

ARCHITECT-ENGINEER (A-E) SERVICES

Dam Breach Modeling Fenley Ryther Dam Lake Tobesofkee

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1. DESCRIPTION OF WORK

Macon-Bibb County plans to develop an Emergency Action Plan (EAP) for a dam breach of Fenley Ryther Dam at Lake Tobesofkee. Fenley Ryther Dam is an earth fill dam with a concrete spillway and two 40' X 40' steel tainter gates. The engineering firm needs to develop a model of a breach of the dam and the area of downstream outflow for Macon-Bibb to incorporate into its EAP.

Qualifications: The engineer must qualify as an "Engineer of Record" according to the qualifications of the Georgia Safe Dams Program (SDP) and be registered with the SDP and have experience in modeling dam breaches.

Technical Requirements: The model shall conform to the current guidance provided by the Georgia SDP in terms of model selection. This shall include a pre-modeling meeting with the SDP personnel to obtain their concurrence on the general approach proposed by the engineer.

Deliverables: Deliverables shall meet the requirements of the SDP. The complete input and output, as well as any spreadsheets used, shall be provided both in hard copy and on CD or DVD. All files needed to run the model shall also be included on the CD or DVD. The body of the report must be printed on 8 ½ by 11-inch white paper. Maps and drawings on 11 by 17-inch paper shall be folded appropriately into the report. Larger drawings must be provided in a jacket at the end of the report and numbered with sequential plate numbers. More detailed requirements are given in the SDP requirements.

The engineer shall provide appropriate inundation maps in both hard copy and digital formats to enable local officials to identify areas at risk and plan evacuation routes. The engineer shall provide either ESRI GIS .shp files or AutoCad files mapped using Georgia State Plane Coordinates for the West Zone. This is to ensure that the digital maps can be imported successfully into the Macon-Bibb County GIS files.

2. SCOPE OF SERVICES.

- a. General: The Architect-Engineer (A-E) shall perform all the services and furnish all materials required for the production and subsequent delivery to the Engineer of field investigations, surveys, design calculations, drawings, and electronic files as stated below.
- b. Work in Excess of Scope: Should requests by using agencies or other be received for work that may be beyond scope, the A-E shall immediately contact the Engineer. Work shall not be started on such requests until a contract modification has been approved by Macon-Bibb County. Should an enlarged or decreased scope result from the review of surveys and recommendations, adjustments in the A-E fee will be negotiated.
- c. Design Objectives: In general, the requirements presented are design objectives and the Architect-Engineer is encouraged to suggest changes where they would not seriously deviate from the overall requirements and would result in (1) substantial economic savings, or (2) improved performance in arriving at the end results.

3. ADMINISTRATIVE CHANGES AND GOVERNMENT FURNISHED INFORMATION:

- a. General: No change shall be made in the provisions of this contract without a written contract modification.
- b. Channels for Obtaining Information: Except as specified herein, all requests for information necessary to do this work shall be made to the Project Manager or his supervisor. The A-E shall at all times maintain close liaison with that office by appropriate means to assure maximum coordination of the work.
 - (1) A-E Personnel: The A-E shall appoint a Project Engineer/Manager for this contract to serve as the primary point of contact and liaison between the A-E and the Government. The A-E's project engineer/manager shall be responsible for the complete coordination of all work required for the projects.
- c. Government Furnished Information: The Government will furnish a map of an old breach study of uncertain origin and quality that may provide guidance as to the approximate range of downstream inundation (attached). The government has available to it 2' contours of the county determined by LIDAR mapping in approximately 2012. We also can provide color aerial photography from our GIS files dated approximately 2013.

4. DESIGN RESPONSIBILITY AND DOCUMENTATION:

- a. Responsibility of the A-E:

- (1) General: Regardless of any review, acceptance, or approval by the Government, the A-E is responsible for the professional and technical quality of all designs, drawings, and other material produced under this contract. The design shall comply with good engineering practice as determined by the Engineer. The A-E is also responsible for the professional quality and adequacy of the service and for compliance with design criteria specified by the Government for use under this contract.

5. DESIGN ANALYSIS:

- a. Prepare a comprehensive and well-documented design analysis. It provides an excellent audit trail for technical decisions.
- b. The design analysis shall be furnished in accordance with the Phases and Schedule, as part of the preliminary and final documents.

6. FIELD SURVEY, SITE ANALYSIS, AND VISITS:

a. Field Work and Site Analysis:

(1) Visit the project site prior to commencing design and perform all fieldwork necessary to determine the existing conditions at the site of the work.

(2) Verify the accuracy of and correcting drawings furnished to him by the Government.

- b. Visits: Make as many visits as deemed necessary for effective accomplishment of the work. The project manager may direct further field investigation if it becomes apparent that the A-E's original effort was deficient.

7. DESIGN PHASES: The design of these projects shall be accomplished in phases as indicated Below unless otherwise specified. The A-E shall complete the work as described below:

a. Phase I: Meet with Macon-Bibb County Engineering and the Georgia Safe Dams Officials and present the planned approach to the modeling. The meeting will be held in the location required by the SDP.

b. Phase II: Final Modeling

(1) Prepare the initial submittal of the final model. This work shall include a first submittal of final model documents. The above will be reviewed in conference at the County Engineer's office, Macon, Georgia, and a copy shall be submitted to the SDP.

(2) After review and approval of the first final submittal by the project manager, prepare and submit the corrected final model package. The corrected final design package shall include final hydrograph of the reservoir outflow and the routing of that flow through the downstream stream and floodplain until past all inhabited areas. All model inputs and assumptions shall be provided. All maps, both hard copy and electronic shall be provided.

8. DESIGN SCHEDULE: The AE shall complete all work and services under this contract within the period of time specified to be issued and deliver the submittals to the project manager in accordance with

the design schedule. The time required by the Government to review submissions made by the AE under this contract will vary with the workload. The review periods established in the completion schedules set forth are the maximum anticipated periods required. Every effort will be made to accomplish reviews within shorter periods.

9. MAIL AND REQUIRED COPIES OF DOCUMENTS:

a. All documents shall be sent not less than first class mail. Federal Express or other fast delivery may be required in certain instances to meet these deadlines, at no additional expense to the Government. Addresses to use are as follows:

Bibb County Engineering Department
Attn: David Fortson
780 Third St
Macon, GA 31201

b. Required copies of Documents: The AE shall furnish the required material in the number of copies indicated in the specific requirements below.

10. Omitted

11. DRAWINGS:

- a. Software: Use AutoCAD or ESRI Arc GIS for mapping purposes.
- b. The final documentation will be in both hard and electronic formats. The A-E is responsible to make any required corrections to the electronic versions (both translated and directly designed) to ensure any subsequent hard copies printed out at our office exactly match the hard copy versions of the Corrected Finals.

12. DESIGN SCHEDULE AND SUBMITTALS:

a. Delivery: Deliver the material as called for in accordance with the schedule noted below. The following schedule is a guide that can be negotiated after award. The reference date is the notice to proceed date of the contract.

b. Schedule Changes: This schedule can later be amended by mutual agreement of the project manager and the A-E. If the schedule is amended, the AE shall confirm the new schedule with a letter to the project manager. This new schedule becomes contractually binding unless the county notifies the A-E, within 5 days, and in writing, that we disagree with the new schedule.

c. Phase I Meeting:

(1) Meeting: 21 calendar days after reference date. Provide separately bound submittal packages addressed to the following offices. Each package shall have the following attachments in the order listed.

<u>OFFICE</u>	<u>LIST OF ATTACHMENTS (Abbreviations at end)</u>
Project Manager	MP
Safe Dams	MP

d. Phase II Final Modeling

(1) First Final 170 days after reference date. Provide separately bound submittal packages addressed to the following offices. Each package shall have the following attachments in the order listed.

<u>OFFICE</u>	<u>LIST OF ATTACHMENTS (Abbreviations at end)</u>
Project Manager	OH, HR, MA, MF, IMH, IME
Safe Dams	OH, HR, MA, MF, IMH, IME
M-B EMA	IMH
M-B Tobesofkee	IMH

(2) Review Conference with AE 191 calendar days after reference date. Written review comments will be provided at or within 5 calendar days after the conference.

(3) Corrected Final Submittal to Project Manager 212 days after reference date.

<u>OFFICE</u>	<u>LIST OF ATTACHMENTS (Abbreviations at end)</u>
Project Manager	OH, HR, MA, MF, IMH, IME
Safe Dams	OH, HR, MA, MF, IMH, IME
M-B EMA	IMH
M-B Tobesofkee	IMH

k. Abbreviations: The above listings of attachments use the following abbreviations:

Narratives/Packages:

MP	Modeling Plan
OH	Outflow Hydrograph
HR	Hydrograph Routing
MA	Model Assumptions and Inputs
MF	Model Files
IMH	Inundation Maps Hard Copy
IME	Inundation Maps Electronic

13. Omitted

14. Omitted

15. Omitted

16. DEFECTIVE WORK: Under this contract, payment by the county and beneficial use of the work will not constitute acceptance of the work that is not in strict conformance to the requirements of the contract or that is determined to result in incomplete, defective, or deficient work. Payment to the A-E of any amount shall not imply release of the A-E from claims or liability due to incomplete, defective, or deficient work, either known or unknown prior to any payments made by the county to the A-E.

17. ENGINEERING LICENSING: All work performed under this contract shall be performed under the supervision of a professional engineer licensed in the State of Georgia to perform the required services. All documents shall be stamped by the seal of the professional responsible for that work.

18. INSURANCE: The A-E shall provide documentation from his insurer providing evidence of coverage of insurance as specified in the general provisions clauses of this contract. At a minimum, this will include \$1,000,000 in Errors and Omissions insurance. All insurance certificates must provide that such insurance cannot be cancelled or modified without giving the Macon-Bibb County Purchasing Department written 30 day notice prior to such cancellation or modification to the to the insurance policy. The insurance must name Macon-Bibb County as an additional insured under the liability and auto insurance policies.

Attached: Inundation Map