Turning up the heat at Pebble Beach Golf Links

U.S. Open site installs heating system underground to keep 5th green from going dormant early

By Frank Pollard

There are heated sidewalks, swimming pools and skating rinks. But a heated golf course green?

The answer is "Yes" — at Pebble Beach Golf Links, where the new owner, Ben Hogan Co., is going to great lengths to prepare for the United States Golf Association's 1992 U.S. Open Championship.

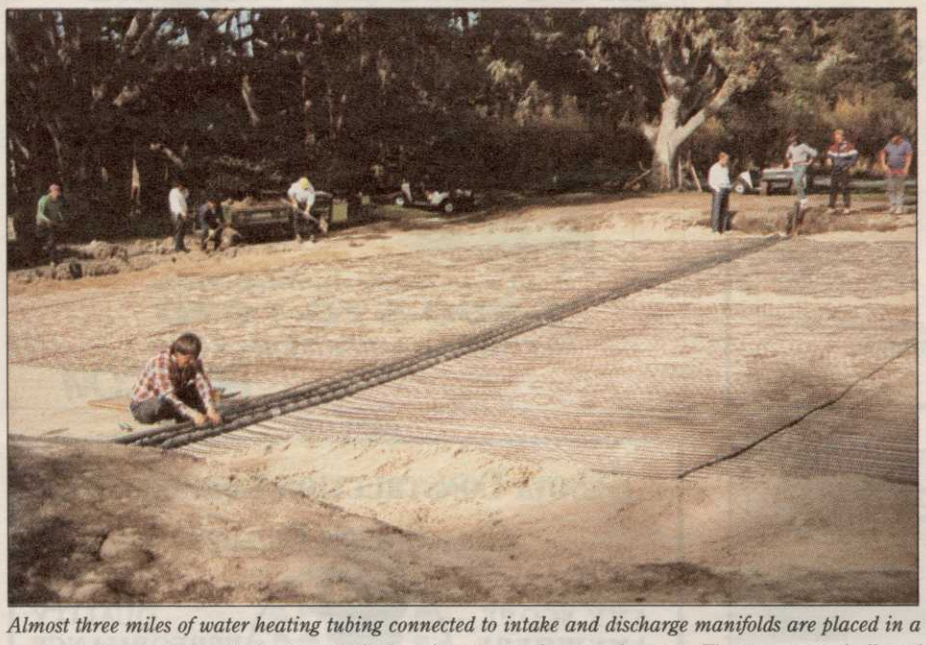
Brad Hines, superintendent at the Pebble Beach course, said the 5th green posed the greatest, and most unique, problem in the course's massive greens reconstruction project.

He explained that because of the angle of the sun's rays during the winter months, the tree-lined and heavily shaded 3,400-square-foot 5th green receives only an hour or so of direct sunlight daily. As a result, its soil surface temperature was as low as 37 degrees — well below dormancy-inducing temperatures of around 50 degrees. Since the turf was in a semi-dormant state, the green was unable to recuperate from the heavy play during the winter months.

Unable to cut the trees, some of which are on neighboring property, Pebble Beach has installed a heating system beneath the green's surface to control the soil temperature.

"Taking a lead from people who were very proficient in commercial greenhouse heating, plus some assistance from Augusta National Golf Course officials who had done a similar job on their 12th green, we went ahead, designed and installed the heating system," Hines said.

Ed Connor, president of Golforms in Ponce Inlet, Fla., and a member of the United States Golf Association Greens Committee, added his expertise. Using laser measurements, he provided computer graphics of the topographical profile of the green so it could be rebuilt simply to its original design.



Almost three miles of water heating tubing connected to intake and discharge manifolds are placed in a precise pattern prior to applying 11 to 12 inches of root-zone mixture to the green. The green was rebuilt and in play in about three weeks.

To conform to USGA specifications, contractors excavated the green to a sub-grade 19 inches below the surface, cut in the herring-bone drain system, laid down four inches of pea gravel, and two inches of coarse sand as a choker layer and dusted on about two inches of root zone sand mixture as a heat-loss buffer prior to installing the heating system tubing.

After installing the manifold and tubing, an additional 11 to 12 inches of root-zone mixture was applied and the green sodded with poa annua (annual bluegrass).

The system is designed to thermostatically control the sub-surface temperature of the green at approximately 55 degrees when it is in operation, Hines said. Soil sensors, placed strategically throughout the green, start up the system when temperature dips below 50 degrees.

The closed-loop, 38-gallon water system consists of a remotely located gas-heated water boiler and pumping system. It maintains a constant pressure of 30 pounds per square inch, a constant flow rate of 14 gallons per minute and a temperature of 140 degrees of the heated water flowing beneath the green.

Simple in design, it consists of two-inch intake, discharge and pressure-stabilizing manifolds, to which more than 15,000 feet of three-eighths-inch surgical or industrial rubber heating tubes are connected. The tubes carry warm water from the manifold system throughout the green and back through the manifolds to the boiler.

To maintain constant flow and pressure, all heating tubes must be 87 feet long and laid out parallel, three inches apart. When they meet at the boundaries of the green, they are curved and overlapped to conform to the peripheral shape of the green and provide a heated buffer zone between the periphery and the unheated adjacent surrounding soil.

Meanwhile, the grounds crew found through soil probes that the tiny 5th green had a build-up of 18 to 24 inches of sand around the periphery which, over the years, had caused a bowl-shaping effect that reduced the putting surface considerably.

"Refurbishment, then, also afforded us the opportunity of leveling and enlarging the green slightly (to 3,900 square feet), which provided a better and larger area for player traffic access," Hines said.

Officials won't release the cost of the 5th green project and don't yet know how much it will cost to operate the heating system.

Ed Miller, director of golf course operations at Pebble Beach Co.'s golf courses on the Monterey Peninsula, said consultant Jack Nicklaus, and Miller's crew have taken other steps to restore Pebble Beach Golf Links to its original 1919 design. Jack Neville and Douglas Grant were the original architects.

Innovative methods were used to eradicate a course-wide infestation of Kikuyugrass and renovate all greens, bunkers and tees. On-shore sea winds, combined with 60,000 golfers annually, had produced inconsistent putting surfaces.

All the greens are poa annua, except holes 4, 5 and 7. These three, a year earlier, were re-sodded with creeping bentgrass since poa annua was not commercially available at the time. But it was quickly apparent they were suffering serious turf problems.

With the U.S. Open close at hand, the reconstructed greens were sodded in poa annua to assure that all putting surfaces were consistent.

The poa annua sod was stripped from greens also undergoing renovation at Pebble Beach Co.'s inland Del Monte Golf Course in nearby Monterey.

Miller said: "We are seeing some very positive results from our renovation and restoration efforts and they will continue during the current year. We look forward to the course being in the best shape it has ever been in for next year's U.S. Open as well as the AT&T Pebble Beach National Pro-Am."

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