

# From Eyesore to Exquisite

New York town stops erosion and protects municipal golf course

By Lindsey Manthei O'Connor



The Two Mile Creek channel originally was armored using bags of cement that hardened into walls.



The engineer designed the channel walls to meet the creek's 100-year flood levels.



The design of the channel allowed the existing bridges to remain intact.

When the banks of Two Mile Creek began to erode, the town of Tonawanda, N.Y., needed an aesthetic solution on a tight schedule. Two Mile Creek runs through Sheridan Park, a par-71 municipal public golf course often rated among the top public courses in western New York.

“The original channel walls along the creek were built in the early 1970s out of sandbags filled with concrete, stacked on top of each other,” said Project Engineer Dan Milewski of URS Corp. “There was no drainage behind the walls at all.”

The erosion along the creek bank was an eyesore, according to Michael Kaiser, Tonawanda’s director of technical support—and getting worse. “The soils over there were eroding from repeated rising and falling during rain events,” Kaiser said.

## Planning a Makeover

To create an aesthetic solution while also preventing further erosion of the creek banks, the town turned to local Redi-Rock manufacturer Kistner Concrete Products Inc. This was the second phase of construction the town had completed on Two Mile Creek. Several years earlier, the town chose Redi-Rock as part of a bridge replacement project upstream.

The company’s massive, 1-ton blocks are made of architectural-grade precast concrete that has a proven track record for building aesthetic storm channels that will stand the test of time—even in areas where multiple freeze-thaw cycles act on walls. The system features several batter options, which were a major benefit in the design of this project.

Designing the waterway to meet

the 100-year flood levels was key. The majority of the project was designed using 41-in. blocks (measured from the face of the block to the back), but engineers designed several sections of the channel using 9-in. setback blocks to give the channel walls more gradual slopes. These sections terraced back from the rest of the walls to create a secondary floodplain.

The town wished to keep existing bridges and abutments intact, so the project design called for using standard batter blocks to taper the channel along the inside of the abutments. To keep the volume of the channel consistent, the project team increased the depth in these areas.

The wall design ranged in height from 4 to 7.5 ft, totaling 15,000 sq ft.

## Rapid Transformation

The project operated on a tight schedule. To minimize disruption to Sheridan Park’s golf course landscape and complete construction before the rainy spring season, the town scheduled the installation for the middle of winter, starting in January 2010. The goal was to open the golf course in April, leaving a short window of time for Northeast Diversification Inc.’s installation crew to complete the job.

The stream flow was minimal at the time of construction, but the channel was coffer-dammed to allow the walls to be installed. Once the ground was frozen, the installation team was able to bring in trucks loaded with blocks without ruining the course’s grass. Kistner Concrete Products had Redi-Rock inventory on hand and was able to keep up with the construction schedule by double-casting blocks each day.



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## erosion control special section



Workers installed 15,000 sq ft of channel walls on the golf course. Golfers' response to the new look has been positive.

To prepare the site for wall construction, the crew created a crushed stone leveling pad before placing the first row of 60-in. base blocks to prevent overturning of the walls.

"The blocks were easy to install. It was as easy as building blocks when we were kids. Seriously, there was nothing to it. You lay down your first course, and if you've got that right, the rest of the wall goes up as simple as can be," said Tim Szczepanski, vice president of Northeast Diversification.

After setting the first course of blocks, subsequent rows could be stacked directly on top.

"It was a very easy system to use. We staged the blocks right at the work zone, and in some cases we installed the blocks directly from the truck onto the wall. We didn't have a separate staging area, so we didn't have to double handle the blocks," Szczepanski said.

To address the drainage issue the existing wall was experiencing, the crew installed underdrains throughout the walls.

"The system is very functional and allowed us to rework it and make minor changes as we went. The way it lined up gave us some flexibility to help the

channel fit the site," Szczepanski added.

The channel walls were built as gravity structures, which minimized excavation and installation time, helping the project meet its deadline. The entire project was installed in 60 days.

### Beautiful Inside & Out

When the golf course opened in April, the response was overwhelmingly positive. Redi-Rock's ability to build sweeping inside and outside curves created natural-looking meanders, and the top blocks gave the project a finished aesthetic.

"This work was done on a municipal golf course. When we finished the work, people were asking if we were going to turn the golf course into a 'country club.' The end result is that it looks like a top-notch golf course setting," Kaiser said. **[SWS]**

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