

# FROM WATER PROBLEM TO RESOURCE ASSET

by GORDON SMITH

PUBLIC INFORMATION SPECIALIST  
USDA SOIL CONSERVATION SERVICE



The Orleans CC in northern Vermont, with help from the Soil Conservation Service, turned a multi-faceted water problem into a resource asset

*Beadle (left, above) and Dunbar in initial stage of digging new irrigation pond. Fairway (left) was swampy before the drain tiles were installed.*

Too much water or not enough water. Most golf courses experience one or the other as a problem. For the Orleans CC, near Orleans in northern Vermont, the problem was not either/or; this course had both problems simultaneously. One part of the 18-hole course usually was too dry while another part had developed unexpected water hazards on the fairways.

Although wet and dry land problems are not uncommon in New England's glacier-ravaged hills, it is unusual when both problems butt each other.

Seven of the 18 fairways had been built on sandy soil, which acted as a sieve, resulting in dry conditions. Yet the other 11 holes, spread out over clayey soil, developed water hazards because clay, naturally, retains water.

The original nine-hole course was built in the 1920s over an old country fairgrounds site. The flat meadow was ideally suited for the development of the new course, and six holes were laid out on the open plateau. Three holes doglegged through an adjoining wood.

The dry soil presented problems even to those early golfers, but still the course was considered one of the better ones in the area.

The Depression, followed by World War II, precluded the club's management from starting an expansion of the course until the early 1950s. At that time, a growing membership and increasingly lucrative tourist trade forced club officials to act on the longstanding plans to expand and improve the course.

One of their first moves was to become a co-operator with the Orleans County Natural Resource Conservation District. This move made the club eligible for technical conservation planning assistance from the United States Department of Agriculture Conservation Service. Roger Beadle and Herb Dunbar, SCS technicians for Orleans County, worked with the club's green committee in planning numerous improvements to the land and of water resources.

The club purchased a new tract of land upon which was constructed nine new holes. Also, the clubhouse was modernized. These projects mo-

*continued on page 40*



3001 REDHILL AVE., BLDG. 4, SUITE 204  
COSTA MESA, CALIFORNIA 92626  
TELEPHONE: A/C 714, 557-2097

## AMONG THE OVER 300 GOLF COURSES DESIGNED BY OUR FIRM.

Atitamao Golf Club, Papeete, Tahiti  
Oceanic Properties's Milliani Golf Club,  
Honolulu, Hawaii  
Larwin's Paradise Pines Golf Course,  
Paradise, Calif.  
West Glacier Golf Club, West Glacier, Mont.  
Otis Air Force Base, Massachusetts  
Benguet's Horse Thief Country Club,  
Tehachapi, Calif.  
Mid Pacific Country Club, Kailua, Hawaii  
(redesign)  
Lewiston Country Club, Lewiston, Idaho  
Sherwood Forest Golf Course, Sanger, Calif.  
Jants's Los Robles Greens Golf Club,  
Thousand Oaks, Calif.  
Olomana Golf Course, Honolulu, Hawaii  
Hangman Valley Muni, Spokane, Wash.  
Jackson Hole Golf Club, Jackson Hole, Wyo.  
Chimney Rock Golf Course, Napa, Calif.  
Four Hills Country Club, Albuquerque, N.M.  
Lawry Air Force Base, Colorado  
Butte Creek Country Club, Chico, Calif.  
Coconino Country Club, Flagstaff, Ariz.  
Crane Creek Country Club, Boise, Idaho  
Hickam Air Force Base, Hawaii  
Corral de Tierra Country Club, Salinas, Ca.  
K. I. Sawyer Air Force Base, Michigan  
Swallows Nest Golf Course,  
Clarkston, Washington (2nd 9)  
Leeward Golf Course, Honolulu, Hawaii  
Los Altos Muni, Albuquerque, New Mex.  
Cody Golf Club, Cody, Wyoming  
Shore Course, Monterey Peninsula Country  
Club, Pebble Beach, Calif.  
Hacienda Hotel Golf Course,  
Las Vegas, Nevada  
Tyndall Air Force Base, Florida  
Reames Golf Club, Klamath Falls, Oregon  
Pasco Muni, Pasco, Washington  
San Joaquin Country Club, Fresno, Calif.  
Davis-Monthan Air Force Base, Arizona  
Azusa Greens Golf Course, Azusa, Calif.  
Richards-Gebaur Air Force Base, Missouri  
Lew Galbraith Muni, Oakland, Calif.  
McChord Air Force Base, Washington  
Bend Golf Club, Bend, Oregon (2nd 9)  
Titan's Yosemite Lakes Golf Course,  
Coarsegold, Calif.  
Stead Air Force Base, Nevada  
Grass Valley Country Club,  
Grass Valley, Calif.

For more information circle number 179 on card

## WATER PROBLEM from page 39

nopolized the interest of the committee and the finances of the club for the next few years.

With the arrival of a new professional, Al Bontempo, who took over the management of the grounds, a concerted conservation effort took shape. Bontempo, working with Dunbar, began extensive plans to relieve the soggy fairway problem and to irrigate the dry, desert regions of the course.

"You could see a line across the course," recalls Bontempo. "One side of the line was brown and dry. The other side had fairways that looked like lakes after every rain."

Inadequate drainage was cited by Bontempo and Dunbar as the villain responsible for the problems. They devised a plan to install sample tile drain as a first step, mainly to convince club officials of the feasibility of the plan. A 300-foot tile line was designed and installed in one of the wet areas. The immediate result was obvious, even better than predicted.

Says Bontempo, "The improvement was so dramatic that the club immediately voted to lay more drain tile."

Over the next three years, 7,450 feet of tile was installed on parts of seven fairways. The 17th fairway typified the operation. Here, 1,475 feet of tile was installed nearly the entire length of the fairway. With a trench dug 4½ feet deep, gravel was spread six inches deep to form a filter for the perforated tile line. The six-inch tile ran downhill from a point at the upper end of the 18th fairway, across the 17th fairway to outlet into a small pond in front of the 17th tee. A series of four-inch lateral drains ran at angles to the main line to pick up underground water in all the wet parts of the fairways. With the pipe laid, the ditch refilled and the sod replaced, the fairway was ready for golfers in a few days. Six other fairways in the near future will get similar drainage systems.

"Before the tile drainage job, the wet fairway was usually too soft to mow for several days after a rain," says Bontempo. "Now we can drive a truckload of rocks over these areas with no trouble."

About 2,000 feet of tile still is

needed to complete the drainage job, according to Dunbar. That is scheduled to be installed over the next few years.

Cost estimates for the entire drainage job come to about \$10,000. An investment that is well worth it, say club officials.

While solving the wetland problem, the club was simultaneously working out plans to get water to the dry fairways. The small pond near the 17th tee was enlarged to double its water-holding capacity for irrigation. The 17th fairway tile drain furnished part of the water supply needed to keep the pond filled. As a side benefit, the enlarged pond offered a bigger challenge to golfers' games.

To add to the water supply, Dunbar designed a one-acre pond in a wooded area beyond the 15th green. This impoundment now stores 1¼ million gallons of irrigation water. Trout have now been stocked in the pond as an added recreational feature for members.

The two irrigation ponds are linked with an underground pipe system that can reach any of the dry parts of the course. Actually, water that was causing a wet fairway problem on part of the course is being siphoned off to keep the other part of the course green.

"Before we had this irrigation water, we had to use the town's water system," says Bontempo. "This public supply was costly and usually restricted, especially in dry periods when we needed it most. Now, we have more than enough water for irrigation."

The new pond cost \$5,000. The irrigation bill was \$60,000. This, plus the tile drainage work, represents a lot of money; but club officials feel that, pro-rated over a few years, the club actually will benefit because of increased use of the course by members as well as reduced operational and maintenance expenses.

Reflecting on the improvements, Bontempo says, "Our conservation work has changed our Orleans club from a marginal course into one of the best in northern New England. With a \$30-a-year membership fee, this has to be one of the best bargains in the golfing world today." □