

Modernizing Watering System Using Some Old Piping

By C. E. (SCOTTY) STEWART

MANY golf courses are considering the rehabilitation of their irrigation systems and a modern high pressure fairway, tee and green system of irrigation can often be designed at a considerable saving when all or some of the existing pipe can be used.

Numerous hose-type systems now in use consist of pipe paralleling the fairways with hose connections at points on the pipe line; others merely supply water for tee and green irrigation. There are instances where a tee and green system of ample size has been called on to also provide water for the fairways, the result being that the pipe became greatly overloaded and much of the initial pressure at the pump, or source of supply, became lost by pipe friction due to the increased velocity. This in turn necessitated numerous sprinkler settings, due to low water pressure, to cover the fairways.

Investigate Old Pipe

Before a decision is made to use any of the old pipe in a new high pressure fairway irrigation system the condition of the pipe should be investigated by uncovering it at points. Where black, or galvanized, steel pipe has been in use for 20 years or more it will often be found to be badly rusted and pitted, thereby weakening its structure. Furthermore its interior is often built up with scale and rust thereby greatly reducing its carrying capacity.

Where such cases are encountered a club would be well advised to not use any of the old pipe in the contemplated new system for it would give considerable trouble and create a costly maintenance problem.

However there are many excellent old type systems in use where all of the pipe is in good condition and can be used. Where such a condition exists the first step is to obtain a correct scaled drawing of the piping system. Unfortunately such a drawing is not often available. It has either got lost over the years or in some cases a drawing was not made.

However even when a drawing is available it is always good engineering practice to verify it by staking out and measuring the footage of pipe in the field. In fact unless the drawing is of recent de-

sign it is often more misleading than helpful for over the years since the system was first installed many changes take place on a golf course — tees, greens and sometimes even fairways are moved to a new location; this means additions to a piping system which are rarely entered on the old drawing.

Pipe Locator Makes Job Easier

Most of the pipe on a golf course irrigation system lies in a shallow trench but there are cases where it has been buried below the frost line. In either case its location can be readily determined by the use of a modern pipe locator.

Two men experienced in the use of such a pipe locator can accurately stake out from two to four miles of pipe in one day.

Once the pipe is located and its size determined a scaled drawing should be made so that points on the line can be selected to run flow tests in order to find the carrying capacity of the pipe.

Stake New Valve Locations

The next step is to then stake out in the field the locations of the new sprinkler valves and when this is done a survey of these valves is made, the result being that a correct scaled drawing of the course as it actually exists is obtained which shows all of the new sprinkler valve locations plus the location of the existing pipe.

This data then permits the engineer to design a modern irrigation system making full use of all of the present pipe.

Where sprinkler valves are to be located in the center of the fairways it is often possible to tap into the existing main in the rough and run lateral lines at right angles to these fairway valves.

There are also cases where it was found economical to continue a new pipe line down the middle of the fairway and connect it in at each end to the existing main in the rough. This form of construction provides a parallel piping system and the engineer is quick to make full use of this additional carrying pipe capacity in his hydraulic computations.

Use Old Pump for Light Work

It is often found that an old tee and green system of irrigation is supplied by a rather small pump which is unsuitable

for the higher pressure and greater volume of water that is required for a modern fairway, tee and green system. Although a pump capable of producing approximately 500 g.p.m. with a residual pressure of 90 lbs. p.s.i. at the sprinklers is required for a modern system, the old pump can often be retained in service for the daytime use of small quantities of water such as is required for flushing in fungicides and insecticides thereby providing a flexible and economical pumping plant.

Hurricanes Add Expense, Cut Income, of Clubs

By HOMER C. DARLING

Juniper Hill GC, Northboro, Mass.

HURRICANE CAROL hit August 31 and hurricane Edna September 11. Here at Juniper Hill the wind velocity from Carol (80-100 mph) was slightly greater than Edna and therefore caused more damage in this area to trees, phone service and electricity.

A large area was without electricity from 3 to 7 days and repairs were completed just in time to be knocked out again by Edna. Provision spoilage with the home owner was pretty general from the first hurricane but they were better prepared for Edna with ice, candles and kerosene lamps.

The damage here from Carol was not serious, a few trees, many limbs and general debris over the course. The greatest damage at Juniper Hill came from Edna with extremely heavy rains; 6 in. in 14 hours making a total of 12 in. in 14 days. The brooks and rivers already at full height spread all over the place.

Four holes were out of play for a week. One green was under water 2 days. However, there has been practically no damage to the turf except isolated depressions holding water for two weeks or more.

Actually the monetary loss to this course and other nearby daily fee courses was mostly in green fees. Even though the courses flooded after the Edna hurri-



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