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BY HAL PHILLIPS

securing the future

A CONSTRUCTION TEAM RESTORES A STREAM
AND REBUILDS AN ENTIRE COURSE IN PENNSYLVANIA

The restoration of Shober's Run, which presents lateral or perpendicular hazards on 12 holes, was the key to the course reconstruction project. Photo: The Bedford Springs Resort

It's called "legacy sediment," and if your golf course is located somewhere on the Eastern Seaboard – or anywhere early Americans dammed streams for milling and logging purposes – it might be the reason a nearby creek is always flooding your golf course.

That was the case at The Bedford Springs Resort in Bedford Township, Pa., where 18 historic, often-tweaked golf holes reopened for play in July, following a comprehensive course renovation authored by architect Ron Forse and implemented by contractor Frontier Golf. The original routing at Bedford, laid out by Spencer Oldham in 1895, was revamped by A.W. Tillinghast about 20 years later. Donald Ross would completely retool the layout again, finishing in 1923.

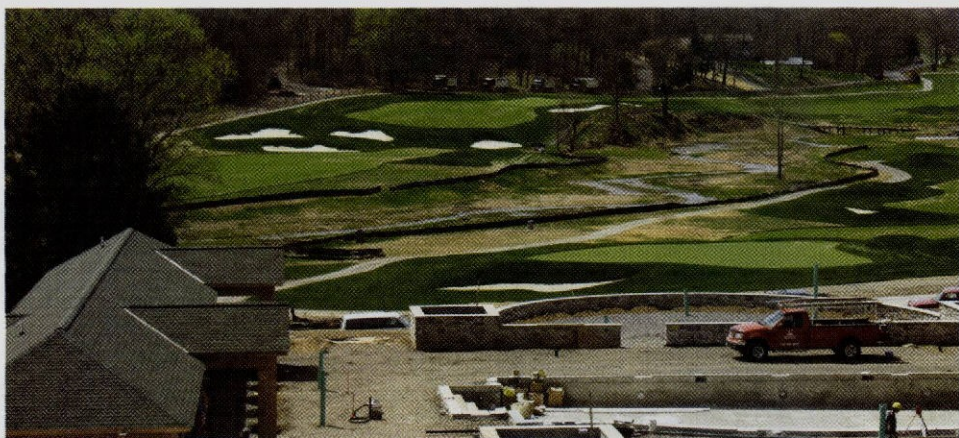
Forse and Frontier were presented with the tasks of preserving and integrating the disparate aspects of these three vintage design styles by rebuilding every green, tee and fairway and undergirding it all with up-to-date drainage, irrigation and soil profiles.

But it was the restoration of the creek named Shober's Run that obliged the renovation team to address the ancient issues and secure the resort's maintenance future.

"We broke ground at Bedford in early June 2006 and essentially built and seeded an entirely new golf course by the middle of October," says Nick Scigliano, president of Jones Mills, Pa.-based Frontier Golf. "But in many ways, the creek restoration, which we handled at the same time, was the key to the whole project. Certainly, the lasting quality of our work, the designer's work and the course superintendent's work, depended on it."

It's easy to see why. Shober's Run flows right through the Bedford property and presents lateral or perpendicular hazards on 12 holes. For as long as anyone could remember, it flooded every time there was a significant rain. Not surprisingly, its banks were eroded and stood





state of Pennsylvania have been altered in this way. In Lancaster County, the average dam pipe was 8.5 feet high, and the average ponded area behind it was 1.2 square miles."

The dam that LandStudies found on site at Bedford was only 3 feet high, but there's an old mill just downstream (less than half a mile off the Bedford property) where Gutshall estimates the dam was 5-feet high.

"That means water backed up a huge distance, onto the course, and the channel was buried under the sediment that piled up," he says. "That's legacy sediment, and it's all dependent on the height of the dam. The bigger the dam, the more sediment."

The dams at Bedford were abandoned, and the ponds drained years before the original golf course was ever built, meaning the stream-flood-ing problems predate the golf course.

"That's pretty typical," Gutshall says. "The design of the golf course can make the matter worse, but most of the time it doesn't contribute much. The real damage was done years before."

DOING IT RIGHT

Identifying a perched creek bed, then pegging the cause of said perching (about 200 years after the fact), is one thing. Rectifying that situation is quite another.

Gutshall says many of LandStudies' golf clients (the company is in the midst of eight course-related stream restorations) don't have the luxury or can't muster the collective will to conduct a proper remediation. He pointed to a recent project at Lehigh Country Club in Allentown, Pa., which was prompted by the

stream-bank erosion around the base of a bridge. The entire stream needed rechanneling, but the club wasn't prepared to radically alter any fairways, greens or tees.

"There's a difference between stream stabilization and stream restoration," Gutshall says. "Lehigh was a stabilization. At Bedford, we had the luxury of working with a client, course architect and contractor who understood the vision, and because the course renovation plan was already so sweeping we were able to incorporate a full stream restoration into the course-renovation plan."

LandStudies and Frontier ultimately resolved to unearth the original creek bed that lay under about four feet of legacy sediment, while creating a flood-way about 7,000-feet long and 80-feet wide (in places) to mitigate future flood threats. Show estimates his crews moved only 80,000 to 100,000 cubic yards of dirt during the entire golf course renovation while it moved 70,000 cubic yards of dirt separately in the careful rechanneling of Shober's Run.

"LandStudies had one of its partners on site at all times to work with Frontier's excavator operator," says Jim Nagle, the Forse design associate who spearheaded the Bedford project. "At first they did about 100 feet of the rechanneling together, just to get the method down. That's all it took. Frontier just took it and ran with it after that."

The work on Shober's Run originally was to be a design-build project, but LandStudies is moving away from the building side of the business, Nagle says.

"Frontier was approached about doing this work and Nick [Scigliano] said, 'Yeah, we can

AT A GLANCE Bedford Springs Resort

Location: Bedford Township, Pa.

Type of project: Reconstruction

Architect: Ron Forse

Builder: Frontier Golf

Superintendent: Dave Swartzel

Owner: Bedford Resort Partners, Ltd.

(managed by Benchmark Hospitality International)

Project started: June 2006

Project completed: October 2006

Cost: Total resort, \$108 million; golf course, \$6 million-plus considering grow-in, creek restoration, and new maintenance facility

Notable: A creek restoration that affected 12 holes

do that," Nagle says. "And they did."

Frontier was already on site and doing all the other construction so it made sense to keep its workers out there, Gutshall says.

"They really stepped up to the plate and did some things very different from what they normally do – and did them very well," he says.

A CONSTRUCTION FEAT

For long stretches of the Bedford project, Frontier Golf employed more than 110 men on its crew. During this time, the company was simultaneously rebuilding The River Course on Kiawah Island in South Carolina in collaboration with Tom Fazio Golf Course Designers, another five-month project that required more than 80 workers mobilized out of Frontier's Southeast Division in Camden, S.C.

"It was a busy summer and a lot of work, but we had the resources to handle concurrent jobs of that magnitude, and our client supported us in every way possible," Show says. "We ran two shifts at Bedford for about six weeks near the end. Because of the crew size, we brought out the lights and used some of the equipment double time, at night. We handled things like asphalt paving, cart-path paving and seeding that way."

Frontier and Forse also engineered a deft hole-switch: The former 16th and 17th holes were removed, returning the course to the

COURSE RECONSTRUCTION



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Photos: The Bedford Springs Resort

further deterioration. Clearly, any responsible renovation of Bedford Springs would have to include a Shober's Run solution.

Enter the self-described "creek geeks" from LandStudies out of Lititz, Pa. After digging several test pits, they determined Shober's Run had been dammed in the 18th century, perhaps earlier, to allow for logging and the creation of various mill operations downstream. The bigger the dam, the bigger the pond that forms behind it, and the more legacy sediment builds up on top of the original creek channel.

"Basically, what we had was a perched creek bed," says Doug Show, Frontier's project superintendent at Bedford, borrowing language usually reserved for water tables and thatch layers.

When the dams are drained, the creek channel is perched and remains so. Thereafter, the surrounding area's waters aren't gathered nor drained away with the same efficiency of the original streambed. Sooner or later, flooding ensues.

"Most of the courses we work with either have an old dam on the course or one within a half mile, so it's pretty easy to see the problem," says Mark Gutshall, president of LandStudies. "We're working on several course projects right now where the dam is right on the property. That was the case at Bedford. Most of the streams in the







Frontier broke ground in June 2006 and essentially built and seeded an entirely new golf course by the middle of October that same year. Photo: The Bedford Springs Resort

1923 routing, which included a par-3 17th and a par-4 finishing hole, which had been the driving range. Today, what had been the 16th is the new driving range and practice facility. What had been the old 17th hole is now a stream/wetland.

Golf course superintendent Dave Swartzel, a veteran of three new-course development projects, still marvels at the overall construction feat.

"The only thing we didn't have on this project was the initial clearing and grubbing process,"

says Swartzel, who came to Bedford Springs after building, then maintaining, the new course at Philadelphia Cricket Club. "In every other way, it was basically new construction.

"Frontier did an outstanding job on an extremely tight time line," he adds. "Considering the scope of the work, they went above and beyond the call of duty to get this done on time. When you're working that fast, sometimes corners can be cut. There was very little of that, but when we did see something, there was no hesitation to go back and make it right. The quality of

Frontier's work was very good."

The work had to be good because stream restoration is like any other aspect of golf course construction: If done well, the superintendent has one less thing to worry about down the road. LandStudies has a special name for this dynamic.

"It's called an E3: an economically enhanced ecosystem because there's a big maintenance cost to streams that aren't stable," Gutshall says. "When a stream is responding to a buried floodplain, it moves laterally. And that's not good when you're trying to maintain fairways and greens and bridges."

Gutshall and Scigliano point out another future, a somewhat hidden benefit of this sort of restoration.

"When you've accounted for flood episodes by removing all that soil – we're talking a strip 4-feet deep, 7,000-feet long and 80-feet wide – we've created what's basically an enormous storage volume on course," Scigliano says. "It might as well be pond, one that has benefits to the surrounding resort in terms of storm-water retention."

These days, Gutshall says he's talking to many superintendents in urban settings about these types of projects becoming regional stormwater management tools.

"The state of Pennsylvania is starting to recognize this and recommend it as a best management practice – one where the golf course industry can be the good guy." **GCI**

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