Theodore Dam

Theodore, Saskatchewan, Canada

Keller installed vibro stone columns (vibro replacement) to stabilize the slope of the Theodore Dam.

The project

Constructed in 1963/4, the Theodore Dam spans the Whitesand River, with the right abutment tying into the existing river valley. Since 1967, slope movements have been observed, and various mitigation efforts have been performed. A recent observation found the right abutment of the slope moving outside of allowable limits, requiring stabilization at the toe

The challenge

Stabilization work was performed on the slope itself, and the limited working platform could not be overloaded, requiring continual monitoring of the weight of the crane, drill rig, and materials.

The solution

Keller was contracted to perform the slope stabilization. The final design included installing 72 stone columns up to 52 ft (16m) deep. Earthwork was also performed to excavate soils from the upper bank of the slope and create an earth-fill beam at the toe.

Close coordination and communication between Keller and the general contractor were required for proper sequencing and continual movement monitoring during stabilization. Keller completed the stabilization and meeting densification requirements to mitigate additional slope movement.

Project facts

Owner(s)
Water Security Agency

Keller business unit(s)
Keller

Main contractor(s)
Unger Construction Ltd.

Engineer(s)
Trek, Keller

Solutions
Slope stabilization

Markets
Infrastructure
Dams and levees

Techniques
Vibro replacement (stone columns)

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