their young. All woodpeckers are considered primary cavity excavators. Each spring, woodpeckers abandon old nest sites and excavate new ones as part of their mating rituals. This paves the way for what is referred to as secondary cavity nesters. Since these birds cannot excavate their own holes, they simply take up nest sites abandoned by the primary cavity excavators. Examples of these birds are the tree swallows, nuthatches, pygmy owls, and kestrel falcons.

The Oregon Golf Club is located several hundred feet above the Willamette River, with spectacular views of the Cascade Range. Due to the close proximity of the course to the river, the existence of numerous Douglas firs, and an ongoing commitment to enhance wildlife habitat, Superintendent Anderson decided to try this idea on the golf course.

Two large Douglas firs that had died on the golf course presented a good place to launch the new project. These trees were strategic to the play of the fifth hole, so the decision was made to create natural looking, 30-foot-high snags. The process took approximately two hours for preparation, detonation, and cleanup. The best part is that the cost was minimal when compared to complete tree removal.

A second site was located behind the No. 9 tee, in a forested area within a quarter mile of the Willamette River. The top of a 100-foot Douglas fir was taken down using the same procedure. Since ospreys frequent the area, a platform was constructed with careful attention given to maintaining perching limbs 5 to 6 feet below the platform. Again, the cost was minimal, and, best of all, the tree is within view of the clubhouse for future observation. Hopefully, an osprey pair will utilize the nest site within the next year.

As a final note, The Oregon Golf Club is a fully certified cooperative sanctuary within the Audubon Cooperative Sanctuary Program administered by the Audubon Society of New York State. Superintendent Anderson practices some of the finest IPM programs found in the Pacific Northwest. To his credit, only $1,100 was spent on pesticides during 1994. Although pest pressures are relatively low in this area of the country, reduced pesticide usage should be the goal of all superintendents.

The use of dynamite may seem extreme; however, it has worked very well in Oregon and at The Oregon Golf Club. Perhaps the next time a "tree hugger" takes you to task, the best response may be to simply "blow your top"!

Power Drainage for Healthier Turf

No Slope? No Drainage? No Problem!

by CHUCK GAST
Former Agronomist, State of Florida, USGA Green Section

IF YOU HAVE isolated low areas at your facility where the lack of outfall prevents the use of standard gravitational flow drainage systems, here is a viable solution to your problems.

Thanks to an affordable forced drainage system devised by Walt Oswiany, CGCS, of the Audubon Country Club of Naples, Florida, your problems of not being able to effectively drain low areas on your course are over.

Walt has developed a drainage sytem involving a series of standard french drains, lined and filled with stone, connected to a large sump basin, equipped with a pump, to move excess water up and out of problem drainage areas.

This power drainage system is a welcome addition to Walt Oswiany's overall golf course management operation.

The first step in this process was to install a large sump basin in an out-of-play area utilizing a perforated aluminum pipe measuring 5 feet long by 32 inches in diameter. This basin was placed on concrete block footers to prevent excessive settling. An area approximately 3 feet in radius around this pipe was backfilled with ¾-inch gravel, and a Phillips geotextile fabric liner (#8 NP) was used between the native sandy soil and backfill material to maintain a clean, porous zone around the catch basin.

Lateral drainage lines were then dug to the problem drainage areas. These trenches were also lined with the same geotextile fabric material used around the catch basin, and the trenches were backfilled to within 6 inches of the surface with the ¾-inch gravel material. Note that special attention was given during installation of the fabric to allow enough material to overlay the surface of the rock within the trench. The remainder of the trench was topped off with a coarse sand material to reestablish a smooth, rock-free surface.

The main component of this power drainage system, a Teel brand #3 P5 11 110-volt, ⅓-horsepower sump pump purchased from the Grainger Corporation, was installed within the sump pipe. This pump is equipped with a built-in pressure-sensing switch to provide automatic operation. This particular pump is also equipped with a ½-inch discharge port to effectively move from 2,300 gallons of water per hour at 20 feet of head pressure to as much as 4,450 gallons per hour at only 5 feet of head pressure.

For a power supply, this particular setup, requiring an operational load of only 6 amps, was tied to an adjacent condominium building with an agreement made to pay the condominium association a fee of $100 per year.

At a more remote location on the course, a similar sump pump drainage system was installed in 1993 utilizing a nearby irrigation satellite as the power source. The amperage draw available through the irrigation control system at this site was matched with an appropriately sized pump to complete this arrangement.

As Walt reported, this system has performed flawlessly over the past 18 months. This speaks quite well for this drainage method, which has run virtually non-stop since installation, due to the fact that lack of rainfall throughout the state of Florida in 1994 definitely was not an issue!

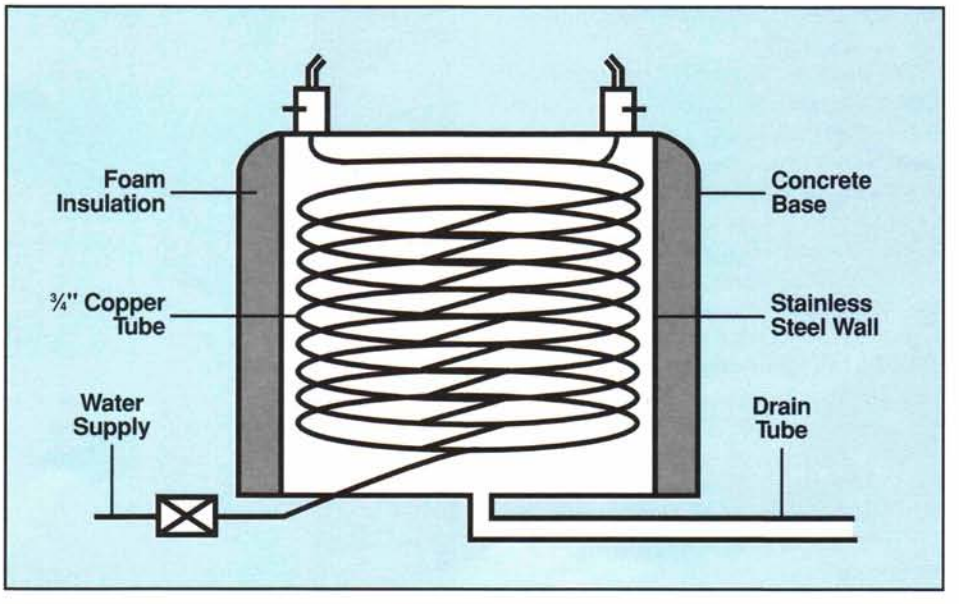
As for cost of installation, a total of about $3,000 per drainage system was spent. This figure includes backhoe rental, geotextile fabric, gravel, sand, perforated sump pipe, and pump.

So, to correct those previously "impossible" drainage problems, try putting this power drainage solution into service. Efficient removal of excess surface water equates to increased potential revenues and better quality turf as the course can be opened for play much sooner following excessive rainfall activity. Furthermore, a reduction in pesticides can also be realized, as overall healthier turf conditions can be produced and maintained on a consistent basis.

Cool, Clear Water (Without Electricity)

by JAMES F. MOORE
Director, Mid-Continent Region, USGA Green Section

THE GREENS are perfect, the fairways immaculate, and the tees pool-table level, but the players are still ready to tar and feather the superintendent. Why? Because there is no cold water on the course! Ask any superintendents and they will quickly confirm that among the most vehement complaints they field during the summer concern the availability and quality of the drinking water on the course (followed closely by the availability of toilet paper). While cold, clear water is usually not much of a problem on those courses fortunate to have 115-volt wiring throughout the property (usually installed at the same time the irrigation system was last replaced), most golfers must rely on the superintendent to



A permanent, clean, and nearly tamper-proof source of cold water — without electricity.