BERMINGHAMMER
FOUNDATION EQUIPMENT

IN THIS ISSUE January 2018

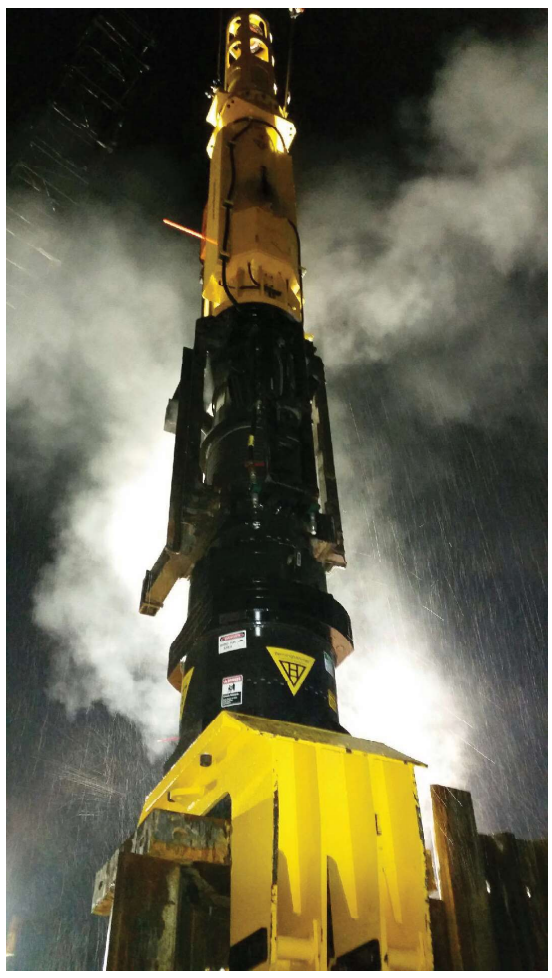
REMEDIATING RANDLE REEF

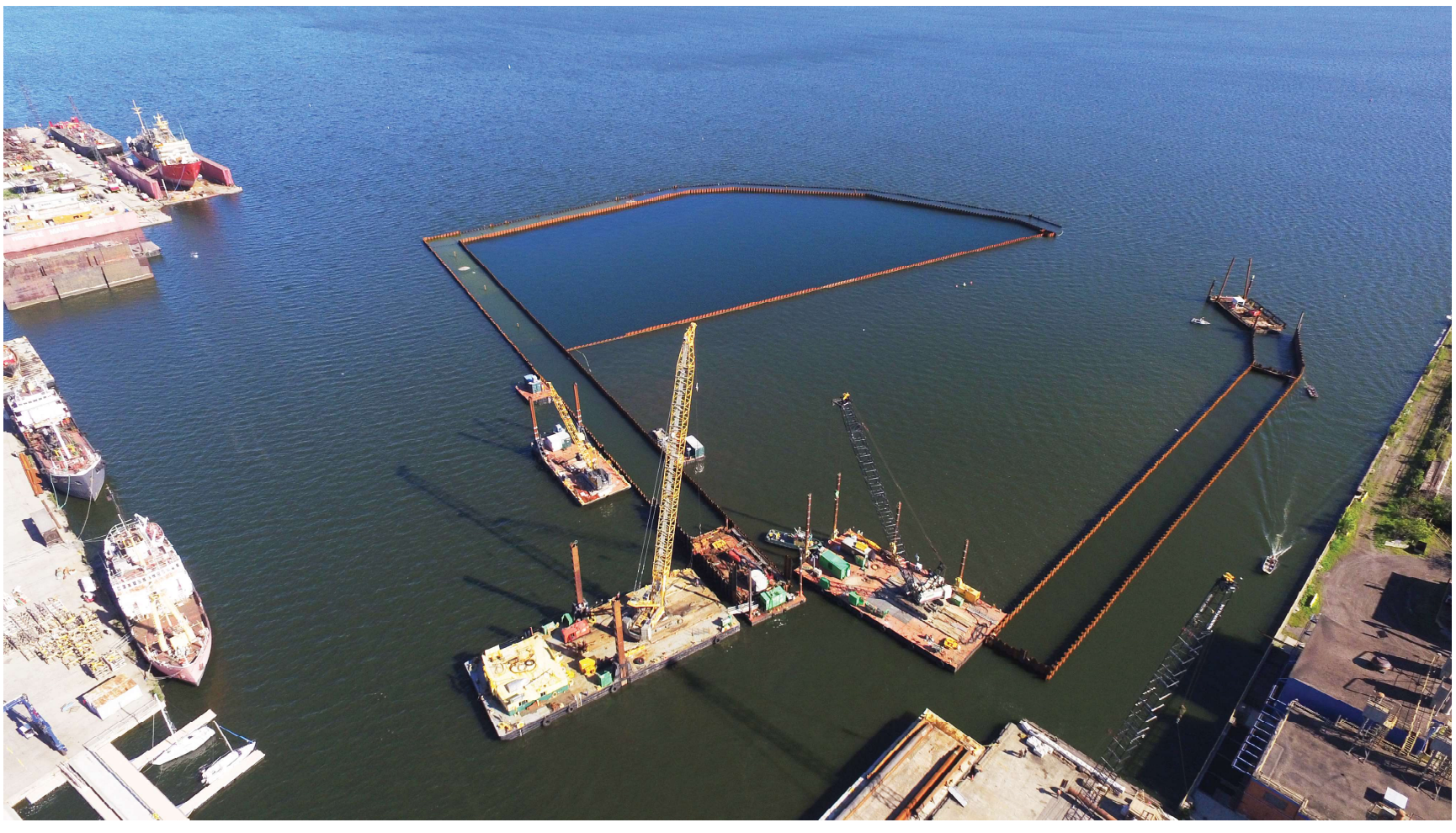
HAMILTON, ONTARIO

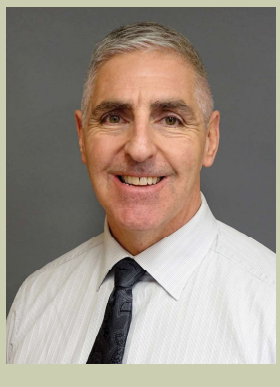
At the western end of Lake Ontario lies Hamilton Harbour, a busy port that has served shipping and heavy Industry in the Great Lakes for over a century. Randle Reef is one of the most contaminated sites in the Great Lakes, the site is approximately 60 hectares (120 football fields) in size and contains approximately 695,000 cubic meters of contaminated sediment. As part of a $139-million project, Randle Reef is in the process of being remediated. The centerpiece of this work is an enclosure that will surround the worst of the pollution, which will then be filled with dredged sediment from around it. Bermingham was contracted for the marine installation of the enclosure.

The site conditions on this project were less than ideal as working on the water comes with its own set of challenges. Bermingham drove piles from barges anchored offshore. The location meant all necessary tools and equipment had to be stored on the barges – there's no quick trip back to the yard if anything gets missed. In addition, Lake Ontario doesn't experience heavy swells like one might experience on the ocean, but there are other weather factors to be considered. The biggest challenge working on the water is the wind – when picking up material that is upwards of a hundred feet long it can act like a big sail.

This project showcased Bermingham's expertise working in a marine environment. Bermingham relied on its own in-house Berminghammer B-5505 Diesel Impact hammers equipped with sheeting legs to get the pile to grade. Crews set the face wall and structural piles with larger vibratory hammers, and then used the diesel hammers to get the sheets to grade. Bermingham has had to do some fancy footwork with its false-work. "We could not put in excessive amounts of false-work because that would disturb the lake bed material. So, we implemented a floating template system," Project Manager Jeff Thomson explained. "We mounted our false-work onto a smaller sectional barge and held that in place with temporary spuds. We can move it along the length of the wall as we install it. That limits the amount of disturbance."







Looking back on 2017, Bermingham achieved many significant milestones, Bermingham celebrated 120 Years since the company's founding and took the opportunity to reinvigorate the company's brand and carry our momentum into the future. We updated our Berminghammer branding to market our extensive line of Foundation Equipment; solidifying our own brand, "Berminghammer".

The featured projects above exemplify the amazing projects on to which Berminghammer has excelled not only as an equipment supplier, but as a solution provider. The common element, in all of them, is the nexus of innovation, engineering and safe execution to deliver exceptional value to clients.

Looking forward, in 2018 Bermingham will continue to innovate, introduce new products and services and execute work to the highest standard for our valued clients.

Robert Marzetti, P. Eng - President & CEO

AMHERST ISLAND FERRY DOCKS
AMHERST , ONTARIO

Rankin Construction was selected by the Ontario Ministry of Transportation to install new Ferry docks in Milhaven and Amherst Island to allow for the new Frotenac II Ferries. The sheets were being installed into a bed of crushed rock and to provide assurance that the sheets would not slip, toe pins needed to be installed. Berminghammer was retained to provide equipment to install the 10-3/4" inch diameter toe pins at a depth up to 90'. Due to the staggering of the toe pin installation, the customer wished to have a lead system that they could lay down when not in use and continue to use their crane with a vibratory hammer for the installation of sheets. Berminghammer provided a BL-32 Flying Lead system equipped with H-15 Drill and discharge diverter to complete the project. The customer was free to switch between the vibratory hammer and the flying lead.

HARTFORD SEWAGE TUNNEL
HARTFORD, CONNECTICUT

Case Foundations was contracted to drill a shaft into rock at a depth of over 220 feet as part of a $280 million-dollar sewage tunnel project in Hartford, Connecticut. The tunnels purpose is to capture raw sewage and store it until it can be treated. This storage capacity will prevent raw sewage dumping into the Connecticut River. A cluster drill was the practical choice to complete the work because of the diameter and rock hardness. Working with Case Foundations (a Keller Company), Berminghammer supplied a Reverse Circulation (RC) air swivel to supply the cluster drill with air and divert the cuttings. The swivel and Berminghammer 20 inch RC drill string allowed Case to harness their BG-39 Drill rig for the purpose of hard rock drilling, a type of drilling that these rigs do not traditionally undertake. The methodology exceeded expectations and Case is now pursuing other similar projects using this methodology.

9 DEKALB
BROOKLYN, NEW YORK

New York Concrete Corporation (NYCC) contacted Berminghammer when faced with difficult drilling conditions at the 9 Dekalb Skyscraper site in Brooklyn. When completed the building will be the tallest in Brooklyn. NYCC needed to drill 1016mm holes through hard rock to depths exceeding 150 feet. They needed to accomplish all this while controlling spoils in a very condensed job site in Brooklyn. Berminghammer retrofitted two conventional drilling rigs to drill with air utilizing Berminghammer's RC Swivel and 20 inch OD Drill String with a down-the-hole-hammer. The RC drilling solution allowed NYCC to utilize their existing drilling equipment.

PIER 3 GREENWAY TERRACE
BROOKLYN, NEW YORK

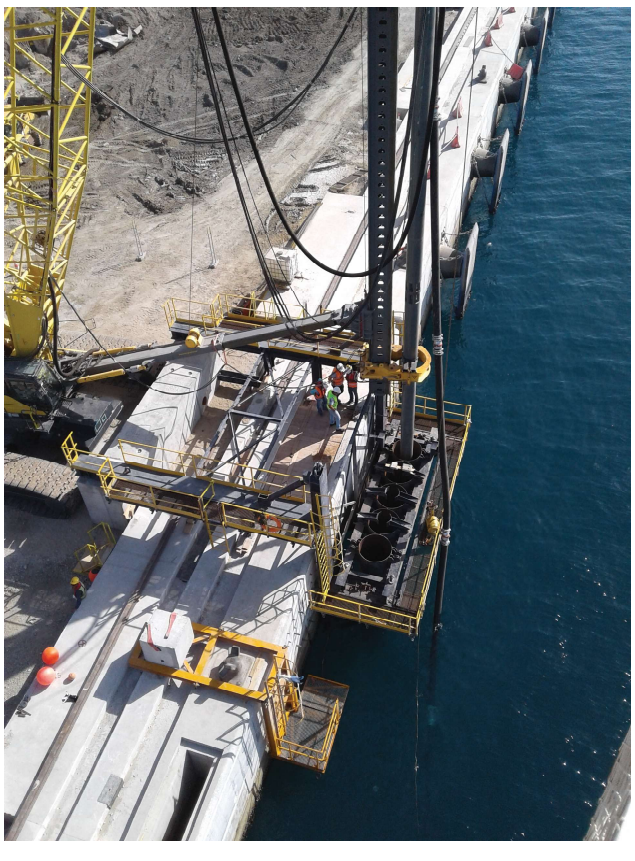
With the Manhattan skyline prominent in the background, D'Onofrio General Contractors Corp. was contracted to install eighteen 20 inch diameter piles in order to create a pedestrian pathway to the newly constructed Pier 3 Park. This was part of the Brooklyn Bridge Park Project, a 20+ year initiative to transition the land from industrial cargo to recreational use. The piles needed to be installed to depths approaching 120 feet. Berminghammer suggested a rental BL-37 Flying Lead system to easily maneuver to the pile locations from a barge setup. The lead system was equipped with a Berminghammer BHD-40 rotary and down-the hole -hammer drilling system. A unique challenge that D'Onofrio had to overcome was drilling through existing timber piles. Berminghammer developed a custom core-barreling system that was added around the down-the-hole hammer to cut through the timber piles when needed.

PORT OF HALIGUEN
QUIBERON, FRANCE

In 2016 Berminghammer's Stefano Gabaldo was contacted by RocDrill to provide Reverse Circulation (RC) drilling equipment for an infrastructure investment in the Port of Haliguen in Quiberon, France. The port was initially founded in 1840 as a fishing port and was last modernized in 1970 where the focus shifted to pleasure boating. The latest investment is also related to pleasure craft; it will allow for more berths and dredging will allow for larger vessels. Berminghammer's portion of the project was to drill 864 mm diameter pipes to a depth of 22 meters. The pipe piles were part of a Combi-Wall system that uses both sheets and pipe piles as a combined retention system. Berminghammer supplied a 25m tall L-23 Vertical Travel Lead and drilling system complete with 18-in drill string. The piles were installed using case advancing methodology.

PORT OF TANGIER
TANGIER, MOROCCO

The Port of Tangier in Morocco is a state of the art Port that has just undergone a multi-million-dollar upgrade. However, a brand-new cargo ship required that they further increase the available draft. This created a unique problem for the port because their newly installed dock wall was not installed deep enough to allow for further dredging. Further dredging beside the existing wall would risk collapse. The solution proposed involved creating a new sub-sea dock starting at a depth of 17 meters under water and going a further 13 meters. The piles to be installed were 1016 mm in diameter. With this sub-sea wall created the port could then be dredged. To accomplish this, Berminghammer supplied a 45m L-27 Vertical Travel Lead for a K2750G crane. The lead was equipped with a BHD-80 (80,000 ft-lb) drill and Berminghammer's 18-in reverse circulation drill string. The piles were installed using case advancing methodology which involves the use of a down-the-hole hammer and Berminghammer's 360-degree crossover. The drilling system worked through a wall side template to further help align the piles for installation 17 meters below the surface.



PORT OF KINGSTON
KINGSTON, JAMAICA

In 2016, Berminghammer's Stefano Gabaldo was contacted by EMCC to provide a solutionto a complex port project in Kingston, Jamaica. The Port of Kingston is well placed to act as a transportation hub for the Carribean islands. Thus, there has been an large infastructure investment to expand the Port's ability to accept larger vessels. For this expansion, EMCC was required to install piles for serveral reasons: to act as foundation for the cranes that needed to be installed for unloading boats, and to create a deeper dock wall so that the port could be dredged to allow for boats with deeper drafts. For the installation of the crane supporting piles EMCC was required to install 609mm 355 mm and HEB300 piles of lengths up to 34 m. Most significant was that these piles needed to be installed on a 1:3 batter. To accomplish this, Berminghammer supplied a 45m L-23 Vertical Travel Lead with Bk3-1840 three stage spotter. The Three stage spotter offered the versatility to drive both the vertical and fore batter piles. Berminghammer also supplied rental B-32 diesel hammers, responding with delivery under 4 weeks after EMCC was notified that the Hydraulic hammers they ordered would be not ready in time to start the project. To accomplish the subsea pile installation of 559 mm diameter piles meters long, Berminghammer harnessed its history of innovation and created a custom Flying L-23 Lead. Patent Pending: More details to come in future newsletters.

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EXCAVATOR MOUNTED LEAD - EML 60 LOW HEADROOM
BIRMINGHAM, ALABAMA

In August 2017, Berminghammer's Louis Fritz, P.Eng was contacted by Timothy McInnis of McInnis Construction for the design of a set of purpose built Excavator Mounted Leads (EML). McInnis needed a new lead to install HP14x117 piles as part of a shoring system underneath an existing bridge. As a product of this type did not exist on the market, McInnis sought out Berminghammer for the custom design.

There were many physical constraints and customer requirements that made the design of this lead system particularly challenging. The entire lead needed to be able to travel under a 20 foot tall bridge and also be capable of driving piles at least 20 feet long. The lead also needed to be able to slew to correct for uneven ground and most challenging of all requirements it needed to rotate about the third axis. Finally, for future work, McInnis wanted to take advantage of the large capacity of their 60-ton excavator for a taller version of the system to run with a diesel impact hammer.

Berminghammer designed a completely new lead system capable of all the above and capable of Vertical Travel, a Berminghammer signature lead trait.

PORT OF ST JOHN'S BL-42 BRIDLED DRILLING LEADS
ST JOHN'S, NEWFOUNDLAND

When RJG Constructors was awarded with the task of building a new Pier in St. John's Harbour, they immediately turned to Berminghammer. Having never drilled before, they were challenged on how to install 24 and 30 inch piles up to 40 meters long and at batters up to 1:3. After evaluating the benefits of installing the sections without a splice and using a case advancing system, Berminghammer developed a new BL-42 Lead and bridle system that could be configured in two system lengths and multiple batters. The base system was a 35-meter configuration to drill the piles up to 28 meters. When they reached deeper water, RJG reconfigured the lead with the addition of another lead section to reach 46 meters.

Berminghammer utilized its BHD-80 Reverse Circulation (RC) drill and 18-inch drill string do deliver air to the down-the hole-hammer. All cuttings were collected and controlled utilizing the RC drilling methodology.

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HOW TO CONTACT US

1-905-528-7924 / 1-800-668-9432
Fax: 1-905-528-6187 or visit
www.berminghammer.com

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Robert Marzetti P.Eng - President & CEO
Andrew Weltz P.Eng - VP Business Development
Steven England P.Eng- VP Berminghammer
Louis Fritz P.Eng - Sales Manager
Allan Zdunich - Sales West Coast of North America
Stefano Gabaldo - Sales Europe
Milan Brestovacki - Technical Sales Coordinator
David Zanchetta - Ontario and Inside Sales
Paul Gri P.Eng - Manufacturing Manager
Todd Barlow P.Eng - Construction Operations Manager