

# All about the water

A DEVELOPMENT TEAM OVERCOMES LIMITED RESOURCES AND LAND RESTRICTIONS TO BUILD AN UPSCALE COURSE IN CANADA



The North Course at The Club at Bond Head is a parklands-style course that is more hilly than the links-style South Course. Photo: Chris Gallo

by JOHN WALSH

**G**iampaolo Investments – a Canadian real-estate company based in Brampton, Ontario, that owns a mix of industrial, commercial and residential developments – wanted to diversify its portfolio even more. That led the company to develop its first golf course – The Club at Bond Head, an upscale, 36-hole, daily-fee golf facility in Ontario.

But building the golf course was anything but easy. Water and land restrictions made it difficult.

The facility consists of two championship-length golf courses that sit on about 500 acres of land. While the topography of the land was conducive to providing high-quality golf holes, very limited water resources were available for irrigation, especially during grow-in. The site features rolling farmland, forested hills and creek bottomlands.

Mark Hansen, director of real-estate for Giampaolo Investments, says the land on which Bond Head was built is near the Oak Ridges Moraine, a government-protected area that sits on the largest underground aquifer in Canada. The government planned to restrict development in the area further, but before the proposed restrictions took effect, Giampaolo purchased 1,000 acres of land.

“The lay of the land lent itself to a being a links-style course,” Hansen says. “The biggest thing I wanted was an architect to see and utilize what was there and not move a lot of dirt. I personally interviewed and hired (golf course architect) Jason Straka (of Hurdzan/Fry Design Golf Course Design). Mike Hurdzan flew up here for the meeting. Everybody else sent their minions. That’s what did it for me. He took the time to come here himself. At the same time, we were interviewing him, he was interviewing us. That’s what you want in a good architect. They were a top-notch firm from day one. They’re world-class.”

“We had areas where we battled, but we found good working ground,” he adds. “I want to save money, and architects want to spend it.”

Hansen says if he was going to build 36 holes, he wanted two different golf courses. Giampaolo did. One is a links-style course (South Course), and the other is a parklands-style course (North Course).

The soil condition of the land, however, was erratic. Some areas of the site consisted of heavy topsoil and clay, and others were deep glacial deposits of sand and gravel, which meant different areas had various capacities to retain moisture.

A perennially flowing stream named Penville Creek bisects the site, but drawing water out of the creek as needed wasn’t permitted. There also are two intermittent streams that feed Penville Creek that were impounded for cattle ponds as part of the sites previous farming use. Additionally, two on-site wells pumped at a rate of 50 gallons per minute (300 gpm is needed for most golf course irrigation systems), but only one of the wells was permitted for use. No municipal water, including potable and effluent, was available for use.

Based on these restrictions, the design

team identified five solutions to deal with the water limitations.

### Drought-tolerant grass

First, the team identified the most drought-tolerant turfgrass species and drought-resistant greens construction method, which included designing the South Course to be an all fescue (a blend of Chewings, sheep and creeping red, with hard fescue in the secondary rough) golf course, except the California greens, which are A-4 bentgrass.

“The different soil types will tend to support one variety a bit better than the others because of their moisture-holding capability,” Straka says. “In this manner, the water requirements throughout much of the golf course would be similar.”

“Additionally, we chose a sand that passed greens construction specifications on the finer particle size range,” he adds. “This allowed for slower water movement throughout the profile and greater capillary action.”

The greens on the North Course were



A stream runs through the South Course at Bond Head, but water isn’t allowed to be drawn from it to irrigate the course. Photo: Jason Straka



A drought-tolerant fescue blend was used for the tees, fairways and rough on the South Course. Photo: Jason Straka

constructed and grassed using the same specs as the greens on the South Course, but the rest of the North Course was planted in a more traditional North American style of bentgrass fairways and tees and bluegrass/fescue rough.

Ian McQueen, the golf course superintendent who oversees both courses, was the assistant at Magna Golf Club in Aurora, Ontario, before coming to Bond Head. McQueen was interested in being part of a grow-in, becoming a head superintendent

and maintaining an all-fescue golf course, which hadn't been done on a public golf course in Ontario.

McQueen says there's always been a concern about water, but there's always been enough to capture in the spring. It's just a matter managing it throughout the year.

"With fescue, the perception is it doesn't need as much water as bentgrass, which is true," he says. "But it needs just as much water as bentgrass when you're establishing it. I never grew in fescue before, and it is much slower than growing in bentgrass. There also are more washouts with fescue. It was challenging."

### Holding ponds

Second, the small well was coupled with one of the cattle ponds that was enlarged significantly. The pond could receive all the water the well could give and capture the intermittent drainage feeding it. The pond became the central irrigation reservoir. A second cattle pond also was enlarged and serves as an emergency water source that could be transferred to the main irrigation pond if needed.

But when determining a water budget, the existing cattle ponds and 50-gpm well still couldn't provide enough water. So, the two cattle ponds were enlarged as much as possible. Each of the ponds was tripled in size and captures and holds significantly more water from the intermittent drainage patterns than before.

"We needed space to capture water in

spring and hold it there," Straka says. "I've not experienced anything like this to this degree. It was tough."

Still, McQueen says the 45-million-gallon holding pond will be widened so it can hold 55 million gallons of water.

"We don't take water out of the ground," he says. "We store spring water to use throughout the whole year."

### Capture and recycle

Third, a drainage system feeds the ponds as much as possible to recycle and capture excess surface water. The Club at Bond Head has several hundred catch basins that capture surface water and conveys it to outlet points via miles of subsurface pipe that leads to the two enlarged ponds. Much of the golf course surface water is harvested and captured in these two ponds.

### Limit waste

Fourth, to further limit the amount of irrigation water needed, an extensive irrigation system was designed and installed to micro-manage areas of the golf course and limit waste. For starters, the dual-head system installed can water the greens and surrounds separately. This avoids overwatering one area just to meet minimum requirements in another.

A large number of perimeter heads also were installed to avoid watering secondary or no-maintenance rough areas.

"This helps playability by keeping these areas thin, but it also helps avoid overwatering fringe areas to meet minimum watering needs while other areas are getting too much water," Straka says. "This extra number of heads also allowed the design to better overcome the effects of wind on the hilly site (North Course), minimizing the effects of overwatering and evaporation. While this might seem ironic, by strategically placing a greater number of irrigation heads, this design allows the golf course to use less water."

The irrigation system cost considerably more than \$1 million, Straka says.

### Siphon system

Lastly, a siphon system was designed to capture water from Penville Creek during spring freshet (when snowmelt and spring rainwater overfills the creek), hold it in a large off-site pond and transfer it to the main irrigation reservoir as needed.

A strategic area off-site was located in which a multiple weir system would back up water during spring freshet. The weir system backs up water into a series of pipes that gravity feeds into an adjacent small

## AT A GLANCE

### The Club at Bond Head

Location: Bond Head, Ontario

Holes: 36

Acres: 260 for South Course, 210 for North Course

Length: 7,477 (South Course); 7,085 (North Course)

Architect: Hurdzan/Fry Golf Course Design (Jason Straka)

Golf course superintendent: Ian McQueen

Owner: Giampaolo Investments

Builders: ASL Golf Construction (South Course) NMP Golf Construction (North Course)

Construction cost (for both courses): About \$10 million

Entire project cost (including land and clubhouse):

About \$40 million.

Web site: [www.theclubatbondhead.com](http://www.theclubatbondhead.com)

pond, which then has a transfer pump into a much larger pond nearby. Water is taken only during times of flooding when it's readily available and not needed by the creek system.

The large siphon pond holds the major-

ing through environmental regulations is a necessary evil."

McQueen started on the project in April 2003, when the builder, ASL Golf Course Construction, started moving earth on the South Course. During construction,

**"While this might seem ironic, by strategically placing a greater number of irrigation heads, this design allows the golf course to use less water." – JASON STRAKA**

ity of the irrigation water for the entire year, though it is only captured during a two-week time frame. The water is piped to the main irrigation pond on the golf course for use and to keep the pond full for aesthetic purposes in times of heavy irrigation needs.

McQueen says he's restricted to use no more than 900,000 gallons of water a day for both courses. He says the fescue course requires less water, about one-third of what the bentgrass course uses. This year, McQueen will use about 50 million gallons of water for both courses. Next year, the goal is 42 million because neither course will be in grow-in mode.

### Land ho!

Building the course wasn't any easier than dealing with the water restrictions, Straka says. For starters, the property was sectioned off in two different zoning patterns because it was in two municipalities. And, because of that, the permitting process was doubled, and the development time was lengthened by a year. Because the property was near a big glacial area that supplies drinking water, it received much scrutiny. The land was zoned for agriculture, so before the development team could progress, the government had to make sure the land wasn't best used for farming.

MDS arcs also caused problems. The designated arcs extended from a neighboring property onto the golf course, and anything in the arcs couldn't be developed. The arcs were there because farmers on the neighboring property didn't want to cause potential problems with the smells emanating from the farm. So developers had to work around areas. Eventually, Giampaolo purchased the neighboring farm and shut it down just so it could develop its own property, Straka says.

"I had a good handle on the development restrictions going into the project, but I hired a good team of consultants to get me through it," Hansen says. "Work-

383,000 cubic yards of dirt were moved for the North Course by NMP Golf Construction, and 164,000 cubic yards of dirt were moved for the South Course.

Grow-in of the South Course started in the fall of 2003 and finished in fall of 2004. Grow-in of the North Course started in summer of 2005 and finished July 1, 2006.

"Keep in mind we have a six-month growing season," McQueen says.

Hansen says he didn't focus on the building contractors because he let McQueen deal mostly with that. McQueen says he had a good relationship with builders of both courses. Some of McQueen's input included making sure the bunkers were maintainable after they were built, moving some of the bunkers away from greens to allow more room for a mechanical bunker rake to maneuver around the bunkers, and make sure the

bunkers weren't too steep.

"Most of my recommendations were acceptable," he says. "There was give and take. I was always thinking about how the course would be maintained. I made sure grades were faster in some areas and slower in others. We have to maintain this course for the average public player."

As McQueen looks back at the construction process, he says he wishes the fairways would have been sand-capped because of the wet soil.

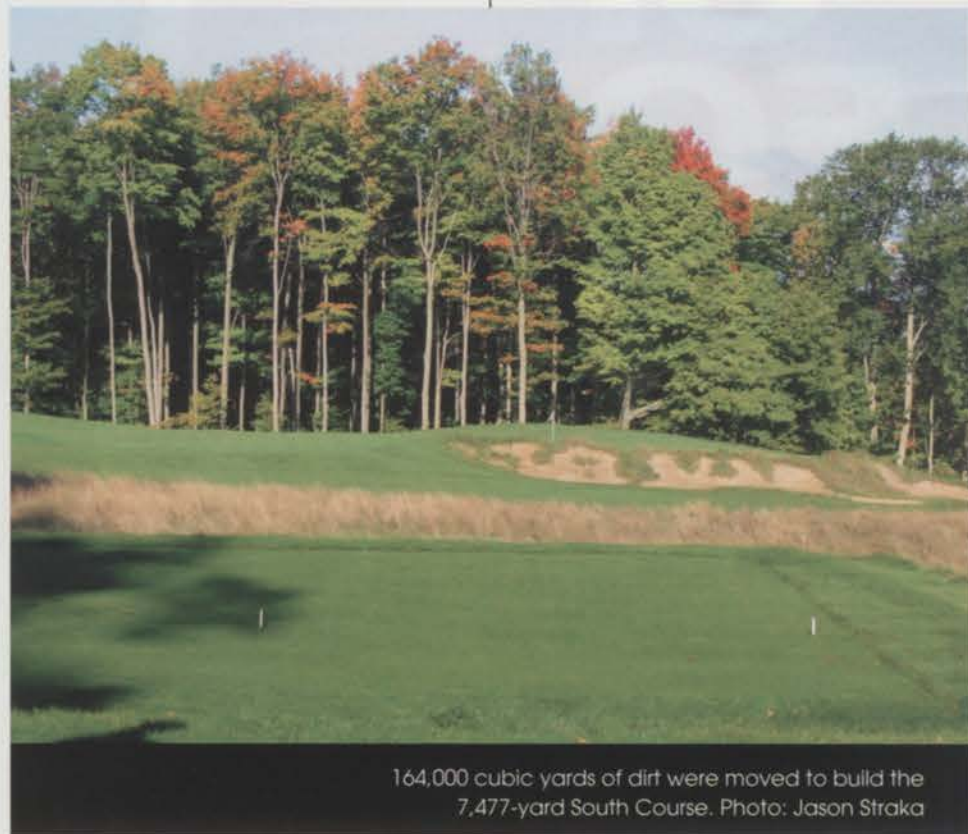
"Overall, the project turned out great," he says.

### Tweaks here and there

Being the first full year of operation with both courses open, McQueen says he changed some fairway lines to give the mowers more room to turn and is concentrating on wear areas. He also checks the sand level in the bunkers and was constantly overseeding and topdressing.

In retrospect, Hansen says the golf course was the easiest part of the development and the clubhouse was the biggest challenge of the whole development because he tried to come up with a theme for two different golf courses and it was difficult trying to accommodate everything.

"I'm just so proud of the whole development and the team we put together," Hansen says. "The course will be recognized as one of the best in the county over time." GCN



164,000 cubic yards of dirt were moved to build the 7,477-yard South Course. Photo: Jason Straka



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