiana subdivision. A HEC-RAS analysis was performed on Sims Creek which is adjacent to the subdivision. It was determined that improvements to Sims Creek would be too expensive. A forced drainage system with a levee to seal the subdivision from Sims Creek was designed using EPA’s SWMM. All channels and subsurface pipes within the subdivision were analyzed. A pump station was sized and located. A complete study was provided. All necessary improvements to ditches, subsurface pipes, and a new pump station size were provided. |
| 2017 | **Longville Lake Dam in Beauregard Parish, LA, LADOTD Dam Safety Program**<br>H &H Engineer. Mr. Rasi provided H&H engineering services for this dam, which is 2,300 feet long, 10 feet in height with a 100-foot wide ungated saddle spillway. It is a high hazard dam. He performed analysis for dam breach, prepared inundation map and reviewed Emergency Action Plan. The dam breach analyses was performed using an abridged engineering analysis method and utilized 5-meter digital elevation model (DEM) and the US geological Survey (USGS) topographic maps. U.S. Army Corps of Engineer’s HEC-RAS and ARC GIS software were used for modeling. For this model, an overtopping scenario was selected as allowed by the Louisiana Dam Safety Rules and Regulations. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 01/18- Ongoing | **S.P. No. 4400011393 Inspection of State-Regulated Dams, LADOTD, Statewide, LA**<br>Mr. Rasi is serving as Project Engineer for this statewide retainer contract inspection and engineering of publicly and privately owned dams to identify deficiencies, perform analysis for hazard categories, and make recommendations for remediation so that dams and the attendant water control devices function adequately and safely. Project scopes also includes hydraulic modeling for preparation of EAPs to includes dam breach analysis and impact on downstream including inundation maps. |
| 09/16-10/17 | **S.P. No. 4400003970 LADOTD Safety Inspections of State Regulated Dams, Statewide, LA**<br>Mr. Rasi is served as Senior Hydraulic Engineer for this Retainer Contract for past three years, for which ECM has provided 525 inspections for 289 publicly and privately owned dams across Louisiana under the State Dam Safety Program. This includes hydrologic and hydraulic modeling of watersheds using LiDAR survey data and preparation of EAP reports for several dams throughout Louisiana. Mr. Rasi prepares the models and reports involving field reconnaissance, dam breach analysis, and preparation of inundation maps. Mr. Rasi utilizes ArcGIS, HEC-RAS and HEC-GeoRAS computer programs for this project.<br>Mr. Rasi reviewed EAPs for dams, some of which include: Smithport Lake Dam, Chicot Lake Dam, Turkey Creek Dam, Betty Taylor Dam, Bayou D’Arbonne Dam Reservoir, TL James No. 2 Dam, Caney Creek Dam, Lake Bistineau, Grand Bayou Reservoir, Kepler Creek Dam, and Ivan Creek Dam, among others.<br>Additionally, he served as engineer for the inspection team where he observed and documented deficiencies of all features of the dams, including spillway, weir, buoys, embankment and grass, retaining and wing walls, baffle blocks, stilling basin, discharge channel, and other structural features. Mr. Rasi reviewed data, performed analysis, and prepared reports for the dams. A few of which include:<br>• Pleasant Valley No. 1 Dam, Washington Parish: a 22-foot-high structure which consists of an earthen embankment, 1,108 feet long and an adjoining 130-foot auxiliary spillway.<br>• Bayou Cocodrie Dam, Rapides & Evangeline Parishes: a 28-foot high, 1,700-foot-long earthen embankment with primary spillway ogee weir and earthen broad-crested weir auxiliary spillway.<br>• Lower Anacoco Dam, Vernon Parish: 37 feet high, 5,170-foot-long earthen embankment with 500-foot-wide concrete bi-level ogee weir.<br>• Saline Lake Dam, Natchitoches Parish: a 23-foot-high dam with 850-foot-long earthen embankment on the south side of the spillway and 400-foot-wide concrete spillway with about 15,050 feet of earthen embankment on the north and west sides. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **ECM Consultants, Inc.** | | |
| NAME | **Emilio Rodriguez** | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **13** |
| TITLE | **Civil/Construction Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **20** |

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| DEGREE(S) / YEARS / SPECIALIZATION | | | **Technical Architecture (Construction) / 1989; Certified NACE Coating Inspector Level 2; ATSSA Work Zone Traffic Control Flagger, Supervisor; NHI Bridge Inspection; Movable Bridge Inspection; DOT/FAA Drone Remote Pilot; Aerial Boom Lifts; Scissor Lifts; OSHA-10** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | | **N/A** |
| YEAR REGISTERED | **N/A** | DISCIPLINE | **N/A** |

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| Contract role(s) / brief description of responsibilities | Infrastructure Inspections Lead. Will lead inspections. |
| 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 years of experience specified in the applicable MPR(s). |
| 02/11-08/13 | **LADOTD Safety Inspections of State Regulated Dams, Statewide**<br>Mr. Rodriguez performed annual safety inspections for a number of publicly and privately owned dams throughout Louisiana under this Retainer Contract to detect, identify and document evidence of deficiencies of dams and the water-control devices. His responsibilities included performing safety inspections of high hazard, significant hazard, and low hazard category dams involving various features such as spillways, galleries, embankments, inlet, and outlet structures; documenting evidence of leakage, seepage, erosion, cracking, settlement, soil slips, depression, burrows of other signs of potential failure, etc.; and assisting engineer in preparation of Dam Evaluation and Assessment Reports for DOTD. Some of Mr. Rodriguez's representative dam inspections included: Country Club Lake, Lejuene Pond, Brushy Lake, Billy Dark Dam, Murphy's Lake West End, Holland Lake, Haynes Lake, Richland Lake, Jessie Welch Dam, Gary Barth Dam, Albert Waites Dam, TL James Pond No. 2, Wilkes Pond, Lemon Lake, Spike James Dam, and Lake Choctaw Dam. |
| 11/19 – 08/21 | **Northwest Turtle Bay Marsh Creation for CPRA, Jefferson Parish, LA**<br>Mr. Rodriguez was Lead QA inspector and provided construction QA inspection services for this $23 million project that involved creating and nourishing over 1093 acres of marsh land in the Barataria Basin. Scope: This project involved creating marsh in current open-water and broken marsh areas, including four separate cells: The marsh creation area was designed to minimize the use of traditional earthen containment dikes by relying on existing marsh and vegetation to contain the hydraulically dredged fill from a nearby borrow source. Approximately 2,000,000 CY of fill material was pumped utilizing 16" diameter hydraulic dredges, 7,296 SY of Articulated Concrete Mats was installed along 2,623 LF of the Earthen Containment Dikes for erosion protection. He was responsible for daily inspection, coordination with CPRA representative, attending progress meetings, preparation of daily dairies and recordation of work quantities and maintaining project progress photo album in ECM's FTP site. Mr. Rodriguez is a FAA certified drone operator and provided drone flown construction progress aerials. |
| 05/16 – 11/17 | **BA-27c Barataria Basin Land Bridge CU 7 & 8, USDA-NRCS Contract AG-7217-C-12-0006, Task Order 1, Jefferson Parish, LA**<br>Lead QA inspector. Mr. Rodriguez is providing construction quality assurance inspection services for the construction of BA-27c Barataria Basin Land Bridge. This project was designed to significantly reduce the wave energy impacting the shorelines of Little Lake and Bayou Perot and to protect the adjacent marsh areas from further degradation. This involved dredging for access channels to construct approximately 4 miles of rock dike utilizing 143,000 Tons of R-300 Rip Rap, 27,000 CYs of Encapsulated Light Weight Aggregated and 118,000 SY's of Geotextile fabric. He was responsible for daily inspection, coordination with COTRs, attending progress meetings, preparation of daily dairies and recordation of work quantities and maintaining project progress photo album in ECM's FTP site. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 08/14 – 12/16 | **Retainer Contract for Underwater Bridge Inspection Services, LADOTD; Statewide, LA**<br>Mr. Rodriguez performed inspection of bridges substructure from water level to superstructures. Inspection of the substructure below water was performed by divers. Inspection included documentation of damaged and deteriorated structural elements of the bridges. A total of 400 bridges were inspection over a period of 3 years. Under this contract, he was responsible for field inspection and preparation of the final reports to have a national bridge inventory component rating. Scope included: Level 1 inspection, which was visual and tactile inspection of all bridges requiring underwater inspection in water above 4 feet; Level 2 inspection, which was detailed and included partial cleaning of all steel elements; and Level 3 inspection which was highly detailed inspection with non-destructive testing or partially destructive testing. Bridges included concrete and steel bridges on timber and concrete pile foundations, and inspections included piles, girders, abutments, deck, and checking for cracking, spalling, exposed rebars, rusting of steel girders, missing hardware, and all other related features |
| 2010-2011 | **Periodic Inspection of Mississippi River East Bank Levee System (Bonnet Carre Spillway to Baton Rouge), USACE, T.O.0047**<br>Mr. Rodriguez served as Levee Inspector for this project consisting Periodic Inspections (PI) of the Mississippi River East Bank Levee System (Baton Rouge to New Orleans). The work included 107 miles of levees and floodwall sections and several closure structures and pumping stations. The purpose of the PI was to verify proper operation and maintenance, evaluate operational adequacy and structural stability, review design criteria to identify changes in current design standards, identify features to monitor over time, and improve the ability to communicate the overall condition. |
| 2011-2012 | **USACE IDIQ Contract No. W912WP8-07-D-0031, Periodic Inspection of West of Atchafalaya Floodway Levee System, St. Martin Parish to Melville**<br>Mr. Rodriguez served as Inspector for this project which consisted of conducting Periodic Inspections (PI) of the West of Atchafalaya Floodway Levee System (St. Martin Parish to Melville, LA). The work included 63.74 miles of levees and floodwall sections and several closure structures and pumping stations. The purpose of the PI was to verify proper operation and maintenance, evaluate operational adequacy and structural stability, review design criteria to identify changes in current design standards, identify features to monitor over time, and improve the ability to communicate the overall condition |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **ECM Consultants, Inc.** | | |
| NAME | **Benjamin Dow** | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **14** |
| TITLE | **Senior Technician** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **6** |

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|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | **High School Diploma** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **Training Aids for Dam Safety (TADS); USACE Levee Inspection Workshop; NHI Certified-Safety Inspection of In-Service Bridges; LADOTD Movable Bridge Inspection Workshop; ATSSA Traffic Control Flagger/Technician/Supervisor** |

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|---|---|---|---|
| YEAR REGISTERED | **N/A** | DISCIPLINE | **N/A** |

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| Contract role(s) / brief description of responsibilities | Infrastructure Inspections. Will support inspections. |
| 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 years of experience specified in the applicable MPR(s). |
| 01/18-on-going | **S.P. No. 4400011393 Inspection of State-Regulated Dams, LADOTD, Statewide, LA**<br>Mr. Dow is providing dam safety inspection services and field data collection under this statewide retainer contract for publicly and privately owned dams to identify deficiencies, perform analysis for hazard categories, and make recommendations for remediation so that dams and the attendant water control devices function adequately and safely. Rotation frequencies for these inspections are: High Hazard dams annually, Significant Hazard every 3 years, and Low Hazard every 5 years. |
| 09/13-01/18 | **S.P. No. 4400003970: LADOTD Safety Inspections of State Regulated Dams; Statewide**<br>Mr. Dow performed dam safety inspections and field data collection for privately owned dams throughout the state of Louisiana to the extent deemed necessary to ensure that the impoundment structures and the water-control devices are functioning to design capabilities. Responsibilities included conducting field survey and data collection for hydraulic and hydrologic analyses; notifying the dam owner, other interested parties, and DOTD of impending inspections; reviewing available plans; reviewing previous DOTD Dam Evaluation Reports and documents; performing safety inspections of high hazard, significant hazard, and low hazard category dams; preparing and submitting Dam Evaluation and Assessment Reports to DOTD and follow up actions. ECM performed 525 inspections for 289 publicly and privately owned dams across the state. |
| 2008-2013 | **S.P. No. 750-99-0155, LADOTD Safety Inspections of State Regulated Dams, Statewide**<br>Mr. Dow has performed safety inspections of 200 publicly and privately owned dams throughout the state of LA annually to the extent deemed necessary to ensure that the man-made impoundment structure and the attendant water-control devices are functioning to design capabilities. Responsibilities include notifying the dam owner, other interested parties and DOTD of impending inspections; reviewing available plans; reviewing previous DOTD Dam Evaluation Reports and documents; performing safety inspections of high hazard, significant hazard, and low hazard category dams, and preparing and submitting Dam Evaluation and Assessment Reports to DOTD. |
| 11/19 – 08/21 | **Northwest Turtle Bay Marsh Creation (BA-0125), General Engineering IDIQ-2018, Contract No. 4400015378, T.O. 01, Jefferson Parish, LA**<br>Quality Assurance Representative (QAR). This project involved creation and nourishment of 1093 acres of marsh in the Barataria Basin. Hydraulic dredging from a borrow area located in Turtle Bay just south of the project area and pumped into each marsh creation areas. This involved construction 2,875 LF of Earthen Gap Closures and 20,767 LF and 29,688 LF of Earthen Containment Dikes. Approximately 2,000,000 CY of fill material was pumped utilizing 16” diameter hydraulic dredges, 7,296 SY of Articulated Concrete Mats was installed along 2,623 LF of the Earthen Containment Dikes for erosion protection. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 2009 – 2011 | **USACE IDIQ Contract No. W912WP8-07-D-0031, Periodic Inspection of Mississippi River East Bank Levee System (Bonnet Carre Spillway to Baton Rouge), USACE, T.O.0047**<br>Mr. Dow served as Levee Inspector for this project consisting Periodic Inspections (PI) of the Mississippi River East Bank Levee System (Baton Rouge to New Orleans). The work included 107 miles of levees and floodwall sections and several closure structures and pumping stations. The purpose of the PI was to verify proper operation and maintenance, evaluate operational adequacy and structural stability, review design criteria to identify changes in current design standards, identify features to monitor over time, and improve the ability to communicate the overall condition. |
| 08/13-12/16 | **S.P No. 4400003534 Retainer Contract for Underwater Bridge Inspection Services, LADOTD; Statewide, LA**<br>Mr. Dow provided inspection services for approximately 100 bridges under this five-year retainer contract. Scope of work included bridge inspection and preparation of detailed inspection reports involving elements and conditions rating and documentation of any significant deviations from as-built conditions for each inspection including recommendations for rehabilitation/repair. |
| 2011-2012 | **Periodic Inspection of West of Atchafalaya Floodway Levee System, USACE-New Orleans District, St. Martin Parish to Melville**<br>Mr. Dow served as Inspector for this project which consisted of conducting Periodic Inspections (PI) of the West of Atchafalaya Floodway Levee System (St. Martin Parish to Melville, LA). The work included 63.74 miles of levees and floodwall sections and several closure structures and pumping stations. The purpose of the PI was to verify proper operation and maintenance, evaluate operational adequacy and structural stability, review design criteria to identify changes in current design standards, identify features to monitor over time, and improve the ability to communicate the overall condition. |
| 05/11-08/13 | **S.P. No. H.003203.6: I-10 Calcasieu River Bridge Repairs, LA DOTD; Calcasieu Parish, LA**<br>Mr. Dow provided construction inspection services for structural steel repairs to the approach trestle bents and stringers, repairs to the connections of the main deck truss & steel cantilever truss members, painting of truss connections, anchor bolt repairs, and associated repairs to the approach roadway pavement expansion joints. He conducted an initial inspection/assessment of the unforeseen conditions during construction and collected information (including field dimensions and photos of what has been encountered) for their review by the project engineer. |
| 11/08-01/09 | **Interim Inspection of 52 Off-System Bridges, LADOTD and City of New Orleans-DPW; Orleans Parish, LA**<br>Mr. Dow served as Bridge Inspector for interim inspection of 52 Off-System Bridges in Orleans Parish. He was responsible for the following: review of previous inspection reports and construction drawings; interim inspections in accordance with AASHTO "Manual for Condition Evaluation of Bridges"; and documentation of all conditions found in accordance with LA DOTD "Recording and Coding Guide for Structure Inventory and Appraisal of the State's Bridges." |
| 02/13-12/13 | **JPPW No. 2013-010-RB, Lapalco Blvd. Bridge over Bayou Segnette, Jefferson Parish DPW, Jefferson Parish, LA**<br>Mr. Dow provided NBIS safety inspections of a 3,000' long high-rise bridge in Jefferson Parish. The inspection was performed in accordance with the Federal Highway Administration (FHWA) and LADOTD guidelines. |

16. **Staff Experience:**

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| FIRM EMPLOYED BY | **ECM Consultants, Inc.** | | |
| NAME | **Kyle Kessler** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **3** |
| TITLE | **Civil Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **5** |

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| DEGREE(S) / YEARS / SPECIALIZATION | | **BS / 2009 / Civil Engineering** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **43807 / LA / 03/31/2024** | |
| YEAR REGISTERED | **2019** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Engineering During Construction. Will provide engineering services during 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 08/20- Ongoing | **West Shore Lake Pontchartrain Flood Risk Reduction Project Segments WSLP 102 and 106, St. Charles Parish, LA**<br>Junior Structural Engineer. The purpose of this project is to construct a 100-year level flood risk reduction system for the residents of the three parishes. The WSLP 102 and WSLP 106 of approximately 2 miles, is a part of 18.5 miles long West Shore Lake Pontchartrain project at its east approach. The salient features of this contract are earthen Levees, T-walls, and a Drainage Structure in the Montz canal with four (4) stainless steel sluice gates. The flood mitigation configuration is such that a portion of T-wall construction in this reach crosses the existing I-10 alignment and must be constructed under the I-10 east bound and west bound bridges. The scope of work of the WSLP 102 & 106 contracts includes engineering design, preparation of PS&E for all civil, structural, mechanical, electrical, and geotechnical engineering considerations. Mr. Kessler performing structural modelling and design computations for Flood walls, and gated drainage structure in Montz canal. |
| 06/2021-Ongoing | **Coventry Court Drainage Pump Station, Jefferson Parish, LA**<br>Mr. Kessler performed design and prepared plans, specifications and cost estimate (PS&E) for the new drainage pump station and discharge piping. Runoff will be pumped through the discharge piping over the Mississippi River Levee and Batture into the river. Project involves design of 3-30cfs pump station and space for another 30 cfs future pump, including concrete wet well, piping system with force mains that discharge into the river. The Project included design of about 1600 feet of force main which will go over the levee and will be discharged into the Mississippi river. Construction of the force main will require the removal and replacement of one lane of Lee ct. The final pumping capacity for this pump station will be 120 CFS. |
| 2018-2019 | **West Roadway Drainage Improvements, New Orleans, LA**<br>This project included repairs to the drainage system underneath a roadway section that frequently flooded. Scope of work included removal of the existing pavement, installation of new drainpipes on aggregate bedding and new drainage structures including outfall structure. New roadway section included scarifying, grading and compacting aggregate base including additional base material, and new asphaltic concrete pavement. Mr. Kessler served as Project Engineer and performed design and prepared plans, specifications and quantity/cost estimates. During the construction phase, Mr. Kessler provided project oversight including, site visits, review and approval of submittals, RFIs and change orders etc. as construction phase services. |
| 2021 | **California Canal Drainage Improvement, Jefferson Parish, LA**<br>Structural Engineer. Mr. Kessler provided structural design for California Canal that conveys rainwater of a portion of Marrero. The canal is bounded on the west side by commercial and industrial establishments and on the east side by a large subdivision with approximately 35 feet of berm from top of the banks to the property lines. The purpose of the improvements is to stabilize the banks and stop the erosion of the side slopes and to improve the channel hydraulic conveyance and efficiency. After various alternative analysis, it was found that concrete slope paving of the slopes and the canal bottom was the most feasible and cost effective solution and was designed as such. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 2019 | **Causeway/Earhart Interchange, Jefferson Parish, LA**<br>This project’s scope included adding an interchange between Causeway Blvd. and the Earhart Expressway. Existing bridges were to be modified with additional lanes and new ramps were to be constructed. Mr. Kessler served as an Assistant Civil/Structural Engineer and was responsible for review of structural plans and quantity take-offs. |
| 2017-2018 | **Citrus Lakefront Levee Drainage Improvements, New Orleans, LA**<br>This project aimed to improve the drainage between the existing Lakefront Levee and the Norfolk Southern Railroad. Existing catch basins were located and raised, new outfalls were installed underneath USACE rip rap, existing drainage pipes were repaired with new resin liner, and surrounding area was regraded to promote better drainage. Mr. Kessler served as Project Engineer, performed design and prepared plans, specifications and quantity/cost estimates. During the construction phase, Mr. Kessler provided project oversight including site inspections, review of submittal/RFI/bid/change orders. |
| 2020- on going | **District 2 Transit Stops, Jefferson Parish, LA**<br>This project includes ADA improvements at various bus stops throughout Jefferson Parish District 2. Mr. Kessler assisted with locating the bus stops and ADA ramps/sidewalk by checking for conflicts with Right of Way, intersection sight distance, and other obstructions. |

16. **Staff Experience:**

GeoEngineers

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| FIRM EMPLOYED BY | **GeoEngineers, Inc.** | | |
| NAME | **David Sauls** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **26** |
| TITLE | **Senior Principal Geotechnical Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **10** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **BS, MS / 1982, 1984 / Civil Engineering** |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **23270 / LA / 03/31/2025** |
| YEAR REGISTERED: **1989** / DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Geotechnical Field Services Lead. Will lead on-site geotechnical investigations and materials testing. |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 03/08-12/08 | **White Castle Levee Stability Emergency Repair Response \| White Castle, LA**<br>When a pipeline client was notified by the USACE of an impending catastrophic failure of the Mississippi River levee related to its pipeline armoring creating a scour washout, the client engaged David to work around the clock to develop contingency repair measures. A variety of possible repairs for articulated concrete mattress blankets and rip rap were pursued to determine which could be deployed the fastest. Simultaneously, engineering analysis of the levee stability were being performed to understand the loss of bank being washed out by the scour. |
| 04/90-12/94 | **Wesley Center Lake and Dam \| Woodworth, LA**<br>GeoEngineers' predecessor firm Louis J. Capozzoli & Associates, Inc. provided engineering of the Wesley Center Lake and dam from site selection, feasibility, exploration, design, construction, and documentation for operation, and registration with the state dam safety program. David was the engineer-of-record for the hydrological and hydraulics design. This analysis provided the simulation of dam and emergency spillway design responses for topping and breach for design and probable maximum precipitation events. These findings went into the operation manual the firm prepared for the dam and filed with the state dam safety program. |
| 06/89-12/92 | **Iron Bridge Dam \| Rains and Van Zandt Counties, TX**<br>Constructed across the Sabine River in Rains and Van Zandt Counties, Texas to impound Lake Tawakoni. Total length of the dam, including the spillway, is approximately 5.5 miles. The embankment has a maximum height of 75 feet and a crest width of 22 feet. David worked to (1) evaluate the strength of the foundation shales beneath the spillway, (2) develop information on piezometric conditions, (3) assess the sliding stability of the spillway, and (4) develop information needed for final design of remedial measures employing tensioned anchors. |
| 02/89-08/92 | **Brazos River Authority's Morris Sheppard Dam (Possum Kingdom Lake) \| Mineral Wells, TX**<br>The tallest concrete slab-and-buttress dam in the United States. Morris Sheppard Dam impounds a 570,000-acre-foot lake. The dam is a 188-foot-highwith a crest length of 2,740 feet. A 5-year Federal Energy Regulatory Commission (FERC) inspection, revealed signs of movement and structural distress. Buttresses along the spillway had moved downstream, enough to crack the hearth and deflector toe wall. This required immediate corrective actions, which included stabilizing and strengthening the slab-and-buttress section of the dam. The plan lowered the lake 13 feet to increase the factor of safety and drilling 145 relief wells to alleviate the hydrostatic pressure. David developed strength parameters for the shale foundation using the dam's performance as a full-scale, long-term load test to back figure realistic strength parameters. The team evaluated the use of additional vertical load from ballast placed in the interior of the dam in conjunction with the reduction of piezometric pressures from grouting to seal the upstream key. |

16. **Staff Experience:**

GeoEngineers

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| FIRM EMPLOYED BY | **GeoEngineers, Inc.** | | |
| NAME | **Blake Cotton** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **8** |
| TITLE | **Senior Principal Geotechnical Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **22** |

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| DEGREE(S) / YEARS / SPECIALIZATION | **MS / 1992 / Civil Engineering; BS / 1989 / Architectural Engineering** | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **28039 / LA / 03/31/2025** | | |
| YEAR REGISTERED | **1998** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Geotechnical Field Services. Will support on-site geotechnical investigations and materials testing. | | |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 01/13-12/14 | **Permanent Canal Closures and Pumps (PCCP); New Orleans, LA**<br>Lead Geotechnical Engineer. The USACE has built three permanent canal closure and pump station structures to block hurricane storm surges at the Lake Pontchartrain mouths of the 17th Street, Orleans Avenue, and London Avenue drainage canals in New Orleans. The geotechnical engineering services included exploring subsurface soil conditions at each one of the sites and providing laboratory test results in technical reports. Blake oversaw field exploration, laboratory testing, and engineering recommendations to guide the geotechnical aspect, and reporting while he was with a previous firm. While at GeoEngineers, Blake was retained to provide Independent Technical Review (ITR) for geotechnical portions of the pump stations excavation designs. |
| 09/17-12/17 | **Texas Department of Transportation, Matagorda Intercoastal Waterway Bridge Replacement; Matagorda County, Texas**<br>Principal-in-Charge. Blake was Principal-in-Charge overseeing GeoEngineers' team to provide geotechnical engineering services for this bridge replacement project. Work will include reviewing geotechnical information and the current pile design and evaluating alternatives for the pile design concepts for performance and constructability. |
| 01/07-12/14 | **US Army Corps of Engineers, ID/IQ \| New Orleans, LA**<br>Program Director. With a previous firm, Blake served as Program Director for this project. The firm was the lead partner of the FFEB joint venture that was providing geotechnical services under an ID/IQ contract related to the design of storm protection enhancements throughout the New Orleans District. Assignments under the contract were focused on 350 miles of Federal levees; hundreds of miles of supplementary and non-Federal levees; and a multitude of pump stations, floodwalls, floodgates, and erosion armor. The geotechnical program includes drilling of several hundred borings, cone penetrometer testing (CPT), installation of piezometers, extensive laboratory testing, engineering analyses, and construction quality assurance (QA) services. |
| 06/89-12/92 | **Iron Bridge Dam \| Rains/Van Zandt counties, TX**<br>Geotechnical Engineer. Constructed across the Sabine River in Rains and Van Zandt Counties, Texas to impound Lake Tawakoni. Total length of the dam, including the spillway, is approximately 5.5 miles. The embankment has a maximum height of 75 feet and a crest width of 22 feet. Blake supported evaluation of the strength of the foundation shales beneath the spillway, development of information on piezometric conditions, assessment of the sliding stability of the spillway, and development of information needed for final design of remedial measures employing tensioned anchors. |

16. **Staff Experience:**

GeoEngineers

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| FIRM EMPLOYED BY | **GeoEngineers Inc.** | | |
| NAME | **Larry D. Sant** PE | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **20** |
| TITLE | **Associate Geotechnical Engineer** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **2** |

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|---|---|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | **BS, MS / 2001, 2001 / Civil Engineering, Civil Engineering** | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **35625 \| LA \| 9/30/2024** | | |
| YEAR REGISTERED | **2010** | DISCIPLINE | **Civil** |
| Contract role(s) / brief description of responsibilities | Geotechnical Engineering. Will support geotechnical engineering team. | | |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 01/11-12/16 | **EPA-Mandated Dam Safety Inspections and Ash Basins Levee Maintenance; Big Cajun II Generation Site \| Pointe Coupee Parish, LA**<br>Project Manager of EPA-mandated semi-annual dam safety inspections and several related geotechnical engineering services for levee maintenance design and recommendations. This included: reconnaissance of the entire impoundment (298 acres of the property from outside toe to outside toe) inclusive of scheduling, notification and reporting; an evaluation of slope stability and hydrologic/hydraulic safety of the five Ash Basins/Wastewater Treatment Ponds; and recommendations regarding repair for the reported appearance of sloughing in isolated areas during several separate events during these years. |
| 09/02-12/02 | **Horseshoe Lake Dam \| Chewelah, WA**<br>Project Manager for this geotechnical engineering evaluation to design a new dam that will impound 30-acre feet of water. Completed subsurface exploration along the proposed dam alignment and laboratory testing as a basis for characterizing soil beneath the proposed earth-fill dam. GeoEngineers completed engineering analyses and provided design recommendations for the 150-foot long dam with clay core cross-section keyed into the subgrade, chimney drain soil filter design, downstream drainage blanket and interceptor trench design, liquefaction analysis, groundwater flow net, stability analysis, and borrow source materials evaluation. |
| 02/08-10/08 | **Upriver Dam Fuse Plug Restoration \| Spokane, WA**<br>Project Manager for this geotechnical engineering evaluation to restore the fuse plug spillway at Upriver Dam because the fuse plug had settled several inches below the original design elevation and the breach point had moved away from the fuse plug. We explored subsurface soil and groundwater conditions and complete limited laboratory testing as well as engineering evaluation of the fuse plug and crest grading and provided design recommendations to repair the fuse plug. |
| 08/12-07/15 | **DOTD I-210 at Cove Lane Interchange \| Lake Charles, LA**<br>Geotechnical Task Lead during this fast-track design and construction project supporting the I-210 at Cove Lane Interchange performed with Stantec as Prime. Completed engineering analyses for design and construction of about 8,000 driven pile foundations, MSE walls, and wick-drain/surcharge settlement. The GeoEngineers' team completed 126 fast-track explorations with five rigs in varying access conditions including over water with casing. The team also monitored MSE wall construction, provided PDA evaluation of the piles during installation, installed liquid settlement sensors to monitor embankment settlement, and provided detailed records for critical construction activities. |

16. **Staff Experience:**

MARMILLION/GRAY MEDIA

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| FIRM EMPLOYED BY | **Marmillion/Gray Media, Inc.** | | |
| NAME | **Rannah Gray** | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **17** |
| TITLE | **Public Involvement Lead** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **22** |

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|---|---|---|---|
| DEGREE(S) / YEARS / SPECIALIZATION | | **BA, MA / 1977, 1979 / Journalism** | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | | **N/A** | |
| YEAR REGISTERED | **N/A** | DISCIPLINE | **N/A** |

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| Contract role(s) / brief description of responsibilities | Community Outreach. Will lead public outreach/stakeholder communication tasks |
| 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 years of experience specified in the applicable MPR(s). |
| 07/19-current | **MOVEBR Transportation and Infrastructure Improvements Program for East Baton Rouge Parish, Baton Rouge, LA**<br>MOVEBR Transportation and Infrastructure Improvements Program for East Baton Rouge Parish, Baton Rouge, LA. Ms. Gray is the communications lead and public involvement co-lead. She wrote the program’s strategic communications plan, created the MOVEBR brand; manages media outreach, public events, in-person and on-line stakeholder outreach. The MOVEBR program is the largest transportation and infrastructure initiative in East Baton Rouge Parish history, providing an investment of over $1 billion in capacity projects, existing corridor enhancements, community improvements and traffic signal synchronization. |
| 09/19-current | **Local Public Agency Documented Planning Process for DOTD, Baton Rouge, LA**. Ms. Gray was the public outreach consultant for this project. She wrote the plan’s public and stakeholder involvement chapters, including strategies for gathering in-person and on-line public input. She led development of toolkit templates and resources for to be used by smaller cities, towns and parishes for transportation planning. The project will be piloted in three communities and the consulting team will use lessons learned to revise the final planning document. |
| 12/18-2021 | **Baton Rouge Bus Rapid Transit Feasibility Study for East Baton Rouge Parish, Baton Rouge, LA**<br>Ms. Gray served as public outreach lead. She was responsible for the planning and implementation of stakeholder and public meetings to gather input for proposed bus routes on Nicholson Drive and Plank Road. This project and its funding has been brought into the MOVEBR program for more efficient management where Ms. Gray will continue to manage public engagement strategies for the project. |
| 04/18-10/18 | **ADA Transition Plan for Baton Rouge Parks and Recreation Commission (BREC), Baton Rouge, LA**<br>Ms. Gray was the lead for public outreach. She was responsible for the planning and implementation of stakeholder and public outreach activities, development of a database of advocacy organizations and people living with disabilities; management of accessible public meetings, surveys and stakeholder outreach; and creation of outreach materials. This project evaluated BREC facilities, gathered public and stakeholder input to determine priorities and developed a plan for bringing facilities into compliance with the Americans with Disabilities Act (ADA). |
| 07/17-04/23 | **Baton Rouge Travel Demand Management project (Commuter Krewe of Louisiana) for CRPC, Baton Rouge, LA**<br>Ms. Gray serves as the public outreach and marketing lead. She is responsible for development of the Commuter Krewe brand, marketing plan, and promotional strategies to help reduce single-occupied vehicles. The Commuter Krewe program was developed to help reduce traffic congestion in the Capital Region. |
| 03/09-03/16 | **Implementation Plan and EIS for the Baton Rouge Loop project for the Capital Area Expressway Authority (CAEA), Baton Rouge, LA**<br>Ms. Gray served as the lead for public outreach. This included building stakeholder databases, managing stakeholder workshops, public meetings, surveys, elected official briefings and public hearings. The Baton Rouge Loop was a proposed by-pass around Baton Rouge to help reduce traffic congestion in the Capital Region. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 09/15-12/16 | **Nicholson Corridor High-Capacity Transit System for East Baton Rouge Parish, Baton Rouge, LA**<br>Ms. Gray served as lead for public outreach. Her responsibilities included development of the TramLinkBR brand, and stakeholder and public outreach activities including workshops, public open houses and presentations to business, civic and neighborhood organizations. TramLinkBR was a proposed modern streetcar system connecting LSU and Downtown Baton Rouge. It has been converted to a proposed bus rapid transit route by the current administration. |
| 04/15-04/16 | **Capital Region Metropolitan Transportation Plan Update for the Capital Region Planning Commission (CRPC), Baton Rouge, LA**<br>Ms. Gray was the lead for public outreach. She managed public and stakeholder outreach, including developing the MOVE2042 branding, managing stakeholder and public outreach, surveys, public meetings and elected official outreach. This project provided an update of the long range transportation plan for the five parishes in the Capital Region MPO. |
| 08/10-01/12 | **Capital Region Bicycle and Pedestrian Safety Campaign for the Capital Region Planning Commission (CRPC), Baton Rouge, LA**<br>Ms. Gray was the prime consultant for creating a public education campaign in the five Capital Region parishes in the MPO. Her responsibilities included producing TV spots, collateral materials, and community outreach strategies. This project aimed to reduce bicycle crashes and pedestrian deaths and during the campaign, bicycle crashes decreased 24% in the Capital Region and 32% in East Baton Rouge Parish, while pedestrian deaths decreased 12% in the Capital Region and 31% in East Baton Rouge Parish. |
| 01/10-09/11 | **East Baton Rouge Parish Comprehensive Master Plan for Land Use, East Baton Rouge Parish, Baton Rouge, LA**<br>Ms. Gray was the lead for public involvement. She wrote the public outreach plan and managed public engagement, stakeholder workshops and branding. This included developing the FUTUREBR logo, managing stakeholder workshops, public meetings, surveys and a public outreach effort that signed up over 2000 residents to be “citizen planners” to provide ongoing input. This plan replaced the parish’s Horizon Plan for land use. |

16. **Staff Experience:**

MARMILLION/GRAY MEDIA

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| FIRM EMPLOYED BY | **Marmillion/Gray Media, Inc.** | | |
| NAME | **Sarah Powell** | YEARS OF RELEVANT EXPERIENCE WITH THIS EMPLOYER | **16** |
| TITLE | **Graphic Design** | YEARS OF RELEVANT EXPERIENCE WITH OTHER EMPLOYER(S) | **21** |
| DEGREE(S) / YEARS / SPECIALIZATION | **BFA / 1985 / Graphic Design** | | |
| ACTIVE REGISTRATION NUMBER / STATE / EXPIRATION DATE | **N/A** | | |
| YEAR REGISTERED | **N/A** | DISCIPLINE | **N/A** |
| Contract role(s) / brief description of responsibilities | Community Outreach. Will lead graphic design tasks. | | |

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 07/19-current | **MOVEBR Transportation and Infrastructure Improvements Program for East Baton Rouge Parish, Baton Rouge, LA**<br>Ms. Powell serves as graphics designer. Her responsibilities include graphics and branding; still photography, videography with drone and Go-Pro cameras; production of short informational videos for press announcements and social media; design of project signs; doorhangers to inform neighborhoods of project work; and presentation materials. |
| 09/19-current | **Local Public Agency Documented Planning Process for DOTD, Baton Rouge, LA**<br>Ms. Powell provided graphic design for the development of a toolkit for use by communities for transportation planning. This project is providing a plan, toolkit, and resources to assist smaller communities conduct in-house planning. |
| 12/18-03/21 | **Baton Rouge Bus Rapid Transit Feasibility Study for East Baton Rouge Parish, Baton Rouge, LA**<br>Ms. Powell serves as graphic designer. She designed meeting notices, posters and collateral materials for stakeholder and public outreach and public open house meetings. This study was conducted to determine whether work conducted for a proposed modern streetcar system could be used to develop a bus rapid transit route instead. |
| 04/18-10/18 | **ADA Transition Plan for Baton Rouge Parks and Recreation Commission (BREC), Baton Rouge, LA**<br>Ms. Powell served as graphic designer. She designed meeting notices, social media posts, posters, and collateral materials for public and stakeholder outreach and public meetings. Her ability to design materials that complemented BREC's existing "Imagine Your Parks" campaign helped give the ADA Transition Plan identity and credibility. The plan provided an evaluation of BREC's facilities, gathered public input to determine priorities and developed a plan to BREC to achieve compliance with the Americans with Disabilities Act. (ADA) |
| 07/17-04/23 | **Baton Rouge Travel Demand Management project (Commuter Krewe of Louisiana) for CRPC, Baton Rouge, LA**<br>Ms. Powell serves as graphic designer. Her responsibilities include creating the branding for the program and designing promotional materials. She also provides videography and editing for informational videos used for onboarding employees at job centers, banner design, animation for social media posts, on-site sign design and collateral materials. The Commuter Krewe branding has been adopted by the New Orleans and Lafayette MPOs to promote ridesharing throughout the region. The program encourages ridesharing and other alternatives to single-occupied vehicles to help reduce traffic congestion in the Capital Region. |
| 03/09-03/16 | **Implementation Plan and EIS for the Baton Rouge Loop project for the Capital Area Expressway Authority (CAEA), Baton Rouge, LA**<br>Ms. Powell served as graphic designer. Her responsibilities included graphic design and logo design, production of informational videos for public meetings and presentations, collateral materials. The Baton Rouge Loop was a proposed by-pass around Baton Rouge to help reduce traffic congestion in the Capital Region. |

16. **Staff Experience:**

| 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 years of experience specified in the applicable MPR(s). |
|---|---|
| 09/15-12/16 | **Nicholson Corridor High-Capacity Transit System for East Baton Rouge Parish, Baton Rouge, LA**<br>Ms. Powell served as graphic and web designer. He responsibilities include designing the TramLinkBR project brand, website design and management, production of informational videos, and collateral materials. TramLinkBR was a proposed modern streetcar system connecting LSU and Downtown Baton Rouge. It has been converted to a proposed bus rapid transit route by the current administration. |
| 04/15-04/16 | **Capital Region Metropolitan Transportation Plan Update for the Capital Region Planning Commission (CRPC), Baton Rouge, LA**<br>Ms. Powell served as graphic designer. She created the MOVE2042 project logo and designed stakeholder and public meeting materials. This project provided an update of the long-range transportation plan for the five parishes in the Capital Region MPO. |
| 08/10-01/12 | **Capital Region Bicycle and Pedestrian Safety Campaign for the Capital Region Planning Commission (CRPC), Baton Rouge, LA**<br>Ms. Powell served as graphic designer and video producer. She designed print ads, posters, billboards, handouts, and videos as part of the public education campaign to encourage bicycle and pedestrian safety in the Capital Region. This project aimed to reduce bicycle crashes and pedestrian deaths and during the campaign, bicycle crashes decreased 24% in the Capital Region and 32% in East Baton Rouge Parish, while pedestrian deaths decreased 12% in the Capital Region and 31% in East Baton Rouge Parish. |

17. **Firm Experience:**

Identify the team's project experience **most relevant** to the scope in the advertisement. **The projects should be limited to a total of 20, with no more than 5 projects being represented by the prime consultant and with no more than 3 projects represented by each sub-consultant on the team. If more than 5 projects are identified for the prime consultant, all projects identified after the first 5 will not be evaluated. If more than 3 projects are identified for a single sub-consultant, all projects identified after the first 3 from that sub-consultant will not be evaluated.** Include no more than one page per project. Projects identified shall only include work performed by firms on the team. The projects identified do not necessarily need to have been DOTD projects.

| | | | |
|---|---|---|---|
| FIRM NAME | **Stantec Consulting Services Inc.** | PAST PERFORMANCE EVALUATION DISCIPLINE(S)* | **Geotech** |
| PROJECT NAME | **Bachman Lake Dam and Spillway Improvements Project** | FIRM RESPONSIBILITY (prime or sub?) | **Prime** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **Dallas Water Utilities** |
| PROJECT LOCATION | **Dallas, Texas** | OWNER'S PROJECT MANAGER | **Mark Mihm** |
| OWNER'S ADDRESS, PHONE, EMAIL | **2121 Main Street, Suite 300, Dallas, TX 75201 \| 214-670-4271 \| mark.mihm@dallascityhall.com** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **07/19** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **$8,497** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **Ongoing** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$6,118** |

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

**Bachman Lake Dam, located next to Dallas Love Field Airport, is currently classified as an Intermediate Size, Significant Hazard Dam by the Texas Commission of Environmental Quality (TCEQ). Dallas Water Utilities (DWU) decided to maintain Bachman Lake, and a project to address critical dam and spillway safety improvements began by Stantec.**

**PROJECT RELEVANCE**
- Surveying
- H&H Analysis
- PFMA
- Geotechnical Analysis
- Hydraulic Structures Analysis
- Permitting
- Design
- Bid Documents
- Specifications
- Construction Administration

The project involved several stages including field investigations, exploration, studies, and other research activities which supplement later phases for design, bid, and construction services. The project in its current scope is described as: 1) dam and spillway improvement design and 2) dredging construction.

**Dam and Spillway Design.** Early studies work included review of the Emergency Action Plan (EAP), production of a five-year inspection report, development of the design criteria, and initiating TCEQ consultation.

Following the evaluation of the embankment, condition assessments of the service and emergency spillway, hydraulic and hydrologic (H&H) study, environmental considerations, and other field studies, a Potential Failure Mode Analysis (PFMA) was managed. The PFMA supplied early project considerations for the design approach by establishing a Basis of Design for the dam and spillway. The findings confirmed the urgency and necessity of the project.

Stantec is providing detailed design and bid services associated with the Bachman Dam and Spillway. These services include the completion of the final design package and bid documents to meet the design flood from the hazard classification and project performance requirements.

**Dredging.** Dredging of Bachman Lake is being performed to reducing sediment buildup and increasing water depth for recreational activities. Stantec worked with DWU to develop an off-site dewatering location to minimize public impacts at Bachman Park while providing means to increase the efficiency of dredging operations. Stantec managed the planning, design, permitting, and bid services for the dredging of Bachman Lake. Stantec will provide construction phase services which include permitting, submittal & information request reviews, contract administration, and on-site inspections.

TEAM MEMBERS INVOLVED: **J. KEELING, A. RAUCH, K. NEFF, P. SMITH, M. MEEHAN, B. ESENWEIN, D. GILBERT, D. LUTZ**

* If there is more than one past performance evaluation discipline included in the proposal, then indicate which past performance evaluation discipline(s) this project is being used to represent.
**This field cannot be left blank and N/A is not acceptable. The only 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 (please specify).

17. **Firm Experience:**

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| FIRM NAME | **Stantec Consulting Services Inc.** | PAST PERFORMANCE EVALUATION DISCIPLINE(S)* | **Geotech** |
| PROJECT NAME | **Gwinnett County DWR Dam Safety Programmatic Services** | FIRM RESPONSIBILITY (prime or sub?) | **Prime** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **Gwinnett County Department of Water Resources** |
| PROJECT LOCATION | **Gwinnett County, Georgia** | OWNER'S PROJECT MANAGER | **James Grimes** |
| OWNER'S ADDRESS, PHONE, EMAIL | **684 Winder Hwy, Lawrenceville, GA 30045 \| 678-376-6939 \| james.grimes@gwinnettcounty.com** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **01/17** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **$1,600** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **Ongoing** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$1,300 (to date)** |

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

**In 2016, Stantec was awarded an on-call contract with the Gwinnett County Department of Water Resources (GCDWR) to provide Specialized Technical Support Services. Task orders under this contract have included a wide variety of as needed Dam Safety related support services such as inspection, evaluation, dam removal design, design of dam rehabilitation/improvements, and construction observation services. Since 2017, Stantec has successfully completed numerous task orders under this on-call contract. Select relevant examples are highlighted below.**

**PROJECT RELEVANCE**
- Outlet Structure Assessments
- H&H Analysis
- Design
- Bid Documents
- Specifications
- Construction Administration

**Bird Lake Dam Removal Evaluation and Design.** Stantec has assisted GCDWR in the hydrologic, hydraulic and geotechnical evaluation of the existing dam, as well as development of rehabilitation and repair concepts for Bird Lake Dam. Stantec prepared design and permitting documents for the selected option of dam removal. This included development of construction drawings, technical specifications, and figures to support permit applications to USACE, and local authorities.

**Joy Lane Dam Improvements.** Stantec performed a dam safety evaluation of the dam to assist GCDWR in addressing concerns at this dam, including slope stability, seepage, and surface erosion issues. Services included field reconnaissance, evaluation of CCTV inspection of the principal spillway, development of a repair plan and report. Based on the findings, Stantec then developed design plans and specifications for repairs to the dam to address the issues noted during the field reconnaissance, including addressing animal burros, removal of trees and brush from the embankment, various concrete repairs to drainage structures, and placement of wave wash rip-rap on the upstream slope. Finally, programmatic operations and maintenance recommendations were provided, including regular mowing, vegetation establishment for bare areas on the embankment slopes, and completing spillway pipe inspections.

**Dam Outlet Works Inspections, Evaluation and Rehabilitation (10 dams).** Stantec is currently assisting GCDWR in rehabilitation design for the outlet works structures of ten NRCS watershed dams operated and maintained by GCDWR. The project has involved performing interior and exterior inspections of the outlet control structure of each dam, performing engineering evaluations and design, and providing a report detailing recommendations for rehabilitation improvements at each dam. Stantec has developed plans for the rehabilitation improvements, performed structural and H&H analysis and design, preparing technical specifications, and developing permit documents associated with the work. During the current phase of the project, Stantec is providing bid support services and will provide engineer of record services during construction for the repair.

TEAM MEMBERS INVOLVED: **J. KEELING, M. SCHILLINGER, M. MEEHAN, P. SMITH, B. TUCKER, T. GREENWELL, K. ANDERSON**

17. **Firm Experience:**

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| FIRM NAME | **Stantec Consulting Services Inc.** | PAST PERFORMANCE EVALUATION DISCIPLINE(S)* | **Geotech** |
| PROJECT NAME | **FEMA Headquarters Production & Technical Services (PTS) - Risk MAP Program Implementation Support Nationwide** | FIRM RESPONSIBILITY (prime or sub?) | **Joint Venture** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **Federal Emergency Management Agency** |
| PROJECT LOCATION | **Nationwide** | OWNER'S PROJECT MANAGER | **Lora Eskandary** |
| OWNER'S ADDRESS, PHONE, EMAIL | **500 C Street SW, Washington, DC, 20472 (202) 646-271, lora.eskandary@fema.dhs.gov** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **11/17** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **$135,000** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **02/22** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$135,000** |

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

## Stantec is a member of the Strategic Alliance for Risk Reduction II (STARR II) joint venture (JV) that supports FEMA's Risk MAP nationwide program.

**PROJECT RELEVANCE**
- 500+ Hydraulic Modelers
- 550+ H&H Studies for the FEMA Program
- 60,0000+ Miles of Streams / River Modeled
- 52+ HUC-8 Models over a 2-year period
- 75+ Certified Floodplain Managers
- 1,200+ Outreach meetings conducted

We support FEMA's vision to deliver quality flood risk data that increases public awareness of hazards and leads to mitigation actions that reduce risks to life and property. Stantec assists with all aspects of the program, including riverine and coastal engineering analysis, field survey, topographic data development, GIS database creation, automated engineering, floodplain mapping and preliminary and post preliminary services. Assistance with engineering and mapping, includes field survey, topographic data development, hydrologic and hydraulic (H&H) studies, GIS, base level engineering (BLE), floodplain mapping, preliminary and post preliminary services, coordinate needs management strategy (CNMS), outreach and communication, and Cooperating Technical Partners (CTP) support through the Regional Service Centers (RSCs).

**Program Management -** Assist Governance Team with performance management, program planning, risk monitoring, change control, delivery management, and policy analysis. We provide reliable financial and programmatic data through established management practices based on PMI and ISO protocols.

**Hydrologic and Hydraulic Modeling** (HEC-HMS, HEC-SSP, USGS regression and PeakFQ, Bulletin 17c, HEC- RAS 1D and 2D, EPA-SWMM and PCSWMM) - More than 60,000 miles of H&H modeling for 10%, 4%, 2%, 1%, 0.2% annual chance flood events. Services encompass 90,000+ miles of large-scale base level engineering (BLE) studies. Our experience includes steady and unsteady flow, 1D and 2D analyses, split flow, dam breach, levee failure, reservoir routing and local storage calculations. We recently completed a complex model for Ithaca, New York that included a calibrated HEC-HMS model producing inflow hydrographs for a 1D/2D unsteady HEC-RAS model that included four streams and floodway and levee analyses.

**Hazard Mitigation Planning Services -** Development of FEMA-approved hazard mitigation plans for 400+ local communities, states, regions, universities and tribal clients to help communities understand their risk to hazards, assess vulnerabilities, identify and prioritize sound solutions, and qualify for federal funding programs.

**Dam Safety Subject Matter Expertise -** Guidance document development for flood risk, non-regulatory products involving dams and levees, safety training, condition assessments prioritization, tool/program development for risk prioritization associated with FEMA's High Hazard Potential Dams Grant Program.

TEAM MEMBERS INVOLVED: **J. KEELING, D. GILBERT, A. RAUCH, M. MEEHAN, R. BISNETT, P. SMITH, M. HOY, K. NEFF, J. RUNGEE, J. DINGRANDO, P. DOBBS**

17. **Firm Experience:**

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| FIRM NAME | **Stantec Consulting Services Inc.** | PAST PERFORMANCE EVALUATION DISCIPLINE(S)* | **Geotech** |
| PROJECT NAME | **Programmatic Dam Safety Services for Mobile Area Water and Sewer System** | FIRM RESPONSIBILITY (prime or sub?) | **Prime** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **Mobile Area Water & Sewer System** |
| PROJECT LOCATION | **Mobile, Alabama** | OWNER'S PROJECT MANAGER | **Doug Cote** |
| OWNER'S ADDRESS, PHONE, EMAIL | **4725 Moffett Rd, Mobile, AL 36618 \| 251-694-3187 \| dcote@mawss.com** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **09/16** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **$3,092** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **Ongoing** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$3,092** |

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

**Since 2016, Stantec selected by the Mobile Area Water and Sewer System (MAWSS) to support of their dam safety program. Our services have included performing field reconnaissance, evaluations, analyses, risk analysis, spillway gate rehabilitation design and other dam safety services for Big Creek Dam. The dam consists of an earthen embankment (about 5,000 feet long and 75 feet high) and a reinforced concrete chute spillway.**

**PROJECT RELEVANCE**
- H&H Analysis
- Geotechnical Analysis
- Spillway/Gate Analysis
- PFMA
- Programmatic Support
- Design
- Bid Documents
- Specifications
- Construction Administration

The initial phase of the project involved performing an updated engineering assessment and assisting MAWSS in developing a formalized dam safety program. As part of the assessment, Stantec provided a historic records review; field reconnaissance; screening-level slope stability analyses; needs assessment (data gap analysis); Potential Failure Mode Analysis (PFMA); screening-level risk evaluations; development of a Dam Safety Program Manual; and dam safety training for MAWSS staff. A subsequent geotechnical study included field drilling and sampling, installation of piezometers, in-situ slug testing of piezometers, and geotechnical laboratory testing.

In Phase II, Stantec addressed data gaps at the dam. Services included development of seepage weir monitoring plans for toe drain outlets of the dam and chute spillway, detailed slope stability and seepage analyses, internal erosion evaluation of the dam and spillway, updated hydrologic analysis of the watershed to confirm current design storm events, and updated hydraulic modeling of the chute spillway to evaluate current spillway capacity and existing erosion protection measures installed along each spillway wall. We also evaluated the spillway slab underdrains and wall drainage system as part of an overall risk assessment. Stantec also updated the following: risk evaluation and PFMA, dam breach analysis and inundation mapping, Emergency Action Plan (EAP), dam safety manual and operations and maintenance manual. Stantec also developed dam safety training materials, conducted dam safety training sessions, and facilitated a tabletop EAP exercise.

Most recently, Stantec provided design services to automate the seven tainter gates at the chute spillway with independently controlled "torque-tube" wire rope hoists. These can be manually or remotely controlled/operated on site, at a new control building, or at MAWSS's office. Other design features include replacement of the gate guide rollers, installation of a new pre-fab control building, construction of a gravel lot site access, installation of a stand-by generator with canopy, utility boring/coordination, permanent lighting, HD cameras for monitoring of gate operations, various site security features, and SCADA communications. Stantec developed design and bid documents, as well as permit coordination for the gate automation project. Stantec is currently providing construction administration and site observation services.

Stantec's ancillary services to support of MAWSS' dam safety program include monthly inspection data review, annual instrumentation assessments, and performance of a 5-year formal inspection of the dam and spillway. Future work is anticipated to include design of a stability toe berm for the dam, and updates to the dam safety program manual, and the operations and maintenance plan for the dam.

TEAM MEMBERS INVOLVED: **J. KEELING, A. RAUCH, D. GILBERT, P. SMITH, M. MEEHAN, K. GANJI, M. MORGAN, K. ANDERSON**

17. **Firm Experience:**

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| FIRM NAME | **Stantec Consulting Services Inc.** | PAST PERFORMANCE EVALUATION DISCIPLINE(S)* | **Geotech** |
| PROJECT NAME | **TVA Dam Safety Assurance Program** | FIRM RESPONSIBILITY (prime or sub?) | **Prime** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **Tennessee Valley Authority** |
| PROJECT LOCATION | **Tennessee, Alabama, North Carolina, Georgia, and Virginia** | OWNER'S PROJECT MANAGER | **Karen Officer-Bell** |
| OWNER'S ADDRESS, PHONE, EMAIL | **400 West Summit Hill Drive, Knoxville, TN 37902 \| 423-751-6384 \| kaobell@tva.gov** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **09/12** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **$57,500** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **12/21** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$42,500** |

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

**In August of 2012, the Tennessee Valley Authority (TVA) initiated a program to perform global stability and internal erosion evaluations of all 49 facilities in its river operations portfolio. The evaluations were the initial phase of an improvement campaign to make sure TVA's dams meet today's stringent dam safety standards. Stantec has supported TVA since 2012 performing evaluations, analysis refinements and designing dam modifications.**

**PROJECT RELEVANCE**
- Data Gap Analysis
- H&H Analysis
- Geotechnical Analysis
- Outlet Structure Assessments
- Risk Assessments (PFMA, SQRA)
- Design
- Construction Documents

Our global stability and internal erosion evaluations included stability analyses and internal erosion evaluations for 22 of TVA's 49 dams. Stantec evaluated more than 50 dam structures, including saddle dam structures. Structures at these facilities were comprised of concrete gravity dams, earth embankments, and rockfill dams. The dams lie within the Tennessee River Valley watershed, and range in size up to 330-feet-tall and over 8,000-feet- long.

As part of the evaluations, Stantec performed data mining and historical records review, screening level stability analyses, data gap assessments, field studies, laboratory testing, developed task analysis criteria, performed stability analyses, calculations, probable failure mode analyses (PFMA), internal erosion evaluations, and detailed reporting. Additional evaluations included tainter gates, chute spillways, inlet/outlet works, floodwalls, and ancillary structures. These evaluation projects were performed on aggressive schedules as part of the nuclear licensing requirements of Watts Bar Nuclear Plant Unit 2. The majority of the evaluations were performed within an 11 to 13 month time-frame. In many instances, little to no post construction data or instrumentation was available for these facilities, resulting in significant data gaps that had to be addressed.

Our evaluations provided the foundation for TVA's risk informed decision making process. As part of this, Stantec supported TVA in performing Issue Evaluations at numerous sites which in turn supported semi-qualitative risk assessments (SQRAs). Issue Evaluations were performed for seismic issues, internal erosion, instability, and over-topping potential failure mode analyses (PFMs). Stantec supported the SQRAs by assembling information and serving as technical support.

TVA used the findings from our global stability, internal erosion, and Issue evaluations to identify dam safety risks and prioritize design modifications. Stantec supported TVA in addressing these risks across their portfolio of dam facilities. Stantec designed and provided construction quality assurance services for the mitigation of probable failure modes involving probable maximum flood (PMF) over-topping, seismic instability, concrete gravity dam global and lift joint instability, embankment dam instability, internal erosion, gate instability, spillway capacity, seepage management, and heave/blowouts at the toe of the dam.

TEAM MEMBERS INVOLVED: **A. RAUCH, D. GILBERT, M. MEEHAN, B. TUCKER, M. HOY, K. GANJI, K. ANDERSON, T. GREENWELL**

17. **Firm Experience:**

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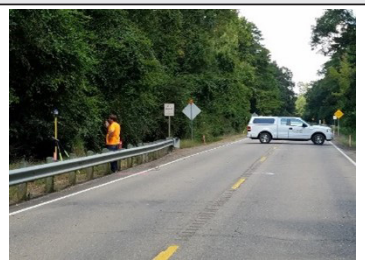
| FIRM NAME | **Civil Design & Construction, Inc.** | | | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Survey** |
| PROJECT NAME | **LA 443: Tangipahoa River Emergency Bridge Replacement** | | | FIRM RESPONSIBILITY (prime or sub?) | **Sub** |
| PROJECT NUMBER | **H.02728.5** | OWNER'S NAME | **LADOTD** | | |
| PROJECT LOCATION | **Tangipahoa Parish, LA** | | | OWNER'S PROJECT MANAGER | **Thomas Gattle (Huval & Assoc.)** |
| OWNER'S ADDRESS, PHONE, EMAIL | **922 W. Point Des Mouton Rd., Lafayette, LA 705007 / 337-234-3798 / tgattle@tgattle@huvalassoc.com** | | | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **10/16** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | | | **N/A** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **11/16** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | | | **$81** |

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

This Project was for the Emergency replacement of the bridge on LA 443 over the Tangipahoa River due to the Historic Floods in August of 2016. The project is located Northeast of Hammond, Tangipahoa Parish, Louisiana, 4 miles Northeast of the intersection of La 1064 and La 443. The survey total length was approximately 1500'. The width of the survey and DTM was extended to a total of 170 feet (90 feet North of the existing centerline of La 443 and 80 feet South of the existing centerline of La 443).

CD&C completed a topographic survey which included all utilities with depths, all drainage, all building information including finish floor elevations, and all super/substructure of the bridge over the Tangipahoa River. Additional cross-sectional information regarding the river was located by traditional means upstream and downstream for the engineer's design of the new bridge. To utilize data collection of the failed bridge, 3D Terrestrial Scanning was incorporated in conjunction with traditional means to complete the topographic survey. Due to the nature of the project being an Emergency Bridge replacement all staff worked on this project non-stop until field work was completed in less than 3 weeks.



TEAM MEMBERS INVOLVED: **R. BURGESS, C. BALLARD, J. EWING**

17. **Firm Experience:**

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| FIRM NAME | **Civil Design & Construction, Inc.** | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Survey** |
| PROJECT NAME | **LWI Region 5 – Task Order #2** | FIRM RESPONSIBILITY (prime or sub?) | **Sub** |
| PROJECT NUMBER | **H.02728.5** | OWNER'S NAME | **LADOTD** |
| PROJECT LOCATION | **Tangipahoa Parish, LA** | OWNER'S PROJECT MANAGER | **Garland Pennison (HDR)** |
| OWNER'S ADDRESS, PHONE, EMAIL | **1201 Capitol Access Road, Baton Rouge, LA, 70802 Telephone: (225) 379-1232 Email: dotdcs@la.gov** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **02/22** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **N/A** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **11/22** | 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.)*

In 2018, the state launched the Louisiana Watershed Initiative, introducing a new watershed-based approach to reducing flood risk in Louisiana. Guided by a federally approved Action Plan, the funds will support statewide planning, watershed modeling, data collection and projects that reduce flood risk. This Project for the Louisiana Watershed Initiative statewide modeling is for Region 5. The intent of this project as a whole is to create a watershed model for each basin in the state. This specific task order covered the survey of over 60 structures in St Landry Parish, Jefferson Davis Parish, Acadia Parish, St Mary Parish.

CD&C completed a variety of topographic survey deliverables depending on the modeling need for each structure.

TEAM MEMBERS INVOLVED: **R. BURGESS, C. BALLARD**

17. **Firm Experience:**

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| FIRM NAME | **Civil Design & Construction, Inc.** | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Survey** |
| PROJECT NAME | **Rural Bridge Initiative** | FIRM RESPONSIBILITY (prime or sub?) | **Sub** |
| PROJECT NUMBER | **H.013955, H. 013956, etc.** | OWNER'S NAME | **LADOTD** |
| PROJECT LOCATION | **Various Parishes, LA** | OWNER'S PROJECT MANAGER | **(Sub to BKI)** |
| OWNER'S ADDRESS, PHONE, EMAIL | **Not Known** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **07/20** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **N/A** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **04/21** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$338** |

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

The intent of this project was all necessary engineering and related services required for developing plans for the replacement of 35 bridges on the State Highway System and/or local roadways, LA. CD&C provided survey for 6 of these sites. Those include H.013955, H.013956, H.013957, H.013958, H.013959, & H.013989. CD&C used Mobile LiDAR and traditional means and methods to survey the sites in accordance with LADOTD Location and Survey Manual.

CD&C performed a topography within the existing right of way on each of the 6 sites our firm was tasked. CD&C also located all utilities within the designated areas of the bridge site and cross-sectioned each channel up and downstream of the bridge. Utilities were marked by LA One Call. 3D Terrestrial Scanning was used in conjunction with traditional surveying means and methods to collect data for the project.

TEAM MEMBERS INVOLVED: **R. BURGESS, C. BALLARD, J. EWING**

17. **Firm Experience:**

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| FIRM NAME | **ECM Consultants, Inc.** | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Other (Dam Assessment)** |
| PROJECT NAME | **Dam Safety Inspections, Assessment & Related Engineering and Emergency Action Plan (EAP) preparation for State Regulated Dams, Louisiana** | FIRM RESPONSIBILITY (prime or sub?) | **Prime** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **LADOTD** |
| PROJECT LOCATION | **Various Locations** | OWNER'S PROJECT MANAGER | **Ed Knight, PE** |
| OWNER'S ADDRESS, PHONE, EMAIL | **P.O. Box 94245, Baton Rouge, LA 70804 \| 225-379-3007** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **2018** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **$2,500** |
| SERVICES COMPEED BY THIS FIRM (MM/YY) | **Ongoing** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$2,500** |

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

As part of our Dam Safety Program Contract Nos 4400011393 and 4400020842 with LADOTD, ECM Consultants, Inc. is providing safety inspections, assessments, evaluations and reporting to LADOTD for over 250 dams. ECM is also preparing Dam Breach analysis, inundation map, report and performing Hazard Classification of dams as required by DOTD. ECM is collecting and reviewing the available as built drawings, performing the site visit to understand the field condition of the existing dams and downstream area, assessing the dams and providing the recommendation.

The inspections include all accessible features of the dams including embankments, concrete sections, spillways, galleries, intakes, outlet works, and discharge channels. Inspections include identifying and documenting evidence of leakage, erosion, seepage, instability, undue settlement, displacement, tilting, cracking, deterioration, and improper function of drains and relief wells. The condition of dams, adequacy and quality of maintenance and operating procedures as the y pertain to the safety of the dam and operation of the control facilities are also accessed, and rehabilitation and corrective measures are recommended.

All dams were located using GPS system with latitude and longitude coordinates and recorded for future inspections. Photos, documentation, and condition assessments are included in the report. All changes to the condition, and/or classification are preserved in the DOTD electronic database. Inspection teams included experienced inspectors and professional engineers. Quality of inspections are ensured by occasional inspection by supervising engineer or Project Manager.

TEAM MEMBERS INVOLVED: **S. SHRESTHA, J. RASI, B. DOW, E. RODRIGUEZ**

17. **Firm Experience:**

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| FIRM NAME | **ECM Consultants, Inc.** | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Other (Structural)** |
| PROJECT NAME | **Low Sill Old River Gated Control Structure Dewatering Design** | FIRM RESPONSIBILITY (prime or sub?) | **Prime** |
| PROJECT NUMBER | | OWNER'S NAME | **U.S. Army Corps of Engineers** |
| PROJECT LOCATION | **Concordia Parish, LA** | OWNER'S PROJECT MANAGER | **Zane Janicki** |
| OWNER'S ADDRESS, PHONE, EMAIL | **7400 Leake Avenue, New Orleans, LA 70118; 504-862-1328** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **2019** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **$1,100** |
| SERVICES COMPEED BY THIS FIRM (MM/YY) | **2019** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$1,100** |

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

ECM received a Task Order from USACE NOD to investigate the stability of the structure in an un-watered state and for the preparation of the P&S to un-water the structure. The intent and objective were to un-water the structure to allow the inspection of the wingwalls, Low Flow, Transition and Weir monoliths, stilling basin and the backfilled scoured hole of 1973 and the grouted area under the structure upstream.

This Low Sill structure is a part of the Old River Control Structure Complex located in Concordia Parish, LA. It is one of the three structures designed to control flow of the Mississippi river into Atchafalaya River with the objective of keeping the Mississippi river from changing course into Atchafalaya. The structure became operational in 1963. The turbulent flood waters of 1973 scoured a hole under the south part of the structure which extended eastward in front of the structure and swallowed the wingwall. Emergency repairs consisted of backfilling this enormous hole with boulders and ripraps. The hole under the structure was backfilled with cement grout. The grout bottom was 35 to 40 feet below the bottom of the base slab of the structure. USACE wants to inspect this critical structure for condition assessment that requires dewatering 30'-45' water after construction of the designed earthen containment dikes on both sides of the structure.

ECM Team with Mr. Mehta, as Project Manager, was assigned the task of structural investigation of the wingwall stability, flotation of the stilling basin and the stability of the grouted Low Flow, Transition and Weir Monoliths, referred to as gated monoliths hereafter. The gated monoliths were supported by steel H piles. If grout is assumed to be adhering to piles, the piles will be overstressed in compression due to the enormous weight of the grout, in the un-watered state. The CPGA 3D pile analysis computer models were created, and iterative analyses were performed to arrive at the answer. These values were then provided to ECM's Geotech and Dewatering design system subconsultants. Their task was to design a dewatering system to dewater the areas on either side of the structure for the hydrostatic HW, TW elevations to permit un-watering and generate the needed uplift under the gated monoliths. The analysis also examined the maximum uplift pressure these monoliths can be subjected to without inducing tension in the compression piles which for obvious reasons lacked the tension anchors.

The stability of the surviving wingwalls in the un-watered state both form the overturning and sliding perspective was checked using cantilever retaining wall analysis. Flotation analysis was performed on the stilling basin slabs using a total weight approach and a factor of safety of 1.25.

TEAM MEMBERS INVOLVED: **S. Mehta, .S. Shrestha**

17. **Firm Experience:**

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| FIRM NAME | **ECM Consultants, Inc.** | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Planning** |
| PROJECT NAME | **Dam Breach Analysis for 40 dams for Kentucky Watershed** | FIRM RESPONSIBILITY (prime or sub?) | **Prime** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **USDA-NCRS** |
| PROJECT LOCATION | **Kentucky** | OWNER'S PROJECT MANAGER | **Scott E. Schneider, P.E.** |
| OWNER'S ADDRESS, PHONE, EMAIL | **771 Corporate Dr, Suite 300, Lexington, KY 40503; (859) 224-7383** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **04/2018** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **$250** |
| SERVICES COMPEED BY THIS FIRM (MM/YY) | **On-going** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$250** |

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


Under a $10 million, 5-year IDIQ contract with USDA-NRCS, ECM in association with AECOM is preparing Dam Breach model for 40 dams in state of Kentucky. ECM is responsible for 24 dams and AECOM is responsible for 16 dams and both are performing all hydraulic and hydrologic analysis of this task. ECM is developing all the necessary hydrologic and hydraulic characteristics of the 24 dams and preparing the dam breach model, the inundation map and reports and coordinating and managing all 40 Kentucky dams. This work included the obtaining data via ArcGIS, development of the Stage – Area curve upstream of the dam and the determination of the drainage area, determining the land use for the drainage basin, Calculating the CN value for the drainage basin, determining the manning's coefficient for the downstream and upstream area, developing the inflow hydrographs, and determining the upstream and downstream condition. The inflow hydrographs were developed using the NRCS TR-60/TR-66 method to estimate the peak breach discharge values and hydrograph distribution for earthen embankment dams. The sunny day breach water surface elevation was taken at the auxiliary spillway crest. This hydrograph was applied as the upstream boundary condition for each model at the downstream toe of the dam. The downstream boundary condition for the model was based on an estimated normal depth for the channel centerline. The upstream boundary condition used as the energy grade for distributing flow along the upstream boundary condition was based on an estimated normal depth for the channel centerline. Manning roughness coefficient were obtained reviewing the soil and land use maps and associated with the 2019 NLCD.

Unsteady state 2D models were developed with hydrographs calculated and the best available dam as-built data for each site. The HEC-RAS 6.3.1 software was utilized for modeling purposes. The breach analysis was conducted in accordance with the National Watershed. Program Manual (2014) and NRCS Breach Analyses requirements. The hydraulic models were run using the Full momentum, SWE-ELM equation set with maximum and minimum courant numbers of 1.0 and 0.4, respectively, for a 24-hours simulation window. Inundated area, water surface elevation, velocity and depth obtained from the model were utilized to prepare the reports and inundation maps. This breach analysis information would provide local sponsors and NRCS with data regarding the risks to the public should the dam fail.

TEAM MEMBERS INVOLVED: **S. SHRESTHA, J. RASI**

17. **Firm Experience:**

GeoEngineers

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| FIRM NAME | **GeoEngineers, Inc.** | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Geotech** |
| PROJECT NAME | **L'Auberge Casino and Hotel** | FIRM RESPONSIBILITY (prime or sub?) | **Sub** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **L'Auberge Casino & Hotel** |
| PROJECT LOCATION | **Baton Rouge, Louisiana** | OWNER'S PROJECT MANAGER | **Steve Boudreaux (Stantec)** |
| OWNER'S ADDRESS, PHONE, EMAIL | **777 L'Auberge Ave., Baton Rouge, LA 70820; (225) 765-7400; steve.boudreaux@stantec.com** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **08/10** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **Unknown** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **2012** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$1,650** |

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

GeoEngineers was the lead geotechnical engineer for the L'Auberge Casino project in Baton Rouge, Louisiana. Pinnacle's design called for placing the floating casino building on the Mississippi River batture, a strip of land between the levee and main channel that is subject to annual flooding. GeoEngineers provided geotechnical investigation and engineering for the entire site as well as construction monitoring for design aspects in proximity or on the Mississippi River levee. Geotechnical design challenges included:

- Design a stable, water-tight earthen dike and T-wall containment basin on the **Mississippi River batture**, in which the casino barges float during low river levels.Design a T-wall along the river side of the basin to maintain adequate **river bank stability** by narrowing the basin.
- Design and installation of 135-foot-long, 42-inch-diameter steel pipe piles to anchor the three barges.
- Design and installation of hundreds of 18-inch-diameter auger-cast piles on the batture and on the protected side of the levee for a hotel, 800-car parking garage, facilities adjacent to the floating casino and utility/support facilities.
- Determine a degraded batture section to provide the required **stability factors of safety at the river bank (remove natural alluvial deposits from the batture).**
- Evaluate bearing capacity and slope stability factors of safety with construction of a ground-supported concrete circular access ramp over the levee supported by shallow foundations bearing on the levee.
- Estimate settlement and design fill heights to maintain the design levee elevation after construction of the circular access ramp bearing on the levee.
- Placement and compaction of earthen fill for realignment of River Road in accordance with Louisiana Department of Transportation and Development Requirements.
- GeoEngineers worked closely with multiple parties, including L'Auberge, the site civil engineer, contractors, the levee board, CPRA, the USACE, and other entities involved with this complex project in a marine environment.

**Added Value:** There were significant design challenges associated with supporting the circular access drive on shallow foundations **directly bearing on the levee**. Settlement, a complex curved geometry crossing a straight levee, an **excavated basin adjacent to the levee toe**, and varying river level conditions required multiple iterations of slope stability, including mass balance evaluations to reflect the three-dimensional problem geometry. Ultimately GeoEngineers was able to work with all parties to establish a design section that met USACE standards and project requirements. An extensive inclinometer monitoring program with remote monitoring was established, and GeoEngineers was **retained through construction to monitor levee integrity**. 100 % of work performed in Louisiana.

TEAM MEMBERS: **L. SANT, D. SAULS**

17. **Firm Experience:**

GeoEngineers

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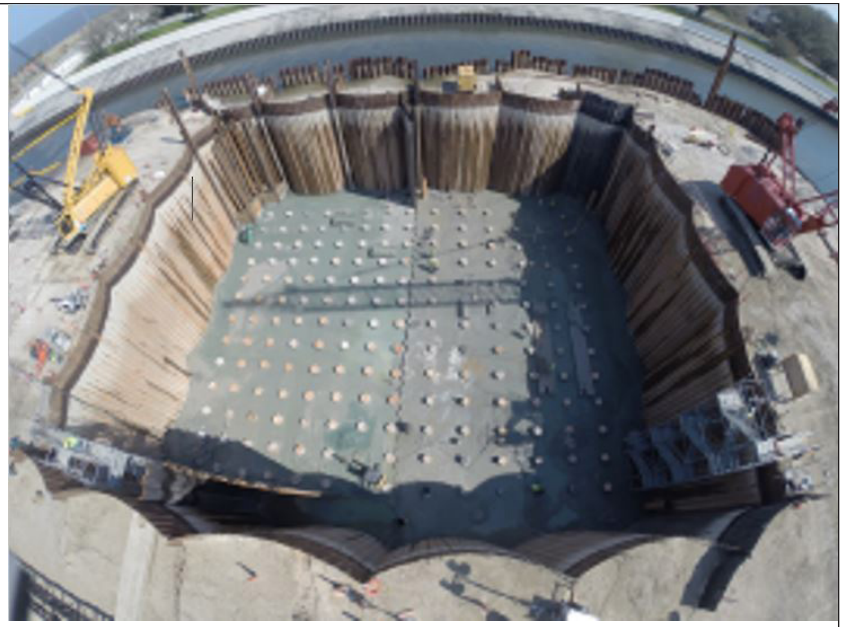
| FIRM NAME | **GeoEngineers, Inc.** | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Geotech** |
| PROJECT NAME | **USACE, Permanent Canal Closures and Pumps, Route LA 10** | FIRM RESPONSIBILITY (prime or sub?) | **Sub** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **PND Engineers, Inc.** |
| PROJECT LOCATION | **New Orleans, Louisiana** | OWNER'S PROJECT MANAGER | **Mike Huggins** |
| OWNER'S ADDRESS, PHONE, EMAIL | **PO Box 94245, Baton Rouge, LA 70816; (225) 379-1821; mhuggins@pndengineers.com** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **2013** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **Unknown** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **2014** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$377** |

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

GeoEngineers provided numerical modeling of the cofferdam constructed at the 17th Street Canal, London Avenue Canal and Orleans Avenue Canal sites for the Permanent Canal Closure and Pump (PCCP) project in New Orleans, Louisiana. The PCCP project includes **constructing a pump station** at each project site that will move rainwater out of the canal and into Lake Pontchartrain during a tropical weather event. The construction of the pump station requires an excavation up to 54 feet deep completed under water and the cofferdam is designed to resist up to 47 feet of differential water pressure when the excavation is fully dewatered during the construction of the pump station. **This is the deepest shored excavation attempted in New Orleans.**



GeoEngineers completed **extensive three-dimensional numerical modeling** using the PLAXIS 3D to evaluate the performance of the cofferdams under fully dewatered conditions and to evaluate the impacts of the cofferdams deformations to the adjacent existing structures and future buildings that will be constructed adjacent to the cofferdams. The results of our PLAXIS 3D analyses provide information that incorporates the soil-structure interaction effects such as the design earth pressure, estimated soil and sheet pile deformation and the estimated sheet pile stresses for consideration by designer of the cofferdams. Our analyses were peer reviewed by two third-party reviewers, one retained by the US Army Corps of Engineers, and the other retained by the design-build project team. Contractors successfully constructed the cofferdams and the actual performance has performed in line with our numerical modeling results and predictions.

100% of work performed in Louisiana.

TEAM MEMBERS: **B. COTTON**

17. **Firm Experience:**

GeoEngineers

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| FIRM NAME | **GeoEngineers, Inc.** | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Geotech** |
| PROJECT NAME | **EPA-Mandated Dam Safety Inspections & Ash Basins** | FIRM RESPONSIBILITY (prime or sub?) | **Prime** |
| PROJECT NUMBER | **N/A** | OWNER'S NAME | **NRG Louisiana Generating** |
| PROJECT LOCATION | **Point Coupee Parish, Louisiana** | OWNER'S PROJECT MANAGER | **Gary Ellender (NRG Energy, Inc.)** |
| OWNER'S ADDRESS, PHONE, EMAIL | **10431 Hwy 981, New Roads, LA 70760; (225) 638-3773; gary.ellender@nrgenergy.com** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **2011** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **Unknown** |
| SERVICES COMPLETED BY THIS FIRM (MM/YY) | **2016** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$55,700** |

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

GeoEngineers provided EPA-mandated, semi-annual dam safety inspections and several related geotechnical engineering services for levee maintenance design and recommendations at the Big Cajun II Generation Site. This included: reconnaissance of the entire impoundment (298 acres of the property from outside toe to outside toe) inclusive of scheduling, notification and reporting; an evaluation of slope stability and hydrologic/hydraulic safety of the five Ash Basins/Wastewater Treatment Ponds; and recommendations regarding repair for the reported appearance of sloughing in isolated areas during several separate events during these years. The Big Cajun II plant includes five industrial Solid Waste Surface Impoundments that impoundments occupy approximately 298 acres of the property (outside toe to outside toe) including: Fly Ash Basin; Bottom Ash Basin; Primary Treatment Pond; Secondary Treatment Pond; and the below-grade Rainfall Surge Reservoir. This initial design was based on several hundred geotechnical borings, laboratory testing and engineering analyses for the design and construction recommendations.

100% of work performed in Louisiana.

TEAM MEMBERS: **L. SANT, D. SAULS**

17. **Firm Experience:**

MARMILLION/GRAY MEDIA

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| FIRM NAME | **Marmillion/Gray Media, Inc.** | PAST PERFORMANCE EVALUATION CATEGORY(IES)* | **Other (Public Engagement)** |
| PROJECT NAME | **MOVEBR Transportation & Infrastructure Program** | FIRM RESPONSIBILITY (prime or sub?) | **Sub** |
| PROJECT NUMBER | **19-CS-HC-0005** | OWNER'S NAME | **East Baton Rouge Parish** |
| PROJECT LOCATION | **East Baton Rouge Parish** | OWNER'S PROJECT MANAGER | **Fred Raiford** |
| OWNER'S ADDRESS, PHONE, EMAIL | **P.O. Box 1471, Baton Rouge, LA 70821; (225) 389-3158; fraiford@brla.gov** | | |
| SERVICES COMMENCED BY THIS FIRM (MM/YY) | **07/19** | TOTAL CONSULTANT CONTRACT COST ($1,000's) | **$5,602** |
| SERVICES COMPEED BY THIS FIRM (MM/YY) | **ongoing** | COST OF CONSULTANT SERVICES PROVIDED BY THIS FIRM ($1,000's) | **$445 (to date)** |

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

Rannah Gray serves as the Communications Workgroup lead and co-lead of the Public Outreach Workgroup for the MOVEBR program. She manages communications, stakeholder meetings, and digital media. Marmillion/Gray Media coordinated communications for the program kick-off, designed the program logo, wrote a detailed Communications Plan, coordinates newsletter production, public meetings and outreach for projects that provide community enhancement, improvement of existing corridors and traffic management/signalization projects under the direction of the Stantec Program Managers. Rannah Gray is the Communications lead, Sarah Powell provides graphic design and videography for the MOVEBR program.



TEAM MEMBERS INVOLVED: **R. GRAY, S. POWELL**

18. **Approach and Methodology:**
Provide a description of how the work will be performed and provide the proposed project schedule. Include any additional information or description of unique resources that are planned to be used to produce the deliverables. Include any proprietary technologies, methods or approaches that will be used on this project to improve quality or efficiency. If the proposal is for an IDIQ contract, the consultant should review the scope of services in Attachment A to the advertisement to obtain a general understanding of what a typical task order would entail. Based upon that understanding, the consultant should provide a sample schedule that identifies the major milestones, deliverables, tasks, etc., to demonstrate sufficient understanding of a typical task order. The duration of the task order is not required. This section shall be limited to four pages. **If more than four pages are included, all pages after the fourth page will not be evaluated.**

**If the consultant has information it believes is proprietary, label it accordingly.**

The Stantec team has the ability to efficiently implement a wide variety of services associated with public work projects including dams. As the scope of work does not specifically mention particular projects or locations, the approach below was developed to center on typical services related to these types of projects, highlighting our use of the latest technologies and automated tools/techniques to provide project and task efficiencies that can benefit each project. As such, the following project approach is broken down sequentially into the typical types of tasks that may occur as follows: (i) planning; (ii) design; (iii) community outreach and workshops; and (iv) support during construction. A schedule has also been provided for a potential dam related project based on tasks included in the scope of work. The following sections also describe how our team has been integrated into the project approach.

## Planning

Each project is unique and requires a detailed understanding of the site history, existing conditions, and project objectives. At the onset, the Stantec team would complete a review of available documentations (ex: H&H models, geotechnical data, historical drawings), complete site visits, and meet with LADOTD to thoroughly understand project goals.

Our team has significant experience in dam safety and public works projects so we know how to tailor our team to each project. Depending on the scope and needs, the assembled team has the capabilities to provide the following planning level services:

- **Surveying and Property Research** – CD&C has experience successfully performing surveys for LADOTD through task orders as part of the Louisiana Watershed Initiative, to support reducing flood risk in Louisiana. In addition to traditional surveying techniques, the Stantec team has utilized three-dimensional (3D) terrestrial scans in conjunction with traditional surveying to complete topographic surveys in an expedited manner for an emergency LADOTD bridge replacement. Additionally, our team has applied remote sensing technologies to generate accurate and reliable data through the use of unmanned aerial systems (or drones), photogrammetry, LiDAR, underwater acoustics, and satellite imagery along with ground control surveys. In conjunction or separately, CD&C has experience in Louisiana providing research of historical and current records to determine easements and property ownership.
- **Inspections** – The Stantec team has the expertise and experience completing inspections in Louisiana and across the country for a wide variety of dams and appurtenances including earthen and concrete dams, labyrinth spillways, intake towers, spillway pipes, weirs, gates, and chute spillways, and more. Our team

De Cordova Maintenance Inspections

Big Creek Dam Evaluation

McLeod Dam Safety Review Update

USACE Levee Inspections

## 18. Approach and Methodology:

routinely uses tables and phone applications in the field for data collection linked to automated field report forms to expedite the delivery of inspection results. In areas that are difficult to access, we have unmanned aerial system operators who utilize remote sensing technologies to evaluate dams and has engineers able to complete inspections in confined and/or difficult to reach places utilizing rope access techniques or cameras. The Stantec team understands the critical nature and sense of urgency associated with dam inspections. For TVA, **Jon Keeling** leads a team to provide inspections within 48 hours after TVA's spillways are disengaged to evaluate concrete conditions. Several of our team members have assisted Jon's team with these inspections.

- **Water Resources and H&H Studies/Analysis** – The Stantec team provides water resources and hydraulic/hydrologic studies throughout Louisiana and the country. Depending on the level of detail required, our team can complete watershed-scale and localized site-specific models following Louisiana Watershed Initiative guidelines. To promote project efficiencies related to H&H modeling, **Joe Rungee** and others have developed a suite in-house 2D modeling tools and scripts, including a spatially varying precipitation tool, a flood decision support toolbox to automate models to USGS flood decision support toolbox (FDST) standards, automate identification of hydroconnectors and breaklines, a machine learning tool (Flood Predictor) for initial flood mapping in unmapped study areas, and development of Flood Manager which allows for expedited model computation times through parallel processing. Stantec is currently using these tools in FEMA Region VI and elsewhere to reduce model efforts or more efficiently perform model parameter input. These efficiencies result in lower associated client budgets to perform H&H studies. Already Flood Predictor and Flood Manager are being used by the State of Tennessee and FEMA's Iowa CTP, respectively.

  Additionally , the project team has provided hydrologic and hydraulic modeling (HEC-HMS, HEC-SSP, HEC-RAS) and mapping services for FEMA and cooperating technical partners to model 150,000 miles in 1D and 85,000 miles in 2D.

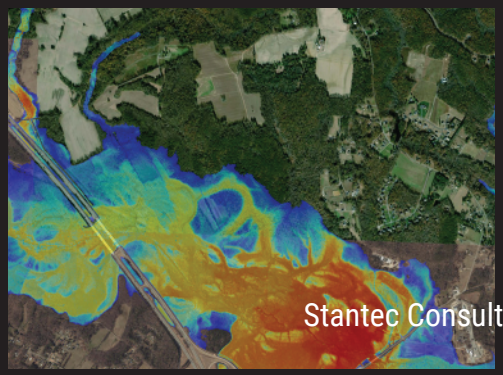
- **Hazard Mitigation Planning and Risk Assessments**– As Louisiana is subject to a unique combination of flood related hazards (ex: hurricanes, torrential rainfalls) and unique geology and water infrastructure networks consisting of dams, levees, and interconnected water bodies (ex: bayous, rivers, lakes), accurately identifying and mitigating risks and hazards is of critical importance. Hazard mitigation planning and risk assessments would be tailored for each site. For example for LADOTD's dams with small drainage areas there is likely limited lag between rainfall within the watershed and downstream impacts; therefore, mitigation may include installation of rainfall and depth sensors coupled with H&H models and a user friendly dashboard (e.g., Stantec's Dam Insights) to provide real-time, automatic alerts to the operator and emergency response agencies. The Stantec team has provided these services in nearly every state in the country and provides these services for multiple clients including FEMA.

  Additionally, potential infrastructure improvements considered could include modifying the existing intake to increase spillway capacity as part of a risk informed decision making framework utilizing a unique blend of H&H, geotechnical, and structural engineers with expertise in dams.

- **Geotechnical Field Services** – The Stantec team has drilling, material testing, and analysis capabilities to complete geotechnical investigations at the anticipated dam locations in accordance with national standards (ex: USBR 13 for Embankment Dams). As part of a feasibility study for the creation of a 38 acre lake in Woodsworth, Louisiana, GeoEngineers completed a total of 82 borings and associated laboratory testing to evaluate and characterize the site's soil for lake and dam design. By using local teams with expertise with Louisiana's geology (**David Sauls, Larry Sant,** and **Blake Cotton**) and incorporating technological advances (ex: use of automated gINT software), our team is able to efficiently provide high quality geotechnical field services.

Dambreak Modeling and Consequences Assessment


FEMA RiskMAP



Geotechnical Exploration

Core Samples

18. **Approach and Methodology:**

## Design

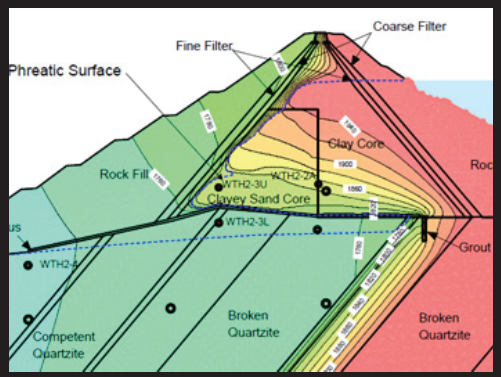
After completion of initial project planning, design would commence. The Stantec team provides a full suite of dam related services including geotechnical, civil, mechanical, structural, and water resources engineering. For a typical project, the initial planning and design may include development of conceptual alternatives to select project solutions that would provide cost effective, efficient solutions. Afterwards, the project would advance through permit and construction level submittals with quality control measures implemented at each stage. Depending on the project, our team has a diverse array of technical expertise to provide deliverables such as engineering drawings/ plans, specifications, calculations, and design reports. A few of these areas of technical expertise are noted as follows:

- **Geotechnical Analysis and Design** – Stantec and GeoEngineers have provided geotechnical analyses and design for over 100 dams across the country including in Louisiana. This team has the capabilities to analyze and provide solutions using a wide variety of geotechnical conditions such as liquefaction, global slope stability seepage, and more. We use a wide range of software (ex: GeoStudio, UTexas, Slide, GTSTRUDL, Ansys, Plaxis 2D and 3D) to provide practical and unique solutions. As part of Bachman Lake Dam, project team members **David Lutz** and **Daniel Gilbert** integrated risk assessments and geotechnical engineering to provide design modifications for a spillway replacement, seepage mitigation, and abandonment of the lake drain.
- **Erosion and Scour Mitigation** – Erosion and scour mitigation analyses and design has been provided for numerous dams and appurtenances. For a National Park Service dam, **Mark Schillinger** (a published author in the area of scour) and **Rachael Bisnett** utilized their knowledge in civil, water resources, and geotechnical engineering to provide design solutions to improve the lining in two grass-lined auxiliary spillways that were subject to erosion during high flow events. As part of the evaluation, our team evaluated numerous options including rip-rap, turf reinforcement matting, FabriForm, and articulated concrete blocks to select a solution that was cost effective, schedule efficient, and had limited earthwork activities.
- **Structural Analysis and Design** – **Jim Trowbridge** will utilize his 40 years of experience to lead our structural team of experts in the repair, rehabilitation, and/or evaluation of dams and associated infrastructure. As a lead structural engineer for the Houma Navigation Canal (HNC) Lock Complex in Houma, Louisiana, he provided structural design criteria and specifications for an innovative, in-the-wet construction of a braced steel pile floodwall, lock chamber walls and upgrade of the existing steel floating swing gate. With a structural engineering team familiar with numerous dams and appurtenances (ex: RCC, concrete, radial gates, chute spillways) and working with other engineering disciplines, the Stantec team can provide project approaches that streamline the design process.
- **Water Resources/H&H Design** – With both practical and theoretical knowledge in the design and analyses of water infrastructure projects including in Louisiana, Matt Hoy provides a unique blend of experience to lead our water resources/H&H design team. For any task, the water resources team focuses on the end goals in mind and considers the project from an interdisciplinary perspective. For the relining of ten principal spillway pipes for Gwinnett County Department of Water Resources, **Jon Keeling** and **Mark Schillinger** understood permitting was a critical schedule driver. By evaluating when lining conditions would impact 100-yr floodplain levels and providing upper bound estimates of structural lining thicknesses at the very start of the project, the team was able to quickly evaluate project feasibility, expedite the schedule by months, and avoid future permit submittals.

## Community Outreach and Workshops

**Rannah Gray** and **Sarah Powell** have decades of experience providing community outreach and hosting workshops for public infrastructure projects in Louisiana. Our team has successfully held stakeholder workshops for LADOTD that have included

Finite Element Seepage Analysis




Lake White Dam Improvement Design

White Rock Dam Spillway Repair

Lookout Lake Dam Rehabilitation

hard-to-reach populations, parish commissioners, public works directors, LADOTD communication teams, and project teams.

The Stantec team understands that working with the local community means understanding their concerns (ex: environment, social justice, noise, traffic) and sequencing work to limit public inconvenience. For the MoveBR infrastructure improvements in Baton Rouge, the project team has worked with the community's interests in mind and have sequenced the work to limit impacts including completing work near schools when classes are not in session.

## Construction Support and Shop Drawings

As projects advance into construction, it is of utmost importance that the project is implemented in accordance with the design so the construction runs smoothly. Thus, during construction, the inspections and administration would be led by **Benjamin Dow** and **Deborah Sheets** who have years of experience providing these services in the state. To effectively deliver projects, the construction quality assurance team would utilize tablets to take photos and notes that would automatically generate a preliminary daily field report and has the ability to utilize drones to provide daily aerial imagery of construction or monitor critical conditions such as monitoring for seepage. This technique has been successfully used to save hundreds of hours of time on similar construction projects, including for clients in Louisiana. The team would be supported by additional technical experts in the review and response to contractor submittals, shop drawings, and additional requests.

## Schedule

A typical schedule for a planning project may take six to nine months depending on the complexity of the scope. For an example project where a non-urgent geotechnical concern has been identified at a dam and the future construction work could impact the public (ex: recreational users), a project schedule may be as follows. Stakeholder workshops could run in parallel with other tasks.

**Conceptual Schedule**

| TASKS | MONTH 1 | MONTH 2 | MONTH 3 | MONTH 4 | MONTH 5 | MONTH 6 | MONTH 7 |
|---|---|---|---|---|---|---|---|
| Review of available literature, basis of design development, and data gap analysis | | | | | | | |
| Geotechnical investigations, laboratory testing, and surveying | | | | | | | |
| Geotechnical analysis of liquefaction, seepage, and global stability | | | | | | | |
| Development of conceptual alternatives, costs, and qualitative risk evaluation to address geotechnical concerns and consider additional impacts (ex. public, environment, construction) | | | | | | | |
| Workshop with LADOTD Public Works, LADOTD communications, and stakeholders | | | | | | | |
| Feasibility Report, Preliminary Drawings and Opinion of Probable Construction Cost for Preferred Alternative | | | | | | | |

# Why Stantec?

Our proposed team offers Louisiana-based staff with **local flood control experience**, as well as **a deep bench of regional and national dam safety staff** to support your Dam Safety and Public Works program.

Our up front, collaborative approach to project and program planning means your projects get started on the right track, and **decisions can be made considering DOTD's needs** as well as the needs of your stakeholders.

Our use of constructability reviews as part of the **QA/QC and ITR processes** helps identify conceptual design elements that may present construction issues and **helps avoid** those **issues for final design.**

19. **Workload:**
For all contracts where a firm on the team is a prime consultant or sub-consultant and where a) the consultant selection was made by DOTD, and b) a contract was executed by the consultant and the contracting entity by the date the advertisement for this proposal was posted, list all work meeting the following criteria:
1) one of the team's firms is responsible for the performance of the work;
2) authorization to perform the work has been provided, as provided in the contract between the consultant and the contracting entity;
3) the work has not yet been performed and invoiced; and
4) the work is not currently suspended for an indefinite period of time.
For indefinite delivery/indefinite quantity (IDIQ) contracts, list open Task Orders individually. List only the portion of the fees attributable to the firms on the team.

| Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE | Past Performance Evaluation Discipline(s) * | Contract Number and State Project Number | Project Name | Remaining Unpaid Balance** |
|---|---|---|---|---|
| **Stantec Consulting Services Inc.** | | S. P. No. 700-99-0430 | Retainer Contract for Bridge Preservation [Statewide, Louisiana] | |
| | Bridge | | T.O. 701-65-1018 Bayou Tech Bridge | $1,053 |
| **Stantec Consulting Services Inc.** | | Contract No. 4400024629 S. P. No. H.005967.6 | Nelson Road Ext. and Bridge [Calcasieu Parish] | |
| | CE&I/OV | | CE&I and Construction Support | $500,344 |
| | Road | | Striping Pln. Changes | $4,610 |
| | Other/Lighting | | Roadway & Nav. Lighting | $44,762 |
| **Stantec Consulting Services Inc.** | | Contract No. 440004128 S. P. No. H.004273.5 | Lafayette Regional Airport to I-10/I-49/US 167 Interchange [Lafayette Parish] | |
| | Planning | | Prog. Mgmt.; Context Sensitive Design Process; Impl. Strategies | $1,222,672 |
| | Traffic | | Traffic Engineering | $115,836 |
| | ITS | | ITS | $16,585 |
| | Road | | Geometric Design/Analysis | $130,299 |
| | Bridge | | Structure & Bridge | $512,818 |
| | ROW | | ROW Acquisition | $85,420 |
| | Survey | | Survey | $22,731 |
| | Other/PR; Ltg; Av. | | Public Relations/Comm.; Lighting; Aviation | $80,419 |
| **Stantec Consulting Services Inc.** | Other/Lighting | Contract No. 4400011353 S. P. No. H.014302.6 | IDIQ Contract for Electrical Services (Sub to Buchart Horn, Inc.) [Statewide, LA] | |
| | | | H.014302.6 US 165 Roadway Lighting [Ouachita Parish] | $19,301 |
| **Stantec Consulting Services Inc.** | | S. P. No. H.011670 | Loyola Dr./I-10 Interchange to New Airport Terminal Design Build (Sub to Gilchrist Co., LLC) [Jefferson Parish] | |
| | Road | | Roadway | $138,980 |
| | CE&I/OV | | CE&I/OV | $176,451 |
| | Bridge | | Bridge | $95,263 |
| | Other/Lighting | | Aesthetic Lighting | $139,555 |

19. **Workload:**

| Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE | Past Performance Evaluation Discipline(s) * | Contract Number and State Project Number | Project Name | Remaining Unpaid Balance** |
|---|---|---|---|---|
| **Stantec Consulting Services Inc.** | Traffic/ITS | Contract No. 4400020058 | IDIQ Contract for Intelligent Transportation Systems (ITS) Design and Implementation Services [Statewide, LA] | |
| | | | H.013710.6 I-10: US-61 to Laplace ITS Deployment [Ascension, St. James & St. John Parishes] | $10,050 |
| | | | H.002424.5 LA 70: Sunshine Bridge - LA 22 [St. James & Ascension Parishes] | $427 |
| | | | H.015136 Statewide ITS Architecture Update [Statewide] | $53,942 |
| | | | H.013261.6 I-110 ITS Deployment [EBR Parish] | $23,537 |
| | | | H.011152.6 I-12: US 190 to LA 59 [St. Tammany Parish] | $36,035 |
| | | | H.013866.6 I-12: LA 21 to US 190 [St. Tammany Parish] | $29,610 |
| | | | H.003047.6 I-10: Pecue Lane/I-10 Interchange Phase III [EBR Parish] | $40,872 |
| | | | H.002424.6 LA 70: Sunshine Bridge - LA 22 [St. James & Ascension Parishes] | $29,423 |
| | | | T.O. 16 I-10 WBR Queue Warning System [Iberville & WBR Parishes] | $237,117 |
| **Stantec Consulting Services Inc.** | Other (Lighting) | Contract No. 4400020064 | IDIQ Contract for Electrical Services [Statewide, LA] | |
| | | | H.014286.5 I-10: LA 26 (Jennings) Interchange Lighting [Jefferson Davis Parish] | $1,207 |
| | | | H.014272.5 I-10: LA 97 (Jennings) Interchange Lighting [Jefferson Davis Parish] | $35,412 |
| | | | H.014287.5 I-10: LA 99 (Welsh) Interchange Lighting [Jefferson Davis Parish] | $81,020 |
| **Stantec Consulting Services Inc.** | | Contract No. 4400024461 S. P. No. H.012685.5 | LA 385: Ryan Street Intersection Improvements [Calcasieu Parish] | |
| | Traffic | | Traffic Study; Signal Design | $143,066 |
| | Road | | Roadway Design | $266,728 |
| **Stantec Consulting Services Inc.** | | Contract No. 4400022901 S. P. Nos. H.011094.5 | LA 3094: Hearne Ave. Bridge and US 80: KCS RR Overpass (HBI) [Caddo Parish] | |
| | Road | | Roadway | $333,996 |
| | Bridge | | Bridge | $384,617 |
| **Stantec Consulting Services Inc.** | | S. P. No. 700-09-0171 | I-49 Inner City Connector (From I-49/I-20 Interchange to I-49/I-220 Interchange) [Caddo Parish] | |
| | Traffic | | Traffic Engineering | $58,526 |
| | Bridge | | Bridge | $168,979 |
| **Stantec Consulting Services Inc.** | | Contract No. 4400023972 | IDIQ Contract for Cultural Resources | |
| | Environmental | | H.014197.5 Phase I Cultural Resources Survey [Tensas Parish] | $3,946 |
| **Stantec Consulting Services Inc.** | Right-of-Way | Contract No. 1 S. P. No. H.011670 | State of LA, DOTD versus 2845 Loyola Blvd., LLC ET AL [Jefferson Parish] | |
| | | | Right-of-Way Expert Witness | $6,050 |
| **Stantec Consulting Services Inc.** | Other/C&AV | Contract No 44-17922 | IDIQ Contract for Intelligent Transportation Systems (ITS) System Design, Integration and System Verification Services [Statewide, LA] | |
| | | | H.012845.1 Connected & Autonomous Vehicles - Team Support [Statewide] | $384,622 |

19. **Workload:**

| Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE | Past Performance Evaluation Discipline(s) * | Contract Number and State Project Number | Project Name | Remaining Unpaid Balance** |
|---|---|---|---|---|
| **Stantec Consulting Services Inc.** | Other/Lighting | Contract No. 44-04761 | I-12 to Bush Corridor, LA 3241: I-12 to LA 36 (Sub to Evans-Graves Engineering, Inc.) [St. Tammany Parish] | |
| | | | H.004957.5 I-12/LA 434 Lighting Project | $278,055 |
| DO NOT SUM | | | | |

(Add rows as needed)

* The **only** 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 (please specify). 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. NOTE: ALL FIRMS MUST BE REPRESENTED IN THIS TABLE. LEAVING THE "REMAINING UNPAID BALANCE" COLUMN BLANK IS NOT ACCEPTABLE.

19. **Workload:**

| Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE | Past Performance Evaluation Discipline(s) * | Contract Number and State Project Number | Project Name | Remaining Unpaid Balance** |
|---|---|---|---|---|
| **GeoEngineers, Inc.** | Geotech | H.003370 | DB I-20 Barksdale/GT OV-QA | $79,902 |
| **GeoEngineers, Inc.** | Geotech | H.004791 | P3 Belle Chasse Bridge & Tunnel | $302,064 |
| **GeoEngineers, Inc.** | Geotech | H.011670 | Loyola Dr/I-10 Interchange | $2,000 |
| **GeoEngineers, Inc.** | Geotech | H.002176 | LA10 Bridges | $184,038 |
| **GeoEngineers, Inc.** | Geotech | H.001779 | Jimmy Davis Bridge Prelim Explorations | $166,919 |

DO NOT SUM

(Add rows as needed)

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| Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE | Past Performance Evaluation Discipline(s) * | Contract Number and State Project Number | Project Name | Remaining Unpaid Balance** |
|---|---|---|---|---|
| **Civil Design & Construction, Inc.** | Surveying | 4400017091/ TO-3 | LWI Statewide Modeling R5 – Task Order #3 | $89,482 |
| **Civil Design & Construction, Inc.** | Surveying | H.011833.5 | St. Mary Street Sidewalks | $3,236 |
| **Civil Design & Construction, Inc.** | Surveying | H.011235.5 | I-49 South @ Verot School Rd | $155,840 |
| **Civil Design & Construction, Inc.** | Surveying | H.011235.5 | I-20: UPRR Overpass | $317,022 |
| **Civil Design & Construction, Inc.** | Surveying | H.015056 | LA 685 | $62,272 |
| **Civil Design & Construction, Inc.** | Surveying | H.015058 | LA 14 Business | $53,364 |

DO NOT SUM

(Add rows as needed)

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19. **Workload:**

| Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE | Past Performance Evaluation Discipline(s) * | Contract Number and State Project Number | Project Name | Remaining Unpaid Balance** |
|---|---|---|---|---|
| **ECM Consultants, Inc.** | Other/ CQCM | Contract # BC-PSA 05, S.P. # H.0044791 | Belle Chasse Bridge & Tunnel Replacement Public-Private Partnership Project | $2,344,634 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract # 4400019872 S.P. # H. 009175.6 | IDIQ CE&I for Safety Projects Statewide with Majority of Work in District 03, 07, and 08 (St. Bernard Signing and Striping Local Road Safety Program) | $10,230 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400019872 S.P.# H.011949.6 | IDIQ CE&I for Safety Projects Statewide with Majority of Work in District 03, 07, and 08(RWD Signing Plaquemines Parish Local Road Safety Program) | $22,500 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400019872 S.P. # H.012682.6 | IDIQ CE&I for Safety Projects Statewide with Majority of Work in District 03, 07, and 08 (Pedestrian Crosswalk Enh [NO PH2] | $97,125 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400019872 \| H.013014.6 | IDIQ CE&I for Safety Projects Statewide with Majority of Work in District 03, 07, and 08 (Signing and striping local road safety Vermillion Parish) | $5,000 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400019872 \| H.013789.6 | IDIQ CE&I for Safety Projects Statewide with Majority of Work in District 03, 07, and 08 (Curve Signing & Striping (Evangeline) | $115,125 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400019872 \| H.013767.6 | IDIQ CE&I for Safety Projects Statewide with Majority of Work in District 03, 07, and 08 (Signs & markings St. Landry & St. Martin) | $142,599 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400019951 \| S.P. # H.018767.6 | IDIQ CE&I Inspection Services Statewide with Majority of Work in District 03 (Jude & Placid Road Bridges, Vermillion Parish) | $221,419 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400020842 \| Task Order 3 | IDIQ Contract for Engineering & Inspecti0n of State Regulated Dams with Majority of work in District 03,07,6 & 62 Statewide (State Regulated Dams Eng & Inspection) | $159,818 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400019951 H.0123936 | IDIQ CE&I Inspection Services Statewide with Majority of Work in District 03 (LA 98 Roundabout at Mills St. Route La 98) | $280,612 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400019951 \| H.012863.6 | IDIQ CE&I Inspection Services Statewide with Majority of Work In District 03 (Cypress Island Pavement Preservation) | $196,916 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract # 4400021680 \| S.P. #H.008145.6 | LA1 Leeville to Golden Meadow | $8,693,322 |
| **ECM Consultants, Inc.** | CE&I/OV | Contract# 4400026101 \| S.P.3 H.011767 | DOTD Contract for Engineering & Inspection District 61(Bayou Crab Road Bridge) | $20,000 |

DO NOT SUM

(Add rows as needed)

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19. **Workload:**

| Firm(s) ALL FIRMS MUST BE REPRESENTED IN THIS TABLE | Past Performance Evaluation Discipline(s) * | Contract Number and State Project Number | Project Name | Remaining Unpaid Balance** |
|---|---|---|---|---|
| **Marmillion/Gray Media, Inc.** | Other – Public Involvement | 4400015733 / H.972374.1 | Local Public Agency Documented Planning Process-Statewide | $54,352 |
| **Marmillion/Gray Media, Inc.** | Other – Public Involvement | 4400021094 | Update Statewide Transportation Plan | $55,867 |
| **Marmillion/Gray Media, Inc.** | Other – Public Involvement | 4400022830 | LADOTD Americans with Disabilities Act (ADA) Transition Plan Update, Phase 1 – District 3 Pilot Study | $61,470 |

DO NOT SUM

(Add rows as needed)

*The past performance evaluation disciplines 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.

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

RTA

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

# LOUISIANA UNIFIED CERTIFICATION PROGRAM

## Disadvantaged Business Enterprise Program (DBE)

## Small Business Element (SBE)

**This is to certify that under Title 49, Part 26 of the Code of Federal Regulations & under the State of Louisiana United Certification Program (LAUCP)**

## Marmillion Gray Media, Inc.

**Is a Certified Disadvantaged Business Enterprise (DBE) & Small Business Element (SBE) in the following specialties:**

**NC541820**

*NOTE: There may be other approved NAICS Codes. The online DBE Directory includes a complete list of approved codes.*

**Certificate Eligibility: February 2023 to February 2024**

***This certificate is valid through the above date provided. This firm meets the on-going programmatic standard and fulfills the annual update requirement to remain in good standing as a DBE. This certification is subject to annual verification and suspension or revocation based upon reasonable cause to believe that the firm is ineligible.***

Rhonda Wallace

**Rhonda Wallace, DBE/SBE Programs Manager**

***Louisiana Department of Transportation & Development***

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

RTA

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

# LOUISIANA UNIFIED CERTIFICATION PROGRAM

## Disadvantaged Business Enterprise Program (DBE)

## Small Business Element (SBE)

**This is to certify that under Title 49, Part 26 of the Code of Federal Regulations & under the State of Louisiana United Certification Program (LAUCP)**

## Civil Design & Construction, Inc.

**Is a Certified Disadvantaged Business Enterprise (DBE) & Small Business Element (SBE) in the following specialties:**

**NC541330, NC541340, NC541350, NC541370**

*NOTE: There may be other approved NAICS Codes. The online DBE Directory includes a complete list of approved codes.*

**Certificate Eligibility: March 2023 to March 2024**

***This certificate is valid through the above date provided. This firm meets the on-going programmatic standard and fulfills the annual update requirement to remain in good standing as a DBE. This certification is subject to annual verification and suspension or revocation based upon reasonable cause to believe that the firm is ineligible.***

Rhonda Wallace

**Rhonda Wallace, DBE/SBE Programs Manager**

***Louisiana Department of Transportation & Development***

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

ATSSA TRAINED

# PROOF OF TRAINING

THIS CERTIFICATE HEREBY RECOGNIZES THAT

**Joseph Lefante**

has attended

**Traffic Control Supervisor Refresher-LA State Specific**

Training Course

6/24/2022 to 6/24/2026
Training Valid Through

Director of Training

Baton Rouge, LA
Location

President, CEO

*ATSSA provides training and certification but neither constitutes employment by ATSSA.*

ATSSA American Traffic Safety Services Association ATSSA.com

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

Certificate of Training

*this certifies that*

**Sunina Shrestha**

*has successfully completed the training program requirements for*

**ATSSA Online Flagger Certification Training Course**

*Awarded on this* **1st** *day of* **April 2021**

ATSSA

AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION

*This is to affirm that*

Sunina Shrestha

*has satisfied the requirements to be designated as a*

CERTIFIED FLAGGER

*Expiration Date* 3/31/2025 *State Issued in* LA

*Instructor Signature*

Verification available by calling 1-877-642-4637 or at http://www.flagger.com

DOTD

LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

*Certificate of Attendance*

Local Public Agency Qualification Core Training

PRESENTED BY

Louisiana Department of Transportation and Development
Louisiana Local Technical Assistance Program
And
The Federal Highway Administration

TO CERTIFY THAT

*Sunina Shrestha*

HAS SATISFACTORILY COMPLETED 5 HOURS OF TRAINING

October 4, 2012
Date

Director of Local Public Agency Program

New Orleans, Louisiana
Location

ATSSA TRAINED

PROOF OF TRAINING

THIS CERTIFICATE HEREBY RECOGNIZES THAT

**Sunina Shrestha**
has attended
**Traffic Control Supervisor Refresher-LA State Specific**
Training Course

3/12/2021 to 3/12/2021
Date

Director of Training

Baton Rouge, LA
Location

President, CEO

*ATSSA provides training and certification but neither constitutes employment by ATSSA*

ATSSA American Traffic Safety Services Association ATSSA.com

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

ATSSA TRAINED

PROOF OF TRAINING

THIS CERTIFICATE HEREBY RECOGNIZES THAT

**Benjamin Dow**

has attended

**Traffic Control Supervisor Refresher-LA State Specific**

Training Course

11/8/2022 to 11/8/2026
Training Valid Through

Director of Training

New Orleans, LA
Location

President, CEO

*ATSSA provides training and certification but neither constitutes employment by ATSSA.*

ATSSA American Traffic Safety Services Association ATSSA.com

ATSSA SAFER ROADS SAVE LIVES

American Traffic Safety Services Association

*This is to affirm that*

Benjamin Dow

*has satisfied the requirements to be designated as a*

**CERTIFIED FLAGGER**

*Issue Date* 6/16/2022

*Exp. Date* 6/15/2026

*State Issued* LA

ATSSA
*Instructor Name*

*Instructor Signature*

A1000081699

Verify at Flagger.com

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

ATSSA TRAINED

# PROOF OF TRAINING

THIS CERTIFICATE HEREBY RECOGNIZES THAT

**Emilio Rodriguez**

has attended

**Traffic Control Supervisor Refresher-LA State Specific**

Training Course

8/5/2022 to 8/5/2026
Training Valid Through

Director of Training

Baton Rouge, LA
Location

President, CEO

*ATSSA provides training and certification but neither constitutes employment by ATSSA.*

ATSSA American Traffic Safety Services Association ATSSA.com

ATSSA SAFER ROADS SAVE LIVES

American Traffic Safety Services Association

*This is to affirm that*

Emilio Rodriguez

*has satisfied the requirements to be designated as a*

**CERTIFIED FLAGGER**

*Issue Date* 8/3/2022

*Exp. Date* 8/2/2026

*State Issued* LA

A100098801

ATSSA
*Instructor Name*

*Instructor Signature*

Verify at Flagger.com

21. **QA/QC Plan and/or Work Plan:**
If the advertisement requires submission of a QA/QC plan, include it here. Otherwise, leave this section blank. If a QA/QC plan is included in this section and was not required by the advertisement, it will be redacted.

22. **Sub-consultant Information:**
If one or more sub-consultants will be used, provide the name, address, point of contact and phone number for each. Otherwise, leave this section blank.

| Firm Name (Name must match as registered with Louisiana's Secretary of State) | Address | Point of Contact and Email Address | Phone Number |
|---|---|---|---|
| GeoEngineers, Inc. | 11955 Lakeland Park Blvd., Suite 100<br>Baton Rouge, Louisiana 70809 | Larry Sant, PE<br>LSant@geoengineers.com | 225-663-1522 (Office)<br>509-570-6081 (Cell) |
| Civil Design & Construction, Inc. | 3251 Southern Pacific Road<br>Port Allen, LA 70767 | Karla Weston, PE<br>kweston@cdcbr.com | 225-765-1802 |
| ECM Consultants, Inc. | 1301 Clearview Parkway, Suite 200<br>Metairie, LA 70001 | Kazem Alikhani, PE<br>kazem@ecmconsultants.com | 504-885-4080 |
| Marmillion/Gray Media, Inc. | 838 North Boulevard<br>Baton Rouge, LA 70802 | Rannah Gray<br>Rannah@rannahgray.com | (225) 381-3036 |

(add rows as needed)

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. Any information included in this section will be redacted if not required by the advertisement.