

G3 Inland Grain Terminal - Swift Current

Swift Current, Saskatchewan, Canada

G3 Canada Ltd. is responsible for the storage and transfer of approximately 3 million tonnes of grain from British Columbia to Quebec. The new G3 Swift Current Grain Terminal will increase grain loading and transportation efficiency in Western Canada, with a total capacity of 42,000 tons.



The project

The terminal consists of six concrete grain bins, three steel bins, and other structures, including a truck scale, rail load-out tunnel, and receiving shed. Subsurface conditions included variable clay, silt, and sand deposits to depths ranging from 24.2 ft to 50.1 ft (7.4 m to 15.3 m) overlying glacial till extending to depths greater than 99.7 ft (30.4 m). Groundwater was encountered at approximately 5.9 ft (1.8 m). Deep foundations were required to support the facility components. A shoring system was also necessary to facilitate the construction of underground structures.

The challenge

This project presented several challenges to the owner and Keller:

- An aggressive schedule to meet the planned terminal opening date
- Harsh weather conditions
- Multiple contractors were working concurrently, leading to a congested site

The solution

After evaluating the cost and schedule requirements for several deep foundation and ground improvement options, Keller determined that an auger-cast pile foundation system would provide the most efficient solution to support terminal structures. A static load test was performed to optimize design criteria and provide further cost savings to the owner. The final design consisted of over 530 auger cast piles up to a maximum depth of 92 ft (28 m). During the early phases of drilling, grout communication between piles through the soft, permeable soils was observed. A modified, sequenced installation process was established to eliminate the observed communication.

Keller also installed a reinforced, secant pile shoring wall to provide temporary excavation support for the underground structures.

Keller's design and operational experience in auger cast piling and earth retention were critical to completing the work on schedule and within budget.

Project facts

Owner(s)

G3 Canada Ltd.

Keller business unit(s)

Keller

Main contractor(s)

FWS Construction Group

Engineer(s)

Keller

Solutions

Deep foundations
Support of excavation

Markets

Commercial

Techniques

CFA (auger cast) / ACIP piles
Secant or tangent (contiguous) piles

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