

Aurum Road Wildlife Crossing

Edmonton, Alberta, Canada

Keller provides slope stabilization and deep foundations for culvert construction that will allow wildlife to cross under the roadway.



The project

With increasing heavy haul and commuter traffic from the Aurum Energy Park development, an 800m roadway was constructed connecting the area's major transportation corridors. Clover Bar Creek, known for its wildlife, intersected the planned roadway. To protect wildlife, designs included a culvert 21.5m (70.5 ft) wide, 8m (26.2 ft) high, and 66m (216.5 ft) long, running diagonally under the roadway. Slope stabilization was required for the embankments approaching the culvert, and deep foundations were required to support the culvert.

The challenge

The work was performed during the coldest months of the year in Canada with extreme winter conditions. Additionally, the piles were required to be installed at various elevations throughout the ravine with a large drill rig and crane and support equipment for the large diameter piles required.

The solution

Due to the required loads, a shear key was necessary to support the MSE wall and reduce the lateral settlement. Keller installed 124 CFA (auger cast) piles for the shear key and slope stabilization at 1200mm (3.93 ft) diameter and 17m (55.8 ft) drill depth and heavily reinforced. Each full-length cage for the shear key piles weighed approx. 10,000 lbs. and were inserted into the CFA piles using a crane. Keller installed another 154 CFA piles at the bottom of the ravine to depths of 24m (79 ft) for the culvert foundations. Meticulous planning was needed to ensure safe access to the various benches for the large equipment required to install these piles.

Due to the weather conditions, glycol lines were used to keep the CFA concrete hoses from freezing during installation.

Multiple pre-construction load tests, including axial and lateral tests, were performed to prove the design, and pile integrity tests were performed on the piles after construction to ensure the piles met project requirements. Keller finished the piles on schedule, allowing for the next construction phase. Others performed the MSE wall and roadway construction following piling installation.

Project facts

Owner(s)

Aurum Energy Park

Keller business unit(s)

Keller

Main contractor(s)

Sureway Construction

Engineer(s)

Keller
Stantec

Solutions

Deep foundations
Slope stabilization

Markets

Infrastructure

Techniques

CFA (auger cast) piles

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