

September 12, 2023

David Griffin, P.E.
Program Manager
Georgia Safe Dams Program
2 Martin Luther King Jr. Drive, Suite 1362
Atlanta, Georgia 30334

RE: Seismic Slope Stability Analysis Review – Lake Petit Dam, Pickens County, GA

Dear Mr. Griffin:

Freese and Nichols, Inc. (FNI) is pleased to present this proposal to perform a review of static and seismic slope stability analyses for the Lake Petit Dam located in Pickens County, GA. We will provide a review of the stability analyses contained within the *Stability Analyses of Lake Petit Dam* (the Study), prepared by Geosyntec Consultants, Inc. (Geosyntec) dated April 2023, as provided to us by the Georgia Safe Dams Program (SDP).

Scope of Work

FNI's effort will include a review of the dam geometry, investigation methods, laboratory testing, and subsurface stratigraphy, material parameters, earthquake ground motion and pseudo-static coefficient selection, calculation methods, and computed results with a focus on the assessment of the seismic stability analysis contained in the study report. During our review, we will also evaluate the results and conclusions presented by the design engineer and compare findings with the *Engineer Guidelines* issued by the Georgia Environmental Division, Safe Dams Program, and the current standard of care within the engineering industry.

Our project deliverable will be a summary letter that identifies the results of the review and our professional opinion of the design engineer's analysis and results. We will also provide commentary, if applicable, if any issues or concerns are identified. After submitting our review letter, FNI will meet with the SDP to review and discuss the technical basis of each comment.

Assumptions

- SDP will provide a task authorization for the current agreement between FNI and SDP as our notice to proceed.
- All available as-built, geotechnical, and instrumentation data will be furnished upon award.
- SDP will coordinate communication with the design engineer, the HOA, or other stakeholders with respect to requests for information.
- FNI's effort is limited to the review of technical work product performed or led by a GA EPD Engineer of Record. FNI nor FNI's personnel assume Engineer-of-Record responsibility for Lake Petit Dam after completion of the proposed scope of work.

Additional Services Not Included within Proposal

- Static or pseudo-static stability analysis or modeling.
- A liquefaction triggering assessment.
- Meetings or coordination with the design engineer, the HOA, or other stakeholders.
- FNI budgeted approximately 60 hours of effort the Scope of Work. Additional effort beyond the Scope of Work may require additional compensation.

Qualifications

FNI regularly evaluates the stability of earthen embankments during design activities for both small and large sized dams. Our key team includes James McNash, P.E. (Project Manager) and Marc T. Miller, P.E., D.GE (Quality Control), whom are both pre-certified Engineers-of-Record (EOR) by the State of Georgia Safe Dams Program. See the attached for resumes and qualifications for our key team.

Compensation

FNI proposes to perform the requested scope of work for a lump sum of Fourteen Thousand Nine Hundred Fifty Dollars and No Cents (\$14,950.00) to be billed upon submittal of the final deliverable.

Schedule

FNI proposes to perform and complete a draft of our review submittal within 30 days of the receipt of the notice-to-proceed. FNI will incorporate any comments and finalize the review submittal within one week of the receipt of comments.

Closing

We appreciate this opportunity to provide you with this proposal. If you agree with this proposal and wish for FNI to proceed with this assignment, please initiate contract proceedings.

Sincerely,

Freese and Nichols, Inc.
Georgia Registered Firm #PEF004433

A handwritten signature in blue ink that reads 'James McNash'.

James McNash, P.E.
Project Manager

A handwritten signature in blue ink that reads 'Marc T. Miller'.

Marc T. Miller, P.E., D.GE
Principal/Vice President

cc: John Wolfhope, FNI
Gregg Hudock, FNI

Attachments:

Resume for James McNash
Resume for Marc T. Miller



James McNash, PE | Engineer

James McNash is an FNI Project Manager who specializes in civil and geotechnical engineering design services to support dam and levee clients. His consulting experience includes geotechnical and hydrogeologic subsurface investigations, in-situ and laboratory testing, seismic evaluations, dam engineering, landfill design and management, and surface impoundment closure. James has also successfully led several large, multidiscipline geotechnical and civil engineering infrastructure projects.

Experience

12 years

Education

MS, Civil Engineering,
Georgia Institute of
Technology

BS, Civil Engineering,
Georgia Institute of
Technology

Registration

Professional Engineer,
GA #PE047122

Professional Engineer,
AL #34692

Professional Engineer,
KS #PE23982

Professional Engineer,
LA #PE.0039007

Professional Engineer,
MS #25931

Professional Engineer,
NC #044112

Professional Engineer,
OK #32451

Professional Engineer,
SC #38337

Professional Engineer,
WV #022827

Certifications

GA EPD Safe Dams Program
Engineer-of-Record,
Geotechnical

Professional Affiliations

American Society of Civil
Engineers, Member

Association of Dam Safety
Officials, Member

United States Society on
Dams, Member

**Experience prior to FNI*

Relevant Project Experience:

The following projects Mr. McNash was a leading contributor to the seismic stability evaluation from data collection and interpretation phases to through seismic slope stability.

Structural Stability and Safety Factor Assessments - Winyah Generating Station* | Santee Cooper

James served as a geotechnical lead for the evaluation of four (4) CCR surface impoundments before and after regulation under the United States Environmental Protection Agency's (USEPA) CCR Rule (40 CFR 257). After performing dam safety inspections of each CCR surface impoundment, he led and performed the engineering parameter, seismic site response, liquefaction triggering, and safety factor assessments for the surface impoundments. Upon completion of the analyses, supporting documents that demonstrate compliance with the requirements of 40 CFR 257 were prepared and posted to the site's Operating Record. The pre-CCR rule effort was published within the 2015 USSD proceedings.

- **2015 USSD Conference Paper:** Kulasingam, R., McNash, J., Shin, W. "Seismic Evaluations for Coal Combustion Residual Impoundments in the Eastern Seismic Zone", United States Society on Dams (USSD), 2015 Annual Conference.

Confidential Client – Industrial Solid Waste Impoundment Dams*, Castle Hayne, NC

Mr. McNash evaluated the seismic performance of two large surface impoundments, as the former site owner retained responsibility for the existing waste material under a prior sale agreement. His seismic and slope stability specific experience at the site include serving as a field engineer for geotechnical investigation of the perimeter dikes. He managed subcontractors, oversaw the field and laboratory investigations, and assessed the global slope and seismic stability of dike structures. The investigation included over thirty-six Cone Penetrometer Tests (CPT) and soil test borings and laboratory testing on the dike and waste materials. Subsequently, investigation results were applied to assess the potential for site response, liquefaction, and seismic stability of the exterior structures as a part of a potential failure mode analysis.

Additional Seismic Experience:

Mr. McNash performed or reviewed static stability, seismic slope, or liquefaction triggering analyses for a variety of dam and non-dam facilities. A list of dams or similar facilities are provided below:

- Leatherwood No. 5 [VA089002]
- South River No. 19 [VA015014]
- SUT 71/83 Basin [NC05950]*
- SUT 84 Basin [NC05951]*
- HF Inactive Basin 1 [NC05980]*
- HF Inactive Basin 2 [NC05981]*
- HF Inactive Basin 3 [NC05982]*
- HF Active Ash Basin [NC04668]*
- CF 1970 Basin [NC05998]*
- CF 1978 Basin [NC05999]*
- CF 1985 Basin [NC06000]*
- Clear Creek Lake Dam [OK10736]
- Stigler Lake Dam [OK00699]
- Caston Mountain No. 2 [OK12181]
- Dog River Dam – Phase 2 [GA05334]
- Mill-Canton No. 6 [GA00036]
- Mill-Canton No. 10 [GA00039]
- Mill Canton No. 12 [GA00040]
- Little Sandy Trail Creek No. 14 [GA05334]

Note:

CF = Cape Fear Steam Electric Plant; HF = H.F. Lee Steam Electric Plant; and SUT = L.V. Sutton Energy Complex



Marc Miller, PE, D.GE | Geotechnical Design

Marc Miller is a Principal/Vice President based out of Atlanta, Georgia. His deep knowledge of soil mechanics, heavy civil design, and his broad range of construction experience has contributed to the longevity and safety of numerous water resource and resiliency projects throughout the southeastern United States. Marc is a key member of the FNI resiliency team and provides design solutions for a variety of flood retarding structures, dams, levees, retaining walls, stormwater infrastructure, and geo-structural instrumentation. He enjoys working closely with stakeholders to understand specific project needs and provide integrated solutions that consider not only stability and potential failure modes, but also operations, maintenance, public perception, and funding. He is also responsible for the technical excellence of FNI's geotechnical group.

Experience

29 years

Education

MEng, Civil Engineering,
Univ. of Texas, Arlington

BS, Civil Engineering,
Univ. of Texas, Arlington

Registrations

Professional Engineer:

Georgia #42538

Arizona #64054

Florida #89616

Kentucky #38086

North Carolina #44959

New Mexico #24145

Tennessee #120677

Texas #87824

Virginia #0402060944

Certifications

GA Safe Dams, Engineer-of-Record, Geotechnical

Geotechnical Diplomate,
Academy of Geo-Professionals

Professional Affiliations

Geo-Institute, Member &
EDS Technical Committee

American Society of Civil
Engineers, Member

Association of State Dam
Safety Officials, Member

Relevant Project Experience:

Dog River Dam – 2nd Raise | Douglasville-Douglas Co. Water & Sewer Authority | Civil Design & Geotechnical Engineer |

FNI is providing an alternatives analysis, final design, construction contract documents preparation, bid-phase assistance, and construction oversight during construction of the second raising of the Dog River Dam and Reservoir, increasing the normal pool 35 feet over its current elevation. Marc oversaw the geotechnical explorations and interpretive reports and is providing senior oversight of stability analyses and the geotechnical design aspects of the project.

Kentucky Dam Assessments | Natural Resources Conservation Service | Quality Control |

As part of a joint venture, FNI performed dam assessments for four dams in Kentucky. Services included dam inspections, H&H analysis of existing conditions, evaluation of alternatives to bring the dam into compliance with current NRCS high-hazard criteria, hazard classification, breach modeling and inundation maps, cost estimates, risk analysis, and population at risk assessments. Marc developed the field study plan and then provided Quality Control reviews of the submittals.

Annual On-Demand Services | Gwinnett County Dept. of Water Resources | Project Manager |

FNI is providing specialized technical support services under an on-call demand services agreement for multiple divisions within the Department of Water Resources (DWR). FNI analyzed, upgraded, and improved DWR's water, wastewater and stormwater infrastructure using an integrated approach that protects public health and safety. Multiple work orders have been issued and include contract documents improvements, dam services program support. Marc served as the Project Manager and Lead Geotechnical Engineer for each task authorization.

Bois d'Arc Lake Water Supply Program | North Texas Municipal Water District | Lead Geotechnical Engineer & Instrumentation Design |

Since 2003, FNI has partnered with the District to permit and build a new \$1.6 billion water supply system. The program includes a two-mile long embankment dam and a labyrinth service spillway. Marc led the geotechnical design and was responsible for the analysis of the overall stability of the dam embankment, the sourcing and zoning of the embankment, the design of the internal drainage system, and the development and layout of the dam safety instrumentation network.

Cedar Creek 87A MPS Rehabilitation | TX State Soil & Water Conservation Board | Project Manager |

FNI provided design services for the dam rehabilitation, cost estimates, geologic investigation, soil mechanics and stormwater pollution prevention plan. Modifications will meet current performance and safety standards for a high-hazard dam and extend the service life and dam design will meet USDA-NRCS criteria. Marc managed the design and directed a multidisciplinary design team. He oversaw the development of the spillway designs, cofferdam feasibility, internal drainage design and flattening of the embankment slope. Marc is currently providing technical support services for NRCS during construction.