

Douglasdale McKenzie Slope Stabilization

Calgary, Alberta, Canada

A steep embankment separates the Douglasdale and McKenzie Lake communities, overlooking the Bow River. At the top of the embankment, the City of Calgary maintains a regional pathway.



The project

Signs of slope instability have been observed since 2005, including scarps and tension cracks varying in severity. Following heavy rains in 2016, a 658 ft (200 m) long section of the slope failed, displacing material and destroying the pathway at the top of the slope. The failure caused immediate concern to the adjacent residential properties and required temporary remedial stabilization of the slope.

The challenge

The proximity of the neighborhoods to the worksite required minimal noise disturbance and air pollution from equipment.

The solution

The landslide and additional material were excavated to a depth of 7.5 ft (2.3 m) to stop further movement at the crest of the slope, and Keller installed 90 cantilevered soldier piles and lagging to support the excavation.

Within the excavated area, Keller installed 354 micropiles to a depth of 49 ft (15 m) by-passing the weak soils to extend beyond the slip plane. Given the instability of the working area, Keller sequenced pile installation so crews would be working on the stabilized ground to install the next group of piles. To provide noise control, drill rig power packs were insulated. A propane generator was used to minimize air pollution and reduce diesel exhaust emissions.

After completing the remedial work, no signs of slope movement have been observed, and permanent slope stabilization is underway.

Project facts

Owner(s)

City of Calgary

Keller business unit(s)

Keller

Main contractor(s)

Keller

Engineer(s)

Tetra Tech

Solutions

Slope stabilization

Markets

Infrastructure

Techniques

Micropiles

Soldier piles and lagging

Email address

info@keller-na.com

Phone number

1 (800) 456-6548