

upgrading your system

Irrigation To Fit The Course

by George W. Kerr
Southwest Region Consultant
National Golf Foundation

The irrigation system of a golf course is the means of transporting water from the source and dispensing the water in a given area at a given time in a given amount. Where it is pumped and how, the time lapse of pumping and delivering, flow rate, etc., are all familiar terms to an irrigation contractor, hydraulic engineer or a trained golf course superintendent.

But to a club member, golfer and paying customer, these terms are foreign. All the golfer cares about is the ability of the green to hold his pitch shot or to be able to take a lush divot in punching his iron shots. Without adequate water to propagate turf, problems develop.

At a private club the member will probably complain to the pro who in turn will amplify his report to the superintendent that all is not well on the course. The daily fee operator or municipal pro-manager may never receive a warning of this type. His customer may not return and in addition, may spread the word that the turf is mediocre and go elsewhere.

To remodel is to make over. I prefer the word renovation, which means to make new again, restore to good condition, make over in new or better form, invigorate and refresh. This is the exact result of an upgraded irrigation system. Occasionally, some actual remodeling or reshaping of greens, tees and traps is done in conjunction with the installation of the improved water system, depending upon the degree of renovation. Over a period of years our courses mature and change. In like manner, the design

methods and new irrigation system concepts have evolved from the hose sprinkler to the sophisticated "wall-to-wall" automatic systems of today.

Consider the course with the manual or quick coupler method of watering. Someone must place and replace those sprinklers each time they are used. This person or persons must be paid. Now that the minimum wage has increased again, and the fact that it is difficult to keep responsible people on the job, the fact of watering at night makes the economics of automation more desirable. According to Harris, Kerr, Forster & Company, golf course maintenance costs jumped 6.9 percent this past year. The cost of irrigation materials and supplies rose even higher. Thus even if your course does have manual irrigation, the basic determining factor leading to remodeling or renovation is the wealth or health of the individual course.

Renovation is generally done for one of two reasons. Either you have to upgrade and improve the system because of leaks, or it is desirable and the necessary capital is available. The older courses, which had fine watering systems when they were built, may now be relics of the "horse and buggy" era of golf course construction and maintenance.

Being mechanical, water systems are subject to wear and tear. Any number of things could and do happen underground, especially when pressure is applied from within the system and from elements outside the system. Mineral content of the water has a bearing on the buildup inside the pipe, as will sand or other impurities from the source passing through the

valves and filters. The chemical composition of the surrounding soil will also have an effect on the life of the pipe. Thus you have rust, rot and mold on the outside and rust and mineral concentration on the inside. Some galvanized pipe deteriorates quite rapidly and may look as though it has been in the ground several years, when in fact it may have been installed only one season earlier.

The outside forces of stress can come from tree roots, burrowing rodents and in some areas of the West, earthquakes and tremors. And, if not buried deep enough, heavy equipment can smash or crush pipe. When a change is being considered for your irrigation system, there are many things to consider: Who is going to do the work? How much work is going to be done and over what areas? What will it cost? How long will it take? Will we have to close the course? Actually, the prime considerations in renovating the water system are: (1) what is the condition of the existing pipe? (2) is the existing pipe adequate for the system to be installed? When these factors are determined, then the length of time and cost can be determined by an experienced contractor.

Cost of the installation will vary with each contractor and the amount of work available at the time he is contacted. In any case, it would be wise to interview only those firms with prior experience in golf course installation. Some firms prefer to trench the job, thus creating scarred fairways until the grass takes over again. Unless sod is replaced over the trench. Some soil types necessitate trenching as the only means of laying pipe. Another method is to plow the pipe in and dig holes only where valves and fittings are necessary. This is generally a less expensive method of laying pipe, when soil type permits.

Use of old lines. The extent to which old lines will be utilized also has a direct bearing on the cost of renovation of the system. Sometimes it is cheaper, because of the contractor's time, to install an entire new system than to make do with the old pipe and fittings. Chances are that the pumping station will have to undergo some changes. Pumps wear out faster than any

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other item in the system because of friction and pressure. New switches, gauges and other monitoring devices will also be necessary for the newer systems. The "as-built" plans of the system would be handy to have for the contractor and could save money with careful planning. However, this is generally lost after a period of years and changeover in personnel. Many courses were built with a route plan only and no plans remain.

Some clubs have to do any type of irrigation work on their own with their own people. In many cases this is the only way the job will be accomplished, regardless of the outcome and cost. However, the present-day irrigation contractor has the materials, men and equipment to get the job done in a minimum amount of time and inconvenience to the golfers. His services may cost more than volunteer efforts of the men's club, but he should leave a warranty or guarantee on the parts and/or labor for a period of time. Some manufacturers are offering up to a 10-year warranty on certain parts. Some examples of remodeling and renovation of irrigation systems are:

Patty Jewett Municipal Golf Course is in Colorado Springs, Colo. This 27-hole facility gets heavy play, more than 125,000 rounds last year. Yet the course was not closed during the renovation procedure. One fairway or hole was closed at a time for a period of about three days each. The contract called for the new pipe to be plowed in rather than trenched. Thus, the damage to the turf was minimized and practically nonexistent. The only areas needing to be trenched or opened were for placement of valves and tie-ins to the existing pipe. The job was done in 89 days (weekdays only because of heavy play on weekends) during the summer of 1973 for a cost of about \$215,000. This included 40,000 feet of pipe, modifying the fairway watering system to include a two-row system for 18 holes and changing over a two-row quick coupler system on nine holes to complete automatic. This job demanded 500,000 feet of wire and 1,200 sprinkler heads. Some pipe was usable from prior installations, but for the most part, galvanized swing joints showed extreme wear

and were leaking after six years in the ground.

Tinker Air Force Base Golf Course is in Oklahoma City, Oklahoma. This project involved upgrading of nine holes with a single-row fairway system, plus tees and greens coverage. The cost of this work was near \$50,000. Due to limited funding, this system is operated semi-automatically. A valve must be turned manually for each segment of the system in order to activate the sprinkler heads. At a later date, plans have been made to plow in the necessary tubing and wiring plus the automatic controllers to facilitate an entire automatic system.

Advance planning. Trooper Park Golf Course is also in Oklahoma City. This is an 18-hole municipal facility that made a different renovation. This bid called for a complete new system. Thus, a single-row system, including tees and greens, was installed and automated for about \$135,000 in 1973. Houston Country Club in Houston had no choice but to install a totally new system in 1973 and chose the electric

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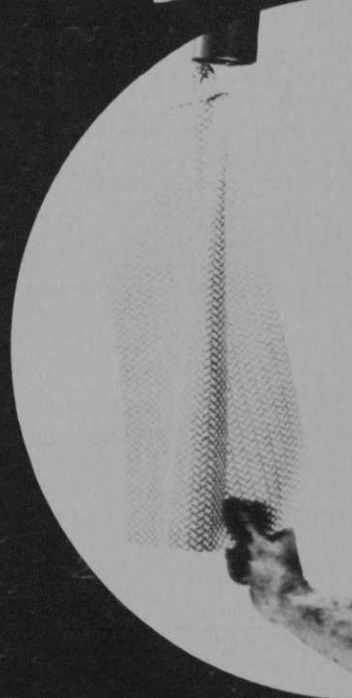
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automatic at a cost of about \$100,000.

The cost and availability of the necessary materials to complete an irrigation system today requires a good deal of advance planning. In many cases, an additional 25 percent would have to be added to the total to compete with 1975 market circumstances. For this reason many systems that have been designed to be fully automatic are being compromised in order to get some form of automation into the basic water system.

Each golf course is unique in that it is one of a kind, because of the many varying factors of climate, topography, soil type, etc. The same factors hold true for the irrigation system. It is one of a kind, and cannot be mass-produced in a factory and assembled piecemeal on the site. For this reason it is imperative that expert advice be obtained prior to any renovation work. Most recognized golf course architects do this type of redesign and renovation work. Some irrigation supply distributors offer a water system design service. Some manufacturers of irrigation equipment have qualified personnel in the field to assist a club with the proper advice and suitable equipment. Whatever the situation may be, if upgrading an irrigation system is a priority, advice should be sought from someone who has done this type of work before. You will be time and money ahead. □