



Staff Report

TO: Honorable Board of Directors

FROM: Keane Sommers, P.E., Hydroelectric Manager 
Dar Chen, P.E., G.E., Senior Engineer - Dam Safety 

DATE: November 10, 2021

**SUBJECT: Milton Diversion Dams - Seismic Stability Analyses
- Sole Source (Consent)**

HYDROELECTRIC

RECOMMENDATION:

Award a sole source contract in the amount of \$218,513 to Quest Structures for the Seismic Stability Analyses of Milton Diversion Dams and authorize the General Manager to execute the appropriate documents.

BACKGROUND:

Milton Diversion includes the Main and the South Dams, both built in the 1920s downstream of Jackson Meadows. The Main Dam is a 37-foot-high and 286-foot-long concrete arch dam on Middle Yuba River. The South Dam is a 33-foot-high and 140-foot-long arch concrete wall dam mostly buried in the ground on the south bank of the river. The Dams store up to 270 acre-feet of water and the Main Dam can be spilled over during the floods. The South Dam connects with the Milton-Bowman Conduit/Tunnel, which provides critical water transmission from the Middle Yuba watershed to Bowman Reservoir. The Milton Dams are under the jurisdictions of California Division of Safety of Dams (DSOD) and Federal Energy Regulatory Commission (FERC).

The last seismic stability analysis for the Milton Main Dam was performed by PG&E and Berlogar Geotechnical in 1993. The analysis concluded that the dam will remain stable after the assumed earthquake. Since then, the seismic criteria, the assumed dam weakness, and the technologies of dynamic stability analyses have greatly evolved. No stability has ever been evaluated for the South Dam. The proposed consulting services cover the state-of-the-art analyses including 3-D linear and non-linear, dynamic, finite-element modeling for both of the dams.

Staff is recommending award of a sole source contract to Quest Structures, which is a well-established consulting firm specialized in sophisticated structural analyses

for water resource projects. The firm is located in Orinda, California and is led by Dr. Yusof Ghanaat, a renowned engineering consultant with experience in this specialty for over 40 years in the United States and abroad. He developed the engineering guidelines on arch dams for FERC and several engineering manuals on concrete hydraulic structures for U.S. Army Corps of Engineers. Dr. Ghanaat is the only consultant specialized in arch dam seismic stability analyses known to staff in Northern California. In recent years, Quest Structures completed the seismic stability re-evaluations for Combie Dam and Bowman South Dam. Milton Main and South Dams are the last arch dams to be completed for the District's hydroelectric system.

Quest Structures' proposal demonstrates excellent project understanding and approach, and the costs of services are reasonable. Staff recommends that the District retain Quest Structures for seismic stability updates of Milton Main and South Dams. This will ensure both project efficiency and good quality for the District to meet regulatory standards.

The sole source award complies with the following District Procurement Policy Section:

3080.3.J.2 In order to match other products in use on a particular public improvement completed or in the course of completion.

This item is in alignment with Goal No. 1 and 2 of the District's Strategic Plan, by ensuring risks to existing infrastructure are understood and proactively managed while maintaining compliance with State and Federal regulators.

BUDGETARY IMPACT:

The 2021 Hydroelectric Department Budget includes \$175,000 for this study and \$75,000 for a study regarding the foundation of Rollins Dam. The Independent Consult for the previously awarded Part 12D inspection study is proposing a slightly different scope for the Rollins study so this work has been delayed and will be re-budgeted in 2022. The 2021 combined budget for these two studies is sufficient to cover the cost of the award of this contract.

MDC
KSS