

# Drainage Done Right

New technology allows superintendents to do system renovations without disrupting play

By Frank H. Andorka Jr.,  
Managing Editor

**Y**ou dread answering the phone after a hard rain because you know golfers will complain about the swamp on the right side of the 14th fairway. It pricks your conscience because you know you need to do something about the drainage on that hole. The standing water is not only aesthetically irritating, but it provides a breeding ground for mosquitoes and other bugs that wreak havoc with your players' games.

Still, the thought of asking your owners or members for money to renovate the drainage makes you wince. After all, drainage is underground and out of players' sight, meaning that convincing them it needs to be fixed is nearly impossible. Not only is it out of sight and out of mind, but the idea of tearing up the course

to add more pipe — taking holes out of play and reducing revenues — makes drainage renovations a difficult sell.

Fortunately, drainage technology has improved to the point where it's no longer an either-or proposition. It's become less invasive and cheaper than it was 10 years ago, meaning less aggravation for golfers and fewer lost revenues for the clubs. With enough foresight and planning, superintendents can enjoy two-pronged victories — improved drainage *and* steady revenues, which might make the prospect of picking up the phone after a hard rain less daunting.

## Changing landscape

Fifteen years ago, petitioning the green committee for a drainage fix meant asking it to close the course holes while big machines moved dirt and dug deep trenches, says Dennis Hurley, president of Turf Drainage Company of America, a Marrero, La.-based drainage provider.

"If you needed to collect water 4 feet deep to be effective, you had to use a trackhoe to grade the pipe to the relief," Hurley says. "The closure of the course meant a major loss of revenue. You can't do that in today's competitive golf market."

Arnold Plowman, vice president of sales for Varicore Technologies, based in Prinsburg, Minn., says courses whose budgets have been squeezed during the recent economic downturn want minimally invasive drainage solutions so they can keep revenues flowing into the club's coffers.

"They're trying to find options that allow them to get the best performance at the lowest

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The WaterWick system is gaining support because its installation disrupts turf so little, according to the company.



WATER WICK



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installed price," Plowman says. "Seldom do courses have the luxury of closing down entirely to do a traditional drainage system renovation."

He also says golfer expectations have increased over the years and that any standing water on the course — even in out-of-play areas — is not tolerated.

"These days, golfers expect a higher level of playing conditions, and superintendents are straining to meet those expectations," Plowman says. "Better drainage helps them do that."

Tom White, vice president of Water Wick, says that many of the country's nearly 17,000 golf courses are old enough to need renovations in many places on the course — and drainage is an important part of the process.

"Three-quarters of those courses have push-up greens, which are notoriously prone to drainage problems," White says. "If you have to choose between fixing the



Smaller projects mean less space taken up for materials (above). The Varicore drainage system (below, right) requires less digging because of its tall and thin piping system.

drainage and rebuilding greens at \$30,000 to \$60,000 per green, fixing the drainage is the less expensive option."

### Evaluate the problem

Dave Davis, president of David D. Davis Associates, a Crestline, Calif., irrigation consultancy, says he often sees owners and

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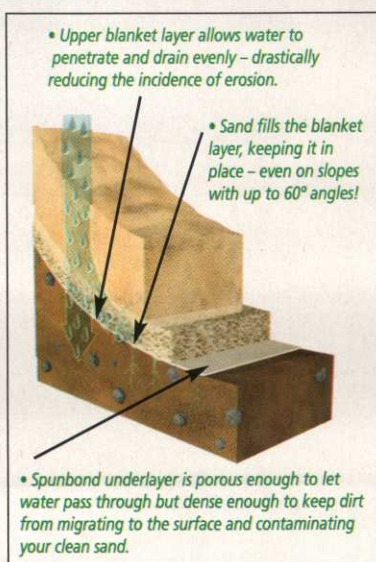
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green committee members blame puddling problems on the irrigation system without examining the underlying drainage issues. He urges them not to separate the two issues when considering how to fix them.

"Drainage and irrigation renovations need to be coordinated," Davis says. "Not all the standing water you see on a course is the result of poor irrigation. Sometimes there's a lack of drainage or poor drainage that's causing the problem instead."

The soil structure also plays an important role in how well courses drain, Davis says. Superintendents should evaluate what's underneath their turf before implementing drainage upgrades.

"There may be underlying issues that may affect the way the turf drains," Davis says. "You may have a soil that's too compacted to let water infiltrate it, or you may have a sandy soil that water rushes through without stopping. Unless you know exactly what your soil is going to do with water, you'll never be able to design an effective drainage solution."

### So what's new?

Davis says he's seen several new drainage trends on golf courses. He says more courses are installing drainage systems that mechanically pump water away from the surface. A vacuum pump at the end of the pipe draws water into a catch basin instead of relying on gravity to do the work.

"They're fast," Davis says. "If you have a course where you need to move water off a spot quickly, underground drainage that uses a pump is the way to go."

Another hot trend — especially in areas where water shortages are common like the Southwest and West — is a drainage system that saves water for future use, Davis says. The system consists of pipes that lead to trays buried in the ground. The trays collect the



TURF DRAINAGE OF AMERICA

Using a trencher (left) to install a siphon system like the one manufactured by Turf Drainage of America means completing the installation by putting sand over the top of the pipe (right) is less labor-intensive.

water and lock it into the soil profile, making it available for plants to use in the future when external water use is limited, he adds.

"This is a trend I'm clearly seeing in California and the Southwest, where the water situation is becoming increasingly dire," Davis says. "Drought conditions are bringing with them restrictions on how golf courses can use water, and systems that allow superintendents to recycle water are important steps forward."

White says his company's WaterWick system is gaining support because its installation disrupts turf so little. Superintendents (or WaterWick contractors) slice veins into the turf with a special patented machine manufactured by the company. The veins also provide permanent aerification. Then the machine vibrates gravel into the newly created slits, creating a conduit for the water to leave the surface and disperse through the soil beneath.

The drainage veins can be placed as close as 1 foot apart, which allows superintendents to do more drainage per square foot than they would get from more traditional systems where the pipes have to be placed farther apart. He adds that the system costs \$5,000 to \$6,000 per green to install. A full course installation can be spread over a period of years.

"It dries the greens immediately," White says. "We clean up the area with a leaf blower, and you're ready to put golfers back on the greens. You lose no rounds with our system."

Varicore's Plowman says his company's system minimizes disruption by getting away from using traditional round pipe that must be buried deeply. Round pipe is a holdover from agricultural drainage systems that doesn't apply well to golf course applications, he says. The Varicore pipe — 6 inches tall and 1 inch wide — is tall, narrow and strong enough that it only needs to be installed 12 inches to 18 inches below the surface, cutting nearly in half the depth that traditional drainage

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Minnesota, Spring 2004

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pipe requires. So instead of using large earth-moving equipment, superintendents can use a simple trencher to dig the hole. Then superintendents can hook the Varicore system into existing drains.

"You can do smaller jobs more easily with our systems so you don't end up busting your budget," Plowman says. "You're not tearing up the course needlessly, and your recovery is much faster because the scars are so small."

Turf Drainage Co.'s Hurley says he has also seen an upsurge in interest in his siphon system. Conventional drainage systems must run pipe on grade. With a siphon system, superintendents can install pipe into an ungraded trench. The piping can even go up over mounding and other contours, so the cost of digging is minimized. Once the installer creates a vacuum inside the system, it will continually siphon water whenever water is in the system above the control level.



TURF DRAINAGE COMPANY OF AMERICA

**Superintendents are looking for less invasive-drainage solutions to keep revenues flowing.**

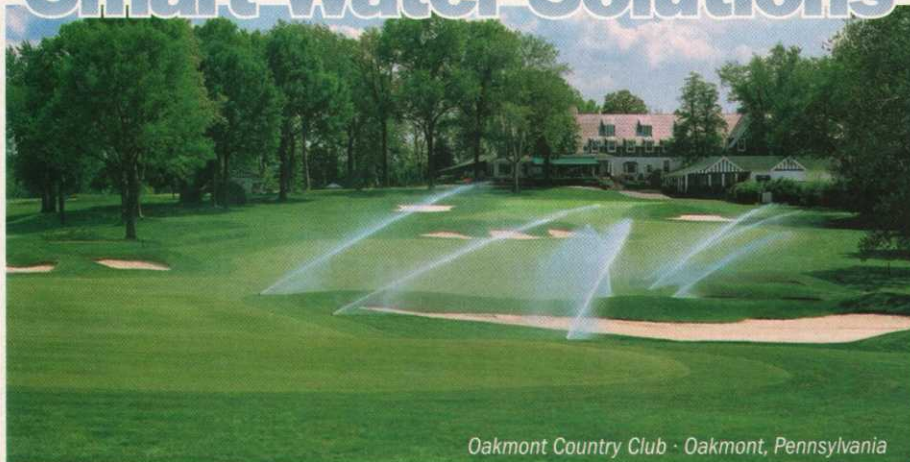
"When we do a drainage plan for a course, we choose the method that is best for them," Hurley says. "If conventional relief is less expensive, we use that first. We employ the siphon system in applications where it will be less expensive than a conventional relief, or it will allow us to collect water that could not be collected with conventional methods."

Davis says that no matter which system superintendents decide to use, ed-

ucating golfers on the importance of having good drainage is the most important part of the process. Fortunately, more green committee members and golfers are educating themselves.

"The water crisis forced a lot of people to educate themselves about drainage, and they're becoming more proactive about it," Davis says. "Ultimately, that's a good thing for the industry. It will eventually make the superintendent's job easier." ■

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