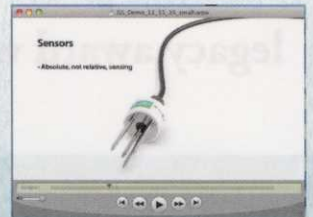


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Members were finally sold on changing from their standard Vesper Velvet for the health of the turf.

# No small task

Charged to rebuild and restore 19 historic Donald Ross greens at Vesper Country Club, MacCurrach Golf Construction meets the challenges. BY TRENT BOUTS

able TV is rife with shows subjecting the cast or contestants to tyrannical deadlines designed to incite drama, conflict and, most gratifyingly for those of us watching, failure. To further fuel the potential fires, some throw in wildcard elements along the way. By those measures, you could excuse Alan MacCurrach for wondering if his work at Vesper Country Club was secretly filmed for an episode of *Extreme Makeover: Golf Course Edition*.

MacCurrach's charge was to rebuild to USGA specs and restore to the original Donald Ross contours 19 greens as well as rebuild 60 bunkers, some tees and a practice area – in 62 days. That's like asking for an archeologist's touch at NASCAR speed and in fading light.

Vesper Country Club sits in the heart of the Merrimack Valley in Tyngsboro, Mass., where the time

between sunup and sundown effectively halves from August to November. Temperatures also slip back and any rainfall sticks around longer too, all contributing to what MacCurrach describes as a “disintegrating window of opportunity.”

The site is bound on two sides by the Merrimack River, demanding an acute degree of environmental care. Silt fences in swales and run-off areas were installed and drain lines terminated in underground chambers instead of aboveground, which limited any surface drainage into the river.

A bridge serving half the course – on an island – could only shoulder light loads slowing what could be hauled to and from. Those “knowns” were so imposing that four of seven contractors that the club met with were “very concerned” and one declared point blank that the timeline



“couldn’t be done” as written. In fact, even Brian Silva, the golf course architect on the project, felt the same way.

Then there were the wildcards, including the fact that no fewer than four of the significant players in the day-to-day operations all shared the same first name. Getting your Chris’s crossed can cause serious issues when they include the construction superintendent, the golf course superintendent and two assistant superintendents. Sometimes there was even a fifth Chris, a tree man, on site.

The real shocker came when, without warning, the sod supplier disappeared and went out of business mid-way through grassing the new greens. After a day of no one picking up the phone, golf course superintendent, Chris Morris, drove through the night to New Jersey to find Vesper’s designated acreage bare and not a soul around. “Eventually the mechanic turned up and said the boss was gone and that he wasn’t coming back,” Morris recalls.

But MacCurrach is fond of saying that any construction job is “won or lost in the first 10 percent of the timeline.” So, true to his word, by the time the sod farm went belly-up and daylight shrank by half, the victory at Vesper Country Club had effectively been secured. “It was a huge issue at the time,” MacCurrach says of the sod debacle. “But no one went into a big panic mode. We were able to respond properly because we weren’t already strung out with four or fingers plugging other holes in the boat.”

Despite the hurdles, known and unknown, and a wafer-thin margin for error, the greens were completed ahead of schedule. Everything else was on time and the \$1.4-million final bill for the entire project came in more than \$80,000 under budget.

It may have been a race to meet the deadline but it was never a rush. “They were fast but

extremely efficient,” Silva says. “And the work was performed spectacularly well. When they were done, you couldn’t tell whether it took the 43 days it did or four months.” Vesper’s superintendent was face-to-face with the MacCurrach team every hour of every day. “I’ve got to say that, to me, it didn’t look like they were cracking a sweat at any point.”

“There was almost a surgical expertise,” says Dr. Paul Kaplan, club president at the time. In fact, more than meeting deadlines and saving money, Kaplan says that “most impressive” to members was the fact of “such minimal damage” to the rest of the course. He points out that MacCurrach also took care to blend renovated areas with existing turf by running sod lines to fixed edges such as cart paths or fairway lines.

Altogether, that is why MacCurrach Golf Construction is a winner in the legacy category of this year’s Builder Excellence Awards. “In our eyes they deserve any and all the accolades they receive. They were extremely talented, professional and delivered everything they promised

**BUILDER:** MacCurrach Golf Construction

**PROJECT:** Vesper Country Club, Tyngsboro, Mass.

**COST:** \$1.4 million

**TERM:** August 24, 2009 to November 6, 2009

**ARCHITECT:** Brian Silva

**SUPERINTENDENT:** Chris Morris

**NOTABLE NOTES:** Upgraded greens for the first time in the club’s 134-year history, yet met the challenge of rebuilding the greens precisely to Donald Ross’ original contours.

and more,” Kaplan says. “They needed to complete a green every three or four days. I mean, that’s a pretty aggressive schedule. And they were done early, which is crazy.”

Vesper Country Club has roots back as far as 1875 and was a charter member when the Massachusetts Golf Association organized in 1903. The club hosted the first Massachusetts Open Golf Championship two years later and it is a high point of pride for the club that the inaugural



Facing a deadline of 62 days, preparation was the most important step of the renovation.



**“We were contracted something like four or five months ahead of the project start. With that sort of notice you can truly allocate your resources.”**

— Alan MacCurrach, MacCurrach Golf Construction

winner was Donald Ross. He would be back 14 years later to design nine new holes and redesign the existing nine on Tyngs Island.

With a history like that, it's hardly surprising that the idea of a full-scale greens renovation worried more than a few of the members, some of whom were also very attached to the grass itself. The Vesper Velvet bentgrass, developed at the club more than a half-century ago by longtime superintendent Manny Francis, who reportedly chewed grass blades to gauge acidity levels, commanded quite a reputation in the northeast in its day.

But times change and not even the old superintendent's elixir of topdressing with sawdust could help the Vesper Velvet keep pace with newer varieties. Poor drainage and compacted soils didn't help either. “When they were good they were great,” Kaplan says. “But we only had great greens three or four weeks of the season and the rest of time they were marginal at best.”

Even so, convincing members, particularly the older set, to make a switch was a project in and of itself. The prospect of a renovation was talked about for several years but always met with resistance. The turning point came, Kaplan says, when members were shown roots from their greens and from a chipping green converted to A1/A4 bentgrass several years earlier. The A1/A4 had roots four to five inches long while the Vesper Velvet was wheezing by on lifelines less than an inch deep. “After that it was easy sell,” Kaplan says.

At least until the economy collapsed just weeks later. Then the “easy sell” almost gave way to a potentially-crippling case of buyer's remorse. But key players at the club thought hard and decided that recessionary times could in fact help them, as Kaplan says, “get the most bang for the buck.” The thinking being that competition for work would attract more qualified contenders while pushing pricing in the opposite direction. That view and long-term aspirations prevailed and on August, 24, 2009 construction began.

Truth be known, MacCurrach stretched

the 62-day window. A construction superintendent had been on site daily for two weeks before anything was disturbed. Because of that aforementioned bridge's weight limitations, a lot of materials like greens mix, rock, bunker sand and sod were delivered in half-laden trucks ahead of time. In fact, most of the materials required for the entire project were on site and quality-tested before day one arrived. Equipment, too, was in place, checked over and ready to roll.

But perhaps nothing ensured the success of the project more than the collaboration between the club and the contractor.

“We were contracted something like four or five months ahead of the project start,” MacCurrach says. “With that sort of notice you can truly allocate your resources. The beautiful thing about that sort of notice is that there's no reacting. You can plan and make all your management decisions proactively.”

MacCurrach also pays tribute to Kaplan, who served in a bridging role between the contractors and the members. According to MacCurrach, there was no half-load on that bridge.

“It's a tough, tough job but he did it awfully well. Not good, not decent. He was fantastic,” MacCurrach says. “Having someone who does a good job in that role is a common denominator in all really successful projects. Don't get me wrong, [Kaplan] was no pushover. He held our feet to the fire. I didn't like him every day, I promise you.”

From Kaplan's point of view, his job was made easier because the MacCurrach team was so direct and upfront all along. “I remember them coming up to me and making it really clear that for the first two weeks it would look like a war-zone,” he says. “Their superintendent, Chris Kleinsmith, said, “For the first two weeks you can't say anything to us. You'll just have to trust us.””

One of the factors strengthening that trust was the tanking economy that had threatened to kill the project before it started. By the time work began, MacCurrach's workforce, which

topped 300 during the boom years, had been whittled to less than 100. But those who were left were all what MacCurrach describes as “sergeants, lieutenants and colonels.”

“We don't have as many soldiers now but everyone in the entire company is absolutely willing to play that role when it's needed,” he says, and Vesper Country Club was the beneficiary.

As much as the giving up the Vesper Velvet was an issue for members, their biggest concern was retaining the integrity of the contouring on the Ross greens. The club paid for the greens to be scanned with digital terrain modeling which uses a variant of laser technology to capture contours in data form. Armed with that data, MacCurrach was able to reproduce the green surfaces to within the order of 1/16th of an inch.

A similar miniscule margin for error was applied to the project budget and accounting. MacCurrach employed a GPS device on site every day to provide almost real-time tracking of progress. As items were built the master as-built was updated and quantities recorded so the club and the architect could make adjustments, effectively on the fly. Through weekly construction meetings, they knew how much was being achieved for what was being spent all along, and because some of the work turned out to be less expensive than projected those funds were able to go towards tweaks elsewhere.

There's a long-standing theory in business that the best way to attract new customers is to invest in marketing or improving your product when everyone else is sitting on their hands, something that tends to happen in a recession. Vesper Country Club's experience since the renovation bears that out.

Kaplan says membership, which had dropped below 300, was now on the edge of capacity at 350.

“When the golf course is bad it seems like everything else is bad,” Kaplan says. “You get more complaints about the dining room, the pro shop, you name it. But now everything is great. The golf course is spectacular.”

For the record, Silva steadfastly maintains that he was correct in his original declaration that a project of this scale just couldn't be done in the 62 days allowed.

“They got it done in far fewer than that so, you see, I was right,” Silva says. “They couldn't do it in 62!” **GCI**



Not only was Frontier Golf restricted to nine holes each season, the holes were grouped by proximity rather than by sequence.



# Precision and strategy

Frontier Golf sculpted Donald Ross's original vision to recreate the characteristics of Army Navy Country Club when it was first laid out in 1924.

BY TRENT BOUTS

Given a site so steeped in history as Army Navy Country Club in Arlington, Va., a desire to restore the golf course to a showpiece of the game's golden era makes perfect sense. Presidents have played here. Some, like Eisenhower, Nixon and Kennedy, were members along with icons of the nation's military — think LeJeune, Nimitz and Bradley.

The same soil also bore the footfall of Union soldiers bringing wounded to a hospital from the Battle of Bull Run. Convinced

of a long campaign ahead, which we know as the Civil War, Lincoln ordered the land, boasting some of the highest ground outside the capital, be fortified. Today, only sparse remnants of Fort Richardson's parapets and ditches remain.

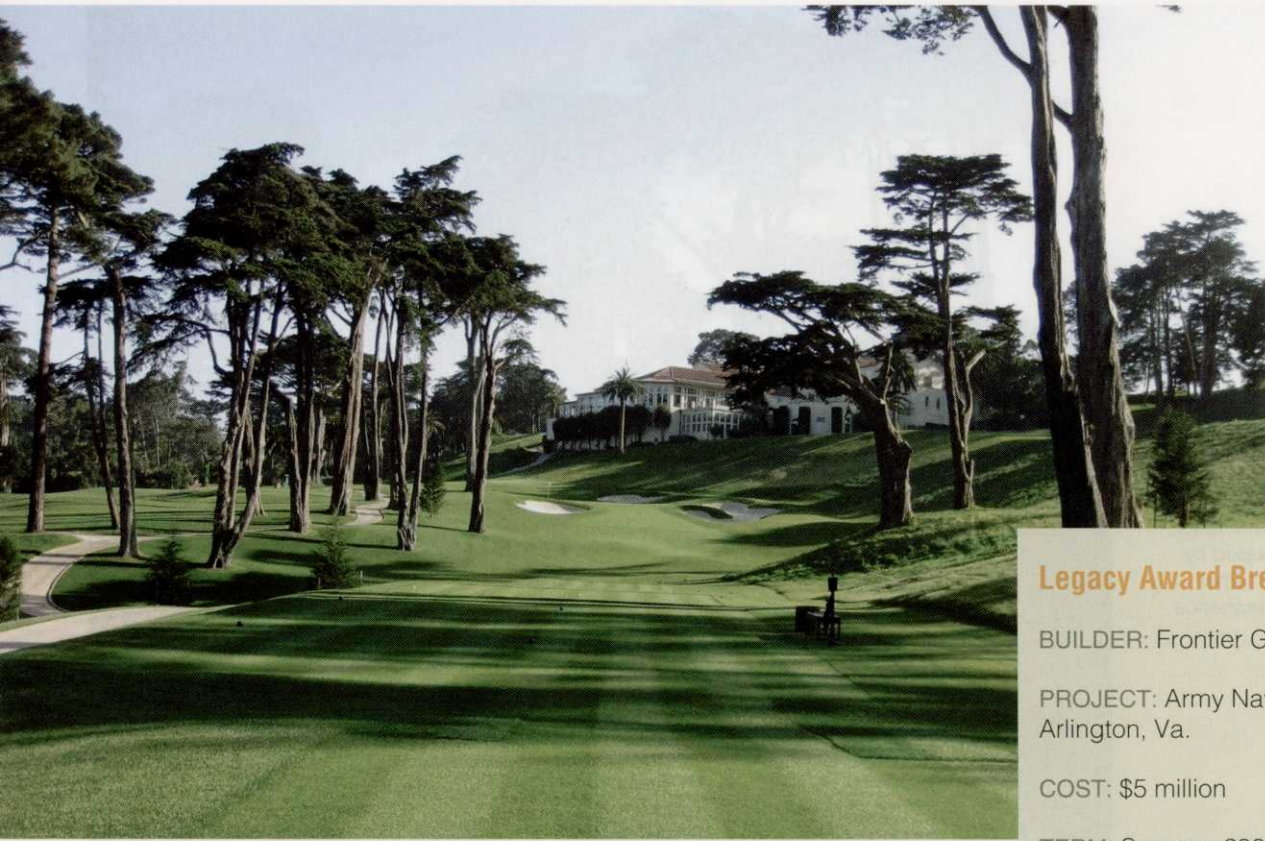
The broad sweep of that past surely resonates with the veterans and members of the armed forces who enjoy the Arlington facility's 27 holes. But while it factored little into how Frontier Golf went about renovating the golf course, it is fair to say that the complex nature of the project very much demanded military precision and a general's command of strategy.

From 2007 to 2009, Frontier would have — from mobilization

to grassing — just two months each summer to complete nine holes. That left 18 holes open each season which was doubtless welcomed by members but a major constraint on how and when Frontier moved about the property. The nine holes they could work on each year were not sequential, either. Rather, they were in clumps chosen more for their proximity to each other.

That meant Frontier worked like a Hollywood director shooting scenes by location instead of the narrative. The trick then is making sure that the jumble that's been created fits and flows seamlessly once order is imposed. Nuance and tone matter as a story unfolds just as they do on a golf course, particularly one





With a heavily varied history, the golf course hid underground mazes of old irrigation lines, power cables and terra-cotta piping, complicating infrastructure renovation.

designed by Donald Ross.

At Army Navy, the goal was to recreate the characteristics of the course when it was first laid out in 1924 in the midst of what is often referred to as the Golden Age of golf course design. The club retained Pinehurst, N.C.-based architect Richard Mandell for the project, which suited Frontier just fine given that they had worked extensively and successfully together in the past.

“The logistics were a real challenge for them,” he says of the hurdles Frontier had to overcome this time around. “The budget was tight but the real challenge was being so limited in where you could move and how little disturbance was allowed.” Mandell likened the myriad constraints to “working in a straightjacket.”

“And you’re working on pieces of different nines at the same time,” he says. “But then to float everything together so well, like they did, they just did a wonderful job.”

Some of the straps on that straightjacket included the fact that golfers were always playing nearby and the rest of the club continued to function as normal. That limited what

traffic could move where, when and at what speed. Residential neighbors also meant the golf course was subject to restrictions on noise and working hours.

But perhaps the most visible restraints came in the form of erosion fences. The Arlington facility – Army Navy also has 27 holes in nearby Fairfax – sits astride a stream that runs through the base of a valley. Pretty much every hole drains towards the stream. Some points are as much as 140 feet higher, which meant Frontier had to work with earthmoving’s version of kid gloves and devote considerable resources to maintaining that fencing. “It had the makings of an erosion control nightmare,” says Frontier’s president and CEO, Nick Scigliano.

Nowhere near as obvious but just as constricting was the fact that the irrigation system had to remain operational throughout, even while it was completely replaced. Scigliano believes his company’s ability to piece together that jigsaw itself was critical. Indeed, he says, their ability to handle every aspect of the work in-house was a major reason for finishing on time and in line with the \$5 million budget.

### Legacy Award Breakdown

BUILDER: Frontier Golf

PROJECT: Army Navy Country Club, Arlington, Va.

COST: \$5 million

TERM: Summer 2007 to June 2010

ARCHITECT: Richard Mandell, ASGCA

SUPERINTENDENT: Bob Wilbur

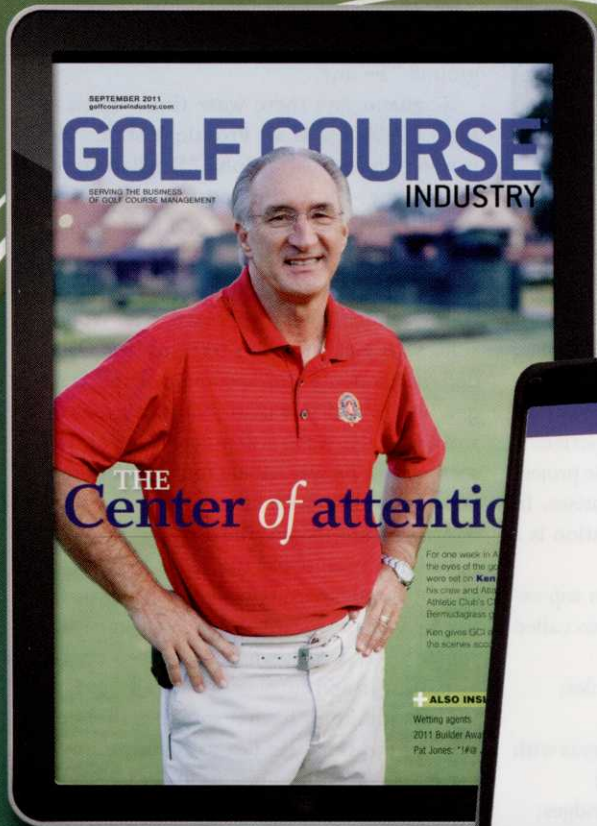
NOTABLE NOTES: Faced with a number of restrictions and challenges, the builder split the project into three phases, kept the course open throughout the duration of the project and finished according to the original timetable.

“We had tremendous autonomy all along because we didn’t have to rely on contractors,” he says. “It was a total renovation, most everything was touched but we did everything, from grading to sodding, to asphalt paving and drainage up to storm drains as big as 48 inches. But the biggest one, I think, was being able to do our own irrigation. We could be very flexible where we focused our resources. If we had a wet day, and that last year we had a lot of rain, we could move onto something else.”

In such tight windows of operation each year there was minimal room for lost productivity, although there was plenty of opportunity for it. Built so long ago and tinkered



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Scigliano: "In my experience, every project that doesn't go well is the project when the clients are met with surprises. In this work I think too much information is a good thing."

with ever since, the golf course also served as a kind of graveyard for old irrigation lines, power cables and terra-cotta piping, none of which were ever recorded on any as-built map. That was where the tenure of golf course superintendent, Bob Wilbur, and frequent site visits by Mandell proved invaluable.

Wilbur has been at Army Navy for 32 years, the last 22 as superintendent. With that experience he was able to help Frontier's crew make sense of infrastructure they "discovered" as they went. With Mandell on site weekly, Scigliano says, "We were able to quickly make decisions and get approval to move forward and remedy situations without delays. Richard would make decisions right then, there was no, 'Oh, let me think about it.' He knew what he wanted and he'd make the call."

Scigliano also credits Frontier's project construction superintendent, Doug Show, who was also the main man on the Olympic and Bedford Springs projects. "He's our top guy," Scigliano says of Show. "We've done a lot of work with (Mandell) before, so Doug's very familiar with his processes and that helped us make up some ground on the greens where we probably underestimated the amount of work involved with the erosion control."

Another reason why no hiccups ever became full-blown indigestion was that, as is his habit, Scigliano talked up grim along with the glowing before a speck of dirt was even moved. "I always get the 'what ifs' out there on the table so no one is surprised," he says. "We talked at great length before we put a shovel in the ground and I painted a more

difficult picture than we were probably going to encounter. People always tend to look at me after those meetings and think of me as really pessimistic and negative. In my experience, every project that doesn't go well is the project when the clients are met with surprises. In this work I think too much information is a good thing."

There was a lot to talk about. On top everything cited above, the project also called for Frontier to:

- Install new drainage for all 27 holes;
- Reroute and redo cart paths;
- Replace turfgrass in out-of-play areas with native; vegetation in no-mow zones;
- Demolish and rebuild existing bridges;
- Replace the old pump station;
- Remove a number of hardwood trees;
- Regrass the entire course and
- Rebuild every bunker.

That last element was a big one. The scalloped or jagged edging Mandell called for to elicit that feel of an older time required "a lot of pick and shovel" work, Scigliano says. "It was simply too intricate to use any kind of machine and Richard was very particular about how he wanted those bunkers to look."

Another aspect of the project that could have caused some frayed edges of its own was the personnel rotation on Frontier's end. With the volatile nature of the industry over the past few years, Frontier used three different crews in each year of the renovation. Smaller crews in 2007 and 2008 were replaced by a much larger crew of about 50 people under Show's command in 2009. That workforce enabled

Show to complete the final stage and also attend to the kind of detail necessary to blend everything that had been done previously.

Army Navy was able to provide valuable constants in superintendent Wilbur and director of golf, Greg Scott. Mandell says Scott's work communicating with members over the course of the renovation was "fantastic."

"Greg did some value engineering on his side too, and if not for him working so well with the members to explain the rebuild, the project might never have gotten off the ground," he says.

Scigliano says there were times when it felt as Wilbur was on Frontier's staff. "He was so tremendously helpful," Scigliano says. "Sometimes you run up against a situation when something comes up and the attitude from the club side is, 'Hey, this is your job, it's your contract, it's your problem.' If you start with that kind of approach, where both sides start guarding their territory and their dollars, then you can become isolated very quickly. Not in this case. Bob was great to work with. He was a real problem solver. He seemed like he was having fun and our guys enjoyed working with him."

After so long tending the property, it would have been reasonable to expect Wilbur to almost resent these outsiders coming in to tear up what he regarded as a "really nice old course" — especially when they were going to be moving in and out over three years. Today, Wilbur admits to having some "apprehension" at the time. He just as readily admits his fears were ill-founded. "It was a great experience and it seemed like their people got better and better each year," he says. "We just worked great together. There were no hidden agendas, no head-butting, no egos involved. If we had concerns we just worked it out. Nick (Scigliano) and Doug (Show) were very open and willing to resolve and issue and there was never any nickel and diming."

The end product has delighted the Army Navy membership numbering about 2,400 across the Arlington and Fairfax facilities. Although with families included, the number of golfers is closer to the 4,000 bag tags the club distributes. By Wilbur's measure, the Arlington golf course is every bit the facility to do justice to a new \$50 million clubhouse currently under construction.

"The golfers love it. They absolutely love it," he says. "I never thought I could feel any better about this golf course than I did before but, wow, it is really something special now." GCI

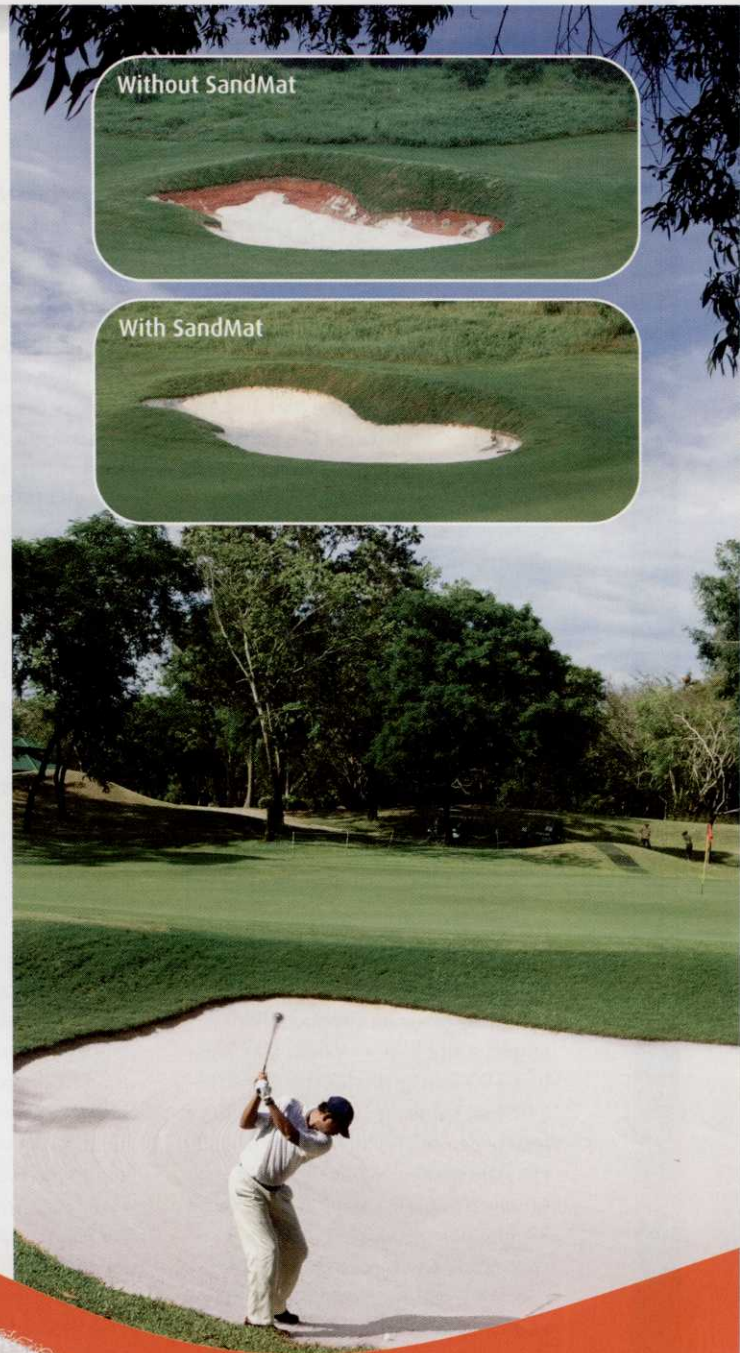


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## HOW MANY ROWS?

When you think about irrigating a golf course, the type of irrigation system is many times characterized by fairway row spacing – single row, double row, triple row and multiple row. It is assumed that the more rows, the more coverage, the higher the cost and the more sophisticated the irrigation system.

Although some of these generalizations may still apply, characterizing the irrigation system by the number of fairway rows is no longer an accurate description of the total system.

For many years single-row systems were the norm, but due to poor efficiency and uniformity they are pretty much obsolete.

After single row, there was double row which made the fairway watering more consistent, and then triple row which covered more of the rough.

As the number of rows increased, the sprinklers spacing generally became smaller, the flow per sprinkler less and, in some cases, the sprinkler operating pressure dropped. For example, a single-row system may have had a 90-foot sprinkler spacing with a 91-foot throw at 100 psi using 56 gallons per minute. Changing to double row, the spacing drops to 75 feet, pressure to 80 psi and flow to around 33 gpm per sprinkler. Triple rows commonly have spacings of 65 feet, operating pressure as low as 60-65 psi and 22-gpm flows. Costs increase as there are more sprinklers, pipe, swing joints wire and controllers. There is also increased coverage both in terms

of total irrigation coverage and effective irrigation coverage.

Referring to Table 1 you can see that as the rows go up so does the overall and effective coverage even though the spacing is getting smaller. The table assumes the sprinkler throw is the same as the spacing and effective coverage is 60 percent of the sprinklers. Any sprinkler has 60 percent effective coverage, which you may remember from being taught in irrigation class or a seminar.

**“As a superintendent, manager or owner it is important to understand the traditional ways of talking about the scope of irrigation systems coverage has changed.”**

The above is easy to understand, but quickly is becoming history. Today's irrigation systems are characterized more as “wall-to-wall,” five-row or something else. The traditional descriptions are not applicable.

Wall-to-wall is pretty simple. The irrigation system is covering everything from property line to property line. If it's planted, it's irrigated. I guess “property line to property line” is too much of a mouth full. Five-row would lead you to believe there are five rows of sprinklers as opposed to one, two or three, but in reality there are only three. A five-row system is actually used to describe a system that has separate ins and outs at or close to the fairway cut so the fairway and rough can be irrigated separately.

There are five sprinklers in a row, but they are not spaced the same distance apart. The other interesting fact is that a five-row system typically has less total and effective coverage area than a three-row system even though there are more sprinklers. Intuitively, it doesn't make a lot of sense.

These days you also see more customized sprinkler layout. Systems may be fairways-only which is sort of a triple row, but might be a double row or more a combination of both. On a

links-style course, you might have a system that is natural or fescue areas and the rows can be two, three, four or more. Additionally, with these systems, the layout may vary from hole to hole. One hole could be several rows of sprinklers, while another only two rows or a hole will have different numbers of sprinklers across it as it plays tee to green depending on width.

As a superintendent, manager or owner it is important to understand the traditional ways of talking about the scope of irrigation systems coverage has changed. More definition and understanding of exactly what you want is needed.

Make sure your irrigation designer is listening and understands and comprehends what type of coverage you want for your golf course. Rarely anymore does one size fit all, and with today's sprinkler and control equipment there is really no limit to how you can have your irrigation system laid out, both for the whole course and for each individual hole. **GCI**

**TABLE 1**

Sprinkler Spacing	Irrigated Width	Effective Width
Single Row – 90 Feet	180 Feet	108 Feet
Double Row – 75 Feet x 75 Feet	225 Feet	159 Feet
Triple Row – 65 Feet x 65 Feet	260 Feet	208 Feet