



AltaSteel

Retaining Wall Project

The Situation

AltaSteel is a remarkably successful steel company based in Edmonton, AB. It is a world leader in its industry, with both melting and casting facilities and production capabilities of more than 350,000 tonnes of steel billets per year.

In February 2008 AltaSteel's business surpassed its capacity. The company began to explore the possibility of expanding its existing melting facilities. The construction of a replacement melting tank, without lengthy interruption to operations, was a challenge to say the least. AltaSteel's existing facilities were located inside of the main building, with no room to expand. The only option was to build the addition on the exterior of the building and then knock out the wall and join the old and new pieces together.

A key element of the construction process was the installation of a retaining wall to hold back the loose soil while the tank was being excavated. The wall had to be anchored 50 feet into the ground to ensure the integrity of the structure throughout the construction process, but also had to be easy to remove, as the wall needed to be taken down once the tank walls were complete.

Grouted anchors would have been the traditional choice for this type of project but the support vehicles required were too large for the site and the grouted anchors would have needed to be dug out afterwards. The cumbersome vehicles and removal process would have slowed construction and carried a heavy price tag. With its innovative, cost-effective and removable screw pile solutions, Almita was the obvious partner of choice.

The Solution

There were a number of challenges that Almita had to face throughout the duration of this project, the biggest being a significant lack of space. The construction site was also going to be 27-feet deep, with no room for ramps. Luckily for AltaSteel, Almita boasts a large and comprehensive fleet of machinery and had equipment on hand that could work efficiently in the confined area. The Almita units were also light enough that they could be lifted in and out of the site by a crane, eliminating the need for ramps.

In addition to the spatial challenges, Almita also had to deal with underground nitrogen pipelines, which ran adjacent to the construction site. Again, the versatility of the Almita fleet enabled them to provide a quick and easy solution. A retro-fitted bobcat unit was used to insert horizontal anchors into the retaining wall. The operator of the unit was so skilled, and the machine itself, so agile and accurate, that Almita was able to evade the nitrogen lines. Once again, Almita's ingenuity and experience provided a simple solution to what could have been a complex problem.



Almita maintains a high standard of quality assurance and routinely puts its products through rigorous testing to ensure its long-term integrity. For this project, the installation team applied a “pull-out test”, using a hydraulic pump to simulate the loading that the retaining wall was going to place on the pile anchors. In this case, Almita’s dedication to quality and safety proved invaluable, as the test piles were pulled out by the pump.

Examination of the soil encasing the test piles soon revealed that the geotechnical information provided to Almita’s engineers had not been representative of soil conditions in all locations at the work site. Almita immediately began problem-solving on the fly, in an effort to keep construction on schedule and remedy the miscalculations of the soil report.

Only 36 hours later, Almita had identified and implemented a solution. One of Almita’s expert welders was immediately dispatched to the work site to weld additional helixes on to each pile at precisely the right pitch and angle, resulting in anchors that were more than capable of safely supporting the 40,000 lb pull out force experienced by each anchor.

The Result

Almita installed and removed a total of 80 piles for the retaining wall project. As a result of Almita’s quick turnaround and onsite problem-solving skills, their working relationship with AltaSteel has continued to grow. Almita’s expertise gained the ultimate trust of the client and resulted in the expansion of original contract into phase two of the project, including an additional 130 piles for the foundation of the new structure.

Testimonial

“Almita did a very good job installing the screw piles for the retaining wall in our Furnace Expansion Project. The install went quite well considering the adverse conditions on site. We would definitely use them again in the future.”

Bryan Buchanan
Hood Engineering