

Redi-Rock International, Charlevoix, MI 49720, USA

# 38,000 Precast Modular Blocks for the Construction of the Friday Harbour Resort

**When the team from The Sarjeant Co. Ltd. saw Redi-Rock's booth at the World of Concrete trade show over a decade ago, they saw the potential in the large, precast modular block (PMB) retaining wall system to expand their business portfolio. They had no idea, however, that their company would eventually supply Redi-Rock's largest project to date.**

"We thought it was a great opportunity to diversify a little bit," said Chase Clark, sales manager for The Sarjeant Co., which is headquartered in Barrie, Ontario, Canada. As a construction and fuel supply company, they were looking to expand their offerings to customers by licensing Redi-Rock.

"It's one more option that we can provide our customers when going to a job site or residential area," said Clark. "We can supply them all the concrete and aggregates for their homes or buildings, and then if they needed a retaining wall, we also have that option available."

Redi-Rock is a smaller division within their business portfolio, so when approached by the developers of Friday Harbour

resort about a project that would include 30,000 Redi-Rock blocks, Clark and the rest of the Sarjeant team realized: "Something of this scope and magnitude really comes along once in a lifetime."

## Marina Project Grows to 38,000 PMBs

The concept for a nautical resort on par with Canadian skiing locales like Whistler and Mont-Tremblant was sparked over 20 years ago, and the marina at Big Bay Point on Lake Simcoe in Ontario was chosen for the destination. But, the existing 10-acre (4-hectare) marina wouldn't support the grand vision the developers had in mind for Friday Harbour.

"The spark came from essentially having the idea of creating something of a boaters' destination on Lake Simcoe," said Vimal Patel, project manager for Geranium, one of five partners responsible for founding and starting Friday Harbour. The 1,000-slip marina is aimed at luring boating traffic from the Trent-Severn Waterway, a 240-mile (386-kilometer) canal that stretches from Lake Ontario to Georgian Bay. The developers' intent was to create an all-seasons resort with a nature preserve, golf course, beach club, shops, restaurants and



*Originally slated at 30,000 blocks to complete the marina, the scope of the Friday Harbour project crept up to 38,000 blocks as Redi-Rock was used elsewhere in the resort, including this retaining wall separating the environmental protection area from the residential community.*



*Only about two courses of Redi-Rock blocks show above the waterline in the marina at Friday Harbour, but the walls themselves included 16 courses of blocks and stand 24 feet (7.3 meters) tall.*

bars, as well as 3,000 resort residential units.

In order to bring their vision for such a high-end destination to fruition, 2.4 million cubic yards (1.8 million cubic meters) of material would need to be removed from the existing marina basin, and a new shoreline would need to be created with retaining walls.

"That's where the Redi-Rock product came in because in order to create the 4.5 kilometers [2.8 miles] of shoreline," explained Patel, "we had to have something that was aesthetically pleasing and also easy to install."

With Redi-Rock, the majority of the retaining walls for the marina and man-made islands could be built as straight gravity walls, where the sheer weight of the massive concrete blocks connected with a patented knob and groove technology -- like giant Lego blocks -- could hold back the earth.

"All-in-all, I know that Friday Harbour's board of directors and their whole team looked at alternative options, and they found that Redi-Rock was the best fit and the best solution for this project," said Clark.

As the project progressed, the developers liked the look of Redi-Rock so much that they used it in other locations to tie the aesthetics of the resort together. They used it along a roadway to transition between the environmental protection area and the marina village -- and even for an amphibian crossing at the golf course.

The total block count crept up to 38,000 PMBs, and it was quite the undertaking for The Sarjeant Co. to amp up production in order to meet the demand within a tight time schedule.

### Amping up Production for a Showpiece Project

"This was about three to four years in the making as far as meeting with Geranium and going through the designs and options," said Clark.

During the design and planning, The Sarjeant Co. was in communication with Redi-Rock International about the engineering of the marina walls, as well as the logistics of producing that many

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*The Sarjeant Co. ran four flatbed trailers daily to deliver the blocks to the location, where three crews worked to install the retaining wall while the earthworks program was simultaneously underway.*

blocks. Instead of purchasing all of the forms to produce this once-in-a-lifetime project, they rented forms to increase their production capacity.

"When it came time to manufacture the blocks, we were doing so at an incredible pace," said Clark. "We had over 75 forms in production, we were moving over 200 cubic meters [262 cubic yards] of concrete a day in order to keep up." On those 75 forms, 17 laborers were split into two crews, and they were pouring four times a day, which also required modifying their concrete mix design.

"We had to introduce a high-early cement in order give us set times that were adequate enough for us to pull those blocks and do such quick flips," said Clark. Once the blocks were pulled from the forms, four flatbed trailers ran daily to transport the blocks to the building location for installation.

### The End Result

Three crews worked simultaneously to install the 2.8 miles (4.5 kilometers) of retaining walls. Only about two courses of Redi-Rock blocks in the Limestone texture show above the water-line in the finished marina, but the retaining walls themselves include 16 courses of Redi-Rock blocks, which means they stand 24 feet (7.3 meters) tall. Friday Harbour isn't just the largest Redi-Rock project to date, it's also a showpiece project for The Sarjeant Co. within their market.

"Friday Harbour itself is a destination spot like no other," said Clark. "This is a very high-end resort, high-end community, and they wanted something that was going to look great and obviously withstand our harsh environments in the north." "It looks beautiful," said Patel. "Redi-Rock was a huge part in the success of the marina which is pretty much the focal point of the project."



*Redi-Rock blocks line the shore and islands at Friday Harbour resort, holding back the earth and supporting the 3,000 residential units.*



*Many of the blocks manufactured for the Friday Harbour project were from the 60-inch series, where an extension is added to the standard Redi-Rock forming system.*

### FURTHER INFORMATION

**REDI-ROCK**

Redi-Rock International  
05481 US 31 South, Charlevoix, MI 49720, USA  
T +1 866 222 8400, F +1 231 237 9521  
[info@redi-rock.com](mailto:info@redi-rock.com), [makeredi-rock.com](http://makeredi-rock.com)