Bermingham Foundation Solutions

Canada's oldest foundation and marine specialty contractor is still going strong

By Alison Nearingburg

Bermingham Construction driving 30-inch pipe piles for Suncor's Voyageur Project in Fort McMurray, Alta.

More than 100 years ago, William Bermingham's newly formed Kingston, Ont. company was awarded its first contract. The job was to build the Canadian Pacific Railway's track bed through the Crow's Nest Pass in British Columbia's Rocky Mountains. Today, a century later and after four generations of family leadership, Bermingham Foundation Solutions is regarded as an industry leader as both a foundation contractor and manufacturer of foundation installation equipment.

A company of firsts

As Canada's oldest foundation and marine specialty contractor focusing on the transportation, energy and mining markets, the company also manufactures specialty foundation equipment and provides engineering services under the trade name, Berminghammer, which exports equipment and services to over 40 countries.

Since that first contract in 1897, Bermingham has been involved in revitalizing public infrastructure and from its early days has had a hand in many unique and challenging projects.

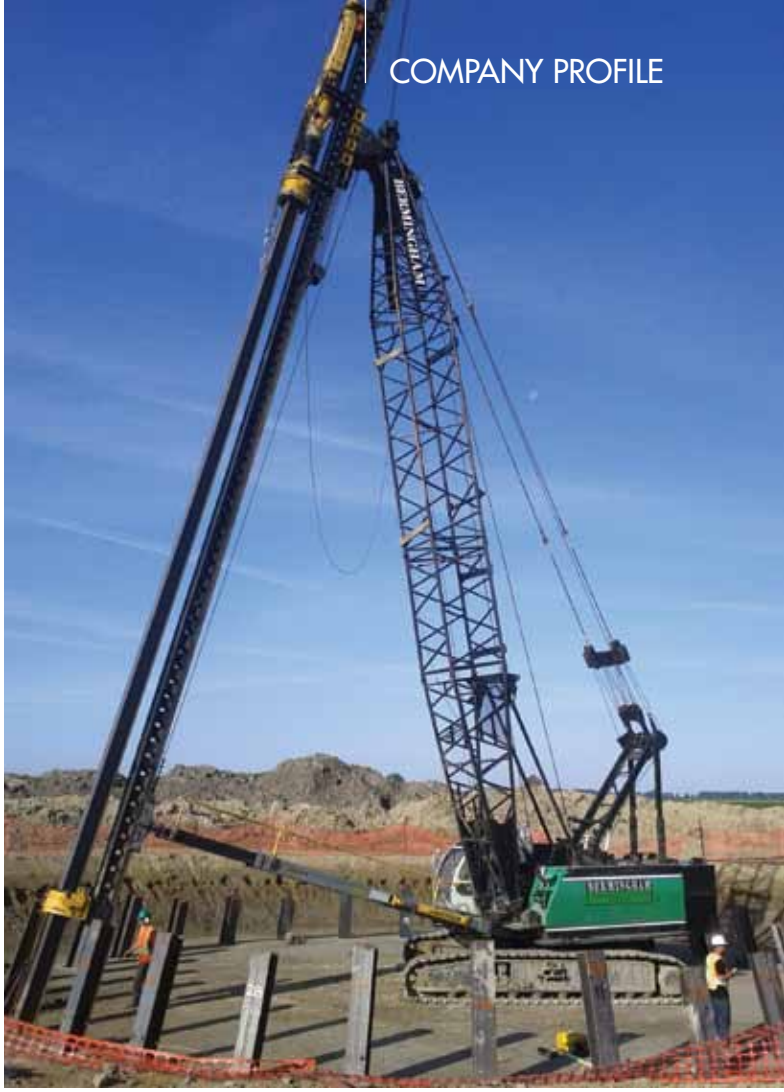
In the early 1900s, Bermingham built a concrete breakwater at Goderich Harbour with concrete cribs precast in a floating dry dock, then floated it to the site and sunk it into position. This was the first time this technique was used in North America. In the 1950s, the company introduced diesel hammers and by the end of the decade began manufacturing its own pile driving equipment.

Bermingham was also the first company in North America to install a system of polyethylene loops in foundation piling to heat the building with thermal energy from the ground under the Marine Discovery Centre in Hamilton,Ont.

In 1988, Patrick Bermingham invented Statnamic load testing with Dutch partner TNO Building and Construction of the Netherlands. Together these companies developed the test to meet industry demands for an accurate and cost-effective method of determining the load bearing capacity of caissons and high-capacity piles. In the next decade the test was used around the world including Japan, Holland, Germany, England and the U.S. In 2004, the test was used on the world's tallest hotel in Dubai, on the tallest residential building in Melbourne, Australia and on the tallest building in the world in Taipei, Taiwan. In 2006, Bermingham provided custom upgrades in Florida for the largest Statnamic load test ever completed.

In the mid 2000s, the company was awarded its largest contract by the U.S. army in which they were enlisted to supply custom-designed hammers as well as safety equipment training. By 2006, Bermingham had built one of the largest cofferdams in North America to hold back the Niagara River at Niagara Falls and the next year the company developed an electronically-controlled cantilevered lead which makes it possible to drive a 45-tonne pile at a 120-foot reach.

From the 1990s to now, the company's revenue has grown from $20 to $60 million a year.



A Bermingham lead system and hammer versatility in Fort McMurray, Alta.

Rising to the challenge

To the foundation industry, Bermingham is able to offer both contracting services and equipment manufacturing which is a unique advantage for customers. Recent construction projects include bridge foundations, condominium towers, power plants, water treatment facilities and docks throughout Ontario and eastern Canada.

Michael Justason, Bermingham's product manager, says the company has the ability to conquer even the most challenging projects.

"Bermingham recently drilled a 300-foot deep, nine-feet (in) diameter shaft in Niagara Falls, Ont. This involved a combination of construction expertise and custom manufacturing and engineering capabilities – especially since the time allotted for the entire project was 30 days," he said.

Bermingham provides project planning, visualization and onsite supervision to contractors around the world. The company offers general contractors detailed computer models of projects at the planning and bidding stages as well as recommending equipment and procedures in addition to developing project sequencing.

"Our strong engineering department is able to design and lay out projects in 3-D for better visualization," said Justason.

For example, CN Rail contracted Bermingham to build a structure bordering the Royal Botanical Gardens in Hamilton, Ont. to allow railroad construction to expand Go Transit service in the area. The company has also used this technology to build one of the world's largest cofferdams at the Sir Adam Beck Generating Station in Ontario's Niagara Parks. As well, Bermingham was a key player in the planning of a demanding winter installation of large piles for a new cruise ship pier in Ketchikan, Ala. and provided foundation construction equipment and expertise for the expansion of the Howland Hook Container Terminal in New York City, N.Y.

Bermingham's manufacturing division has been making foundation construction equipment since it was established in 1969, including the Berminghammer line of diesel pile driving hammers, lead systems and reverse circulation drills. The direct-drive diesel impact hammers are known to be among the most rugged, efficient and versatile in the industry. Some of the hammer features include on-board energy monitoring, clean combustion, remote throttle and free-standing operation.

The company designed and manufactured a custom hanging box lead system for a CITGO project in Louisiana and provided foundation equipment for drilling operations in Altimira, Mexico.

Justason notes that Bermingham's experience as both a marine foundation contractor and equipment manufacturer was put to use in the installation of high-capacity rock-socketed piles for a natural gas terminal in Saint John, N.B., as well.

PHOTOS: BERMINGHAM FOUNDATION SOLUTIONS

Custom tilting pile driving led by Bermingham Foundation Solutions at work for Top-Down Bridge Construction of Washington, N.C.

Innovation at its finest

Bermingham prides itself on its contracting services and offering customers innovative solutions to their needs.

Justason says the company does this by offering "project-specific equipment and procedures."

"These types of innovative solutions are made possible by our construction expertise, our in-house engineering and in-house manufacturing," he said. "We also have the ability and the culture that allows us to 'think outside of the box' and conquer even the most challenging projects."

Justason says one of the most recent projects to challenge the company was the unusually steep inclination of piles combined with extremely long ones – some as long as 200 feet – in a New Orleans, La. project. Other instances where Bermingham has stepped up their creativity include when they assisted in the installation of a secant wall shaft that consisted of 80 one-meter caissons, 27 meters deep at Sarnia's Devine Street Pumping Station as well as their internal role in a downtown shoring project which involved a continuous caisson wall to permit excavation of an eight-level parking garage for a high-rise condominium.

Current projects and the future

Today, Bermingham is making preparations for a large marine pile installation project for a port expansion in Sept-Isles, Que. as a joint venture with Pomerleau of Montreal, Que. Other current projects involve designing strategies for reducing noise from pile driving, clean-burning diesel hammers, large diameter rock-drilling and top-down construction strategies for foundation installation.

The company's manufacturing division has been extremely busy as well, having delivered more than 15 custom lead systems to customers in North America during the second and third quarters of 2012.

Justason says the biggest factor in Bermingham's success is its people.

"Bermingham has an abundance of extremely experienced site personnel and a good mix of young people. Having both a construction division as well as a manufacturing division provides an internal synergy that our competitors don't have," he said. "This is the key to the company's long term success and profitability."

As for the future, he says the plan is to take on challenging deep foundation construction projects and focus on larger, more difficult projects that others may not be capable of executing.