

## PROJECT DESCRIPTION

### *Anchor Testing for the Loch Alva and Log Falls Dams*

**Location:**

New Brunswick, Canada  
Musquash River Basin

**Client:**

SGE Acres Ltd.  
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**Client Contact:**

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Hatch Acres, Ltd.

#### **Loch Alva Dam in the Musquash River Basin**

SGE Acres Ltd. (SGE) was evaluating the condition of the Log Falls and Loch Alva Dams on behalf of the Province of New Brunswick, Department of Supply and Services. These dams are located in the East and West Musquash River Basins in New Brunswick, Canada. During the period from 1964 to 1974, these dams were retrofitted with tie-down anchorages consisting of BBR button head anchorage assemblies, and Stressteel prestressing steel rods, that were grouted into bedrock. Since anchors were between 32 and 42 years old, at the time of the evaluation (2006), SGE needed information relative to the existing condition of the anchors and the potential for corrosion. To meet this need SGE retained MMCE to perform nondestructive testing (NDT) and condition assessment of 13 selected anchors.

MMCE performed NDT and condition assessment in general accordance with the protocol and test methods described in the recently published National Cooperative Highway Research Program (NCHRP) Report 477, *“Recommended Practice for Evaluation of Metal Tensioned Systems in Geotechnical Engineering.”* In general, the results from MMCE’s condition assessment indicated that all of the 13 tested anchors were in good condition. The presence of extensive corrosion was not evident in the data, and the anchor tendons were apparently protected by grout throughout the majority of their length. The most vulnerable portions of the elements are within the stressing head of the BBR buttonhead wire anchor assemblies, and possibly within a gap where the tendon is not surrounded by grout directly beneath the bearing plate of the Stressteel rod type anchors. The results obtained from this study indicated that retrofit or replacement of the tie-downs was not necessary. MMCE recommends additional condition assessment at five (limited evaluation) and ten year (detailed evaluation) intervals.

Results from the recent condition assessment will serve as a baseline for comparison with future observations. Continued condition assessment and corrosion monitoring of the tie-downs is a valuable tool for asset management and can indicate if service life expectations are being met, or exceeded. Thus, elements may be relied upon for continued service that may otherwise be deemed as needing replacement.