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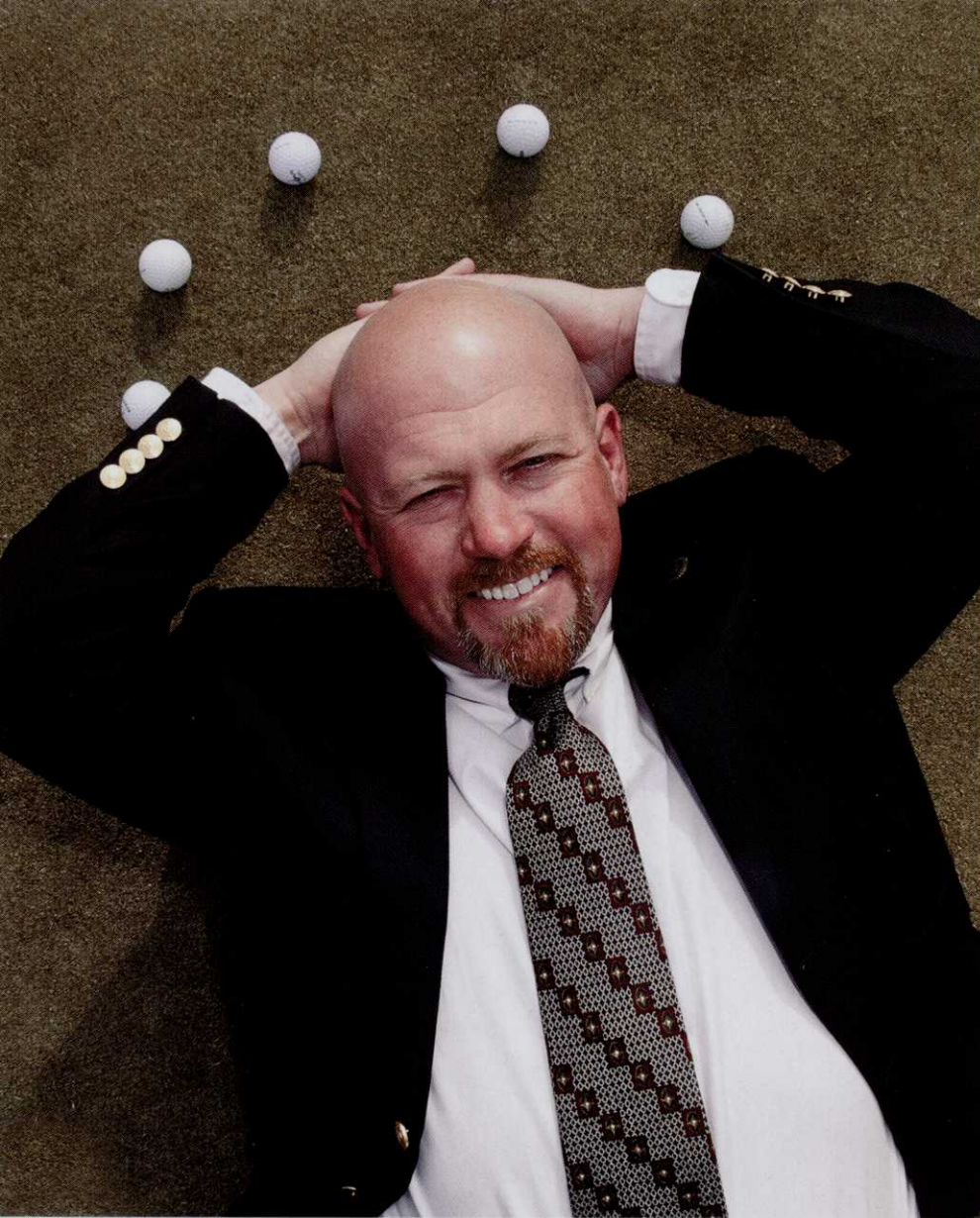
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Aaron Cape's recent experience, albeit brief, with an ultradwarf leads him to wonder why more courses have not made the switch.

experience, reduce costs and reduce the risk of devastating turf loss."

To date, Cape is an advocate. "Certainly, I was pretty happy to have Bermudagrass this past summer. My heart went out to the guys with bentgrass, no doubt. If I could have changed the weather for them I would have done it in a heartbeat because I've been there. There's a lot for us still to discover as these greens mature, but I have to say I'm fairly much a believer that the ultradwarfs are the way to go."

To some degree, maintaining an ultradwarf is not that different from care for bentgrass. "My basic philosophy is the same, it's just you're applying that approach to different seasons," he says. "Winter is our wilt season like summer is to bentgrass. If it's cold, really low humidity and windy then we'll take a hose out there and hit some of the mounds and high spots. Similarly, we don't have the disease pressures in summer like bentgrass but we are on guard in spring and fall. That's when we're scouting our greens."

Cape's fundamental goal is to provide a solid nutrition plan. "I want to make sure that what the plant needs is readily available when it wants it," he says. "Whether it's going into dormancy or coming out, I don't want that plant having to look for anything."

Cape went into this winter far better equipped, both mentally and physically. Mentally, he knows he survived the worst winter many veteran superintendents had ever seen in the region. Chances are he might never encounter a tougher one. Physically, his grass is that much more mature, most of the lingering shade issues have been addressed and to literally cap it off, he now has covers to protect those vulnerable areas that remain.

Rather than overseed, he paints his greens, twice that first summer but "hopefully" only once this time around thanks in part to a prolonged fall that kept a green tinge hanging around longer. He looks forward to spring like a kid waiting for Christmas, when he can get to play with his new toy all over again.

Cape's experience, albeit brief, with an ultradwarf leads him to wonder aloud why more courses have not made the switch. "I suspect it's a question of whether those on the other side of the table are interested," he says. "But I think if superintendents can convince their owners and their golfers, they will not be disappointed. You get a more consistent putting surface year round. You're not having to aerify as much in the playing season. It's a win-win in my opinion. I'm sure with a little more time that more courses will jump on the train." **GCI**

*Trent Bouts is the president of Tee Media Consulting in Greer, S.C.*

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— Aaron Cape



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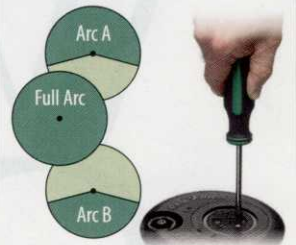
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Though out of sight to members, an irrigation system is an integral part of a course. Set a budget and educate members to look ahead when planning a system upgrade.

# Water *your* Course

Treat an irrigation system upgrade as infrastructure to grow your course for the future.

THIS PAGE: THOMAS BASTIS, CALIFORNIA GOLF CLUB  
OPPOSITE PAGE: PAUL SCENNA, BEACON HALL



By David McPherson

**L**ike open-heart surgery, replacing your irrigation system is invasive, done hopefully only once in a lifetime and best left to experts.

And like your heart, if not maintained regularly, it's prone to breaking down.

"It's not a glamorous topic for the membership," says Paul Scenna, superintendent at Beacon Hall. "You bury it in the ground, you don't see it and members don't even want to see the water run. The whole objective is to hide it, but it's the most important piece of equipment on the course."

In the past, industry wisdom said a system would last approximately 20 years. Today, that's not necessarily the case. "The truth is there are components of the system that a course has to be willing and ready to replace after three years up to about 40 years ... a

lot of golf courses get caught because they don't have the budget for those three-year items," says Tim Fredericks, a principal in the full-service irrigation consulting firm Fredericks McGuire.

A key to a successful irrigation project begins with understanding where this capital investment fits in the club's long-range plan. Do research, hire experts, and don't settle on either the highest or the lowest bid. Gary Taylor, golf irrigation manager, Turf Care, says having accurate records documenting system repairs (materials and labor) is valuable to convince a board/greens committee on the deterioration of the current system and the need for a new one. Have a plan in place to avoid getting caught without the money to finish the project or replace components at a later date.

"Financial planning is always the key," he adds. "Whether money will be borrowed, members assessed or other avenues explored, a new irrigation system is a major purchase that will be in place for many years. Research should be carried out prior to making a decision. Too many people make a purchase based on price alone and then have to live with their decision."

When deciding what type of system is needed, focus on water efficiency, not water use. While it may be unseen, it's a key to maintaining the playing conditions members expect. It's also one of the most expensive line items you will ever have to convince them to pay for. Most systems cost millions of dollars after adding parts and labor. Fredericks tells greenkeepers to treat irrigation as infrastructure. In the short term, this helps sell the system. In

the long term, it ensures the system is built with quality materials and lasts longer.

Go through the entire planning process treating a new irrigation system as infrastructure – the same as would be done to build a new clubhouse or maintenance shop. Fredericks cites Beacon Hall as a project where he used this concept. Since it opened in 1988, the course, located in Aurora, Ontario – just north of Toronto – is regularly recognized among the top 10 courses in Canada. The 241-member equity club had not replaced its irrigation system since the grow-in when superintendent Scenna says corners were cut. He didn't want the same thing to happen this time around, so he relied on Fredericks to help sell the return on this huge capital investment to his membership. Fredericks recalls pulling into the club's driveway and noticing the road was ripped up outside Scenna's shop where the city was installing new water mains. The consultant used this illustration to help members wrap their heads around the scale of the project and the need for the proposed irrigation system.

"Did you see them putting in that huge pipe on the road outside," I asked. "The tax dollars to afford that must be incredible right? I'm asking you to spend a lot of money here; the piping we are using is bigger than the pipe they are using. The pressure we are using is twice the pressure and the velocity is two and a half times. You have to ask yourself: are you putting in a sprinkler system or do you spend the money and treat it as infrastructure and make it last, getting the best dollar value doing it? As a tax payer, would you want to see the same street dug up in 20 years



Look for water efficiency in a system, not just water use.



Get members behind the system as infrastructure.



Budget for the entire project, and replacing components.



Build a system for the course to grow into.



after they've done all that?"

While some clubs can adapt their existing irrigation systems to a new one, due to a lack of pipe size, Beacon Hall had to install a brand-new system, which ended up costing the club more than \$2 million.

"Members always ask: 'Should we put in a Cadillac or a Chevy?'" Scenna comments. "I said, 'We are going to put in a Volvo.' The reason is because we never wanted to come back and do this again. We want to put in something that is quality and long-lasting and keeps the grass safe. In the end, it was a lot of money, but long term, it is going to apply the water the way we want.

"What drove the cost up was the size of the pipe and the amount of sprinklers," Scenna adds. "We chose a lot of sprinklers because

**"Research should be carried out prior to making a decision. Too many people make a purchase based on price alone and then have to live with their decision."**

— Gary Taylor, Turf Care

that is the only way to apply water more efficiently. How available is water going to be three years from now? We want to be able to control and water every part of our property. In the future, the club will be a lot better for it."

What led Beacon Hall to install a new system (besides its age) was a lack of reliability of the current system and, more important, member demands. "They wanted to improve course conditions and to improve course conditions we needed to be more accurate applying our water," Scenna says.

"We had limited irrigation heads before, which would apply water inaccurately and the spacing of sprinklers was not appropriate – they were either too far apart or too close together."

The club is located in the Oak Ridges Moraine – an environmentally-sensitive geological landform in south central Ontario, covering 190,000 hectares. The course gets its water from a well, but they wanted to make sure that if there are further limits on its water use in the future, they could handle any of these restric-

tions thanks to the sophistication of its system.

Scenna started the discussion with members at Beacon Hall back in 2006. After the members voted to go ahead with the project, they narrowed the selection to two manufacturers based on research and past experience. Fredericks drew up plans with sprinklers and piping using the products of both manufacturers, then contractors bid on the job. Once the contractor and manufacturer were picked, the new system was installed in phases in the fall of 2009 and spring of 2010, closing one hole at a time. Scenna was especially impressed with the way the contractor restored the course.

"Restoration is a huge part of the cost when it's an established golf course," Scenna says. "That's

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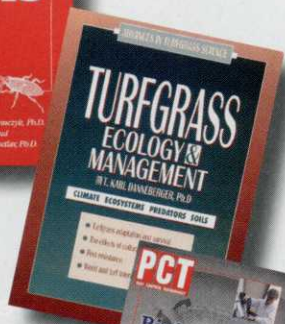
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## IRRIGATION

what the members focus on.”

Rich Wagner, director of agronomy, at North Ranch Country Club, a 27-hole facility in Westlake Village, California, recently replaced his club's 30-year-old irrigation system. The club hired an irrigation specialist and brought in a consultant. The club also relied on the expertise of their USGA regional representative to help sell the need for a new system, which they installed on all three of their 9-hole courses in 2007. They went from about 3,200 sprinkler heads to nearly 6,000. Even at almost double the heads, it does not equate to more water usage. Rather, the new system lets Wagner water more efficiently, saving up to 25 percent, which is critical, especially in the dry California climate. “Anytime you can do that is a good thing for the membership, the owners, and it's also a good thing to share with the community,” he says.

Thomas Bastis, superintendent at the California Golf Club of San Francisco, equates choosing a new irrigation system to buying a computer. “Nobody goes out and buys the base model. You go out and say, ‘There is a chance I'll need to use the Internet and at the same time I may want to use Photoshop, etc.’ So ask yourself, ‘What I can buy that I can grow into?’ and then buy something a bit above your level.”

Another crucial step when planning and designing an irrigation upgrade is to walk the course with the architect or consultant.

“Don't rely on the irrigation designer to lay out your system,” Bastis says. “Walk the course with him. You are stuck with it. Eventually everybody is going to be gone and that first two years are probably going to be your hardest as a superintendent from the standpoint you are responsible for everybody's hopes, dreams and wishes about what they thought or what they were sold on about this project.

“It's like if somebody said, ‘we installed this brand new \$2 million irrigation system, so why the hell are those guys out there on the fairways with hoses?’ You are the one that has to defend everything you do.” **GCI**

*David McPherson is a freelance writer based in Toronto.*

## Why renovate an irrigation system?

- 1. INCREASE AREAS OF COVERAGE**
  - Updated maintenance practices;
  - Different species of turf;
  - Improve playability;
  - Improve aesthetics; and
  - Meet competitive forces from neighboring courses.
- 2. REDUCE MAINTENANCE COSTS**
  - Eliminate system downtime due to repairs;
  - Reduce labour costs to use on other projects;
  - Reduce stress associated with failures; and
  - Utilize updated technology to make their jobs easier.
- 3. INCREASE REVENUES**
  - People will pay more to play a “good looking” course; and
  - Additional funds can be used elsewhere within the club
- 4. UPDATED TECHNOLOGY**
  - Computerized control provides optimum control with a minimum of “programming” time required;
  - Graphic interface of the course when combined with GPS allows precision control;
  - Pump station interface allows interaction and monitoring between the pumps and irrigation system which have always been separate;
  - Newly introduced soil sensing technology allows you to see “under the grass” at infiltration rates, salinity levels and temperature values.

*Tips courtesy of Gary Taylor, golf irrigation manager, Turf Care*



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## IRRIGATING CONTROL SYSTEM DECISIONS

In recent years, technology has born new types of control systems. As with any new technology, they have scared some, excited others and confused even more. Sorting through the irrigation control systems available on the golf market can be a daunting task. Golf course irrigation control systems are expensive, and depending on the bells and whistles you include, the price can vary dramatically. Let's take a quick look at the various control systems available today.

The basic system is a manual system and, believe it or not, they're still out there. But let's move on to a basic automatic system which would consist of standalone field controllers. These systems provide a large step in automation, but the operator usually has a spreadsheet that they've developed over time to make sure the start times don't overlap too much and exceed the water supply capacity. These supers dream of having a central control system that manages the field controllers and allows them to toss the spreadsheet. Of course in today's market we have field controller systems and decoder/two-wire systems. When talking about standalone systems without a central we are usually talking about field controllers, but some manufacturers do make decoder systems that operate from field controllers without a central.

Next, we have the typical golf course irrigation system consisting of field controllers or decoders/two-wire system operated by a computerized central control system, which may include a handheld remote control for field operation and a weather station for providing relative ET values. It may include soil moisture sensors, pump station communication and operational access through a smart phone. These days the options are limitless.

Since this all seems pretty straightforward, where does all the decision-making occur? The computerized central control system is the basic and most important component, but what equipment do you choose from to help the computer out? There are conventional field controller systems and decoder/two-wire systems. You need to decide what type of control system

for the field controller system versus decoder/two-wire systems. A typical field controller system may have somewhere between 20 and 30 controllers for 18 holes. Some are more and some are less, but the controllers would be grounded per location or, depending on your designer, may be grounded per controller. The grounding will include at least a rod, three

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So, let's look at the most controversial difference between the various types of control systems. No, not field controller versus decoder/two-wire, but the **required lightning protection** for each.

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is best for your golf course as well as determine what control system best fits your management style and allows you to sleep at night. Your local sales representative can review the various pros and cons of their basic control equipment versus the competition and why theirs is better. They will also have an opinion on what system you should purchase.

There are views on what the additional equipment each system might require, what isn't required and what the added costs of those items may be. So, let's look at the most controversial difference between the various control systems. No, not field controller versus decoder/two-wire, but the required lightning protection for each.

Certainly with the decoder/two-wire system there is less wire than with a field controller system. Field controller systems also have the cost of the controllers in the field, but these costs are offset by the cost of the decoders themselves or the more expensive costs of the sprinklers. Where the water gets muddy is in the lightning protection – grounding and surge suppression – that is required

rods or a combination of a rod and a plate depending on the design.

Additionally, a good system will have a #6 bare copper wire throughout the system to act as a shield/bonding wire. Grounding connectors would be exothermic (Cadweld type) which is a better connection as opposed to a clamp type. The system might also have a lightning detection system that disconnects both field controller power and communication when lightning is detected. Grounding for field controller systems has been adapted over time and follows for the most part American Society of Irrigation Consultants standards. There is not a lot of variation in what is designed and installed.

On the decoder/two-wire systems the grounding requirements are manufacturer driven. A typical decoder/two wire design might be a grounding "system" every 500 feet or every 15 decoders/solenoids and at dead ends or something similar.

So the question becomes: Is this enough and what does the grounding consist of?

To be continued! **GCI**