

SCOPE OF SERVICES AND RESPONSIBILITIES OF CLIENT**PROJECT UNDERSTANDING**

The City of Seguin (City) and Meadow Lake Nolte Dam Association (MLNDA) are considering replacement of the Meadow Lake (Nolte) Dam spillway gates. The City requested FNI perform a preliminary engineering study to further progress the requirements for replacement of the existing bear traps gates with Pneumatic Rubber Bladder assisted Leaf Gates (Obermeyer Gates). The objective of the study is to provide the basis for final design of the Obermeyer Gate replacement, along with further evaluation of the repairs options to the existing training and wing walls and a preliminary stability analysis of the spillway. The effort, as described below, will be documented in a Preliminary Engineering Report (PER).

ARTICLE I

BASIC SERVICES: FNI shall render the following professional services in connection with the development of the Project:

1. Project Management

- a. Establish and manage schedule and review of data made available to us relative to the dam. Coordinate information between FNI, City, and MLNDA. Coordinate Quality Control (QC)/Quality Assurance (QA) by Professional Senior Management and Technical Staff. Develop and provide monthly one-page status reports and include with invoice.

2. Condition Assessment

- a. Conduct data review of existing documents and past studies of Meadow Lake (Nolte) Dam and the Guadalupe Valley Hydroelectric System (GVHS). Catalogue documents and make available to City, MLNDA, and engineering team using Microsoft OneNote data or equivalent sharing software. Documents anticipated for the review are the following:
 - i. Historical design and construction documents prepared by Fargo Engineering and the Texas Power Corporation
 - ii. Two (2) most recent Nolte Dam safety inspection reports, current emergency action plan, and gate operations records within last 5 years
 - iii. Design reports, Construction Documents, and Project Manual prepared by Black & Veatch for the Lake Dunlap Spillgate Replacement and Dam Anchoring Project
 - iv. Subsurface Exploration and Geotechnical Data Reports for Lake Dunlap prepared by Intec
 - v. Underwater surveys performed by GBRA, as available
- b. Conduct a site inspection of Nolte Dam to observe the existing spillway, training walls, abutments, appurtenant structures, access roads, and the immediate upstream and downstream areas surrounding the dam. Conduct inspections in conjunction with representatives of the City and MLNDA. Coordination of access through GBRA will be provided by City/MLNDA. Inspection will consist of areas above water and accessible without confined space access or rope assisted climbing inspection.
- c. Prepare preliminary sliding and overturning stability analysis of the spillway, based on existing data, visual observations, and field measurements, using the Limit Equilibrium Gravity Method of stability analysis. Geotechnical parameter assumptions will be based on existing data and bracketed for confirmation during Final Design by site investigations and refined analyses.

- d. Participate in conference call with City and MLNDA to discuss findings.

3. Gate Replacement/Spillway Repair Assessment

- a. Assess spillway rehabilitation requirements based on data review, stability analysis, existing conditions, revised opinions of probable construction cost, and updated opinions of life cycle cost assuming a 50-yr service live. Assessment will build upon previous planning level studies prepared by FNI and include revised evaluation criteria developed in collaboration with City. The rehabilitation of the dam is to consider:
 - i. Spillway gate replacement with a Pneumatic Rubber Bladder assisted Leaf Gates (Obermeyer Gates).
 - ii. Spillway structural repair options shall consist of anchored walls to address reported or observed deficiencies of the existing spillway training walls and wing walls.
 - iii. Spillway dewatering system options shall consist of recommended system alternatives previously presented by FNI considering spillway rehabilitation and long-term operations and maintenance. Will evaluate a simplified dewatering system that holds back a reduced water elevation and siphoning of the lake to a level that adequately allows for construction.
- b. Coordinate with Obermeyer to discuss site configurations, fabrication and installation considerations for the Obermeyer Gate.
- c. Further progress previously developed conceptual level figures prepare by FNI to illustrate concepts and assist with cost estimating.
- d. Develop opinion of probable construction cost (OPCC) and opinion of life-cycle cost. .

4. Preliminary Engineering Report

- a. Review existing information provided by City regarding hydraulic conditions and overtopping potential of the earthen embankment and spillway. Provide recommendations for further analysis and refinement of potential failure modes, hydraulic loading conditions, overtopping potential, and embankment strengthening as part of Final Design.
- b. Provide recommendations for geotechnical site investigations to develop foundation strength parameters for use during design.
- c. Evaluate permitting requirements for the repair options, including Section 404 permits and TCEQ Dam Safety. Develop permitting approach and additional environmental services for final design based on the preferred alternative. Include feedback from GBRA on the upper GVHS lakes.
- d. Prepare draft Preliminary Engineering Report (PER) of Nolte Dam spillway rehabilitation for City and MLNDA review. Draft report is to describe the assessment findings, conclusions, and recommendations. The report will include the following:
 - i. Executive Summary
 - ii. Introduction/Background
 - iii. Obermeyer Gate Refinement
 - iv. Stability Analysis Findings/Requirements
 - v. Opinion of Probable Construction Costs
 - vi. Life Cycle Cost Evaluation
 - vii. Environmental and Permitting Considerations
 - viii. Conclusions and Recommendation

- e. Participate in conference call with City and MLNDA to discuss comments on draft document.
- f. Participate in meeting with City, MLNDA, and the TCEQ Dam Safety Program representatives to discuss findings and recommendations of PER, and to receive feedback from TCEQ as to the proposed program for rehabilitating Nolte Dam.
- g. Address comments on report and provide final copy.
- h. Provide scope, schedule, and budget for Final Design Phase engineering services based on selected alternative.

Assumptions:

- The PER will include brief narrative to support decision to demolish and replace existing bear trap gates based on previous planning studies and experience providing O&M support to GBRA. Repairing existing bear trap gates or replacement with new bear trap gates will not be considered as viable options for improvements to the dam.
- A hydraulic crest gate system will not be evaluated as an option for improvements to the dam.
- Repairs or upgrades to the powerhouse will not to be evaluated.
- Development of embankment hardening approaches and cost estimates will not be considered except when directly impacted by repairs or stabilization measures to the spillway training wall.
- OPCC and Life-Cycle Cost will be based on available information and study level concepts specifically developed for the project. The study level OPCC will generally follow United States Society on Dams (USSD) and AACE International guidelines for a Class 3 estimate and appropriate contingency.
- Life cycle costs for gate replacement alternatives will include OPCC, estimated operating costs, and maintenance costs, through the life of each gate.
- Normal pool lake level and spillway hydraulic performance will not be significantly impacted by the repairs.

ARTICLE II

SPECIAL SERVICES: FNI shall render the following professional services, which are not included in the Basic Services described above, in connection with the development of the Project:

1. None

ARTICLE III

ADDITIONAL SERVICES: Any services performed by FNI that are not included in the Basic Services or Special Services described above are Additional Services. Additional Services to be performed by FNI, if authorized by City/MLNDA, are described as follows:

1. Geotechnical investigations, on-site geologic interpretation, and laboratory testing to characterize foundation and site conditions.
2. Topographic and underwater surveys.
3. Dimensional surveys and material testing of existing spillway and gate members.
4. Hydraulic modeling of Guadalupe River to determine probability of overtopping of dam, abutments, and appurtenant structures.
5. Computational fluid dynamics modeling (CFD) in the vicinity of the dam to analysis spillway scour conditions and performance of the existing or modified spillway.
6. Design of embankment hardening and armoring to address dam safety deficiencies.

7. Operations and Maintenance Plan and Emergency Action Plan for the dam following rehabilitation.
8. Final design engineering, analysis, construction plans and specifications for the rehabilitation of the dam and replacement of the spillway gates.
9. Support of public and/or stakeholder coordination meetings.
10. Support in funding applications.
11. Environmental studies and permit coordination.

ARTICLE IV

TIME OF COMPLETION: FNI is authorized to commence work on the Project upon execution of this Agreement and agrees to complete the services in accordance with the schedule presented in Attachment SCH.

If FNI's services are delayed through no fault of FNI, FNI shall be entitled to adjust the contract schedule consistent with the number of days of delay. These delays may include but are not limited to delays in City/MLNDA or regulatory reviews, delays on the flow of information to be provided to FNI, governmental approvals, etc. These delays may result in an adjustment to compensation as outlined on the face of this Agreement and in Attachment CO.

ARTICLE V

RESPONSIBILITIES OF CLIENT: Client shall perform the following in a timely manner so as not to delay the services of FNI:

- A. Designate in writing a person to act as Client's representative with respect to the services to be rendered under this Agreement. Such person shall have contract authority to transmit instructions, receive information, interpret and define Client's policies and decisions with respect to FNI's services for the Project.
- B. Provide all criteria and full information as to Client's requirements for the Project, including design objectives and constraints, space, capacity and performance requirements, flexibility and expandability, and any budgetary limitations; and furnish copies of all design and construction standards which Client will require to be included in the drawings and specifications.
- C. Assist FNI by placing at FNI's disposal all available information pertinent to the Project including previous reports and any other data relative to the design or construction of the Project.
- D. Arrange for access to and make all provisions for FNI to enter upon public and private property as required for FNI to perform services under this Agreement.
- E. Examine all studies, reports, sketches, drawings, specifications, proposals and other documents presented by FNI, obtain the advice of an attorney, insurance counselor and other consultants as Client deems appropriate for such examination and render in writing decisions pertaining thereto within a reasonable time so as not to delay, or cause rework in, the services of FNI.
- F. Give prompt written notice to FNI whenever Client observes or otherwise becomes aware of any development that affects the scope or timing of FNI's services, or any defect or nonconformance of the work of any Contractor.
- G. Furnish, or direct FNI to provide, Additional Services as stipulated in Attachment SC, Article III of this Agreement or other services as required.
- H. Bear all costs incident to compliance with the requirements of this Article V.

ARTICLE VI

DESIGNATED REPRESENTATIVES: FNI and Client designate the following representatives:

CLIENT's Primary Contact

Name: Steve Parker
Address: City of Seguin
Phone: (830) 401-2302
Email: sparker@SeguinTexas.gov

CLIENT's Accounting Contact

Name: TBD
Address: City of Seguin
Phone: 830-401-2455
Email: TBD

FNI's Primary Contact

Name: John Wolfhope, P.E.
Address: 10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3118
Email: jsw@freese.com

FNI's Accounting Contact

Name: Billy Metzger
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