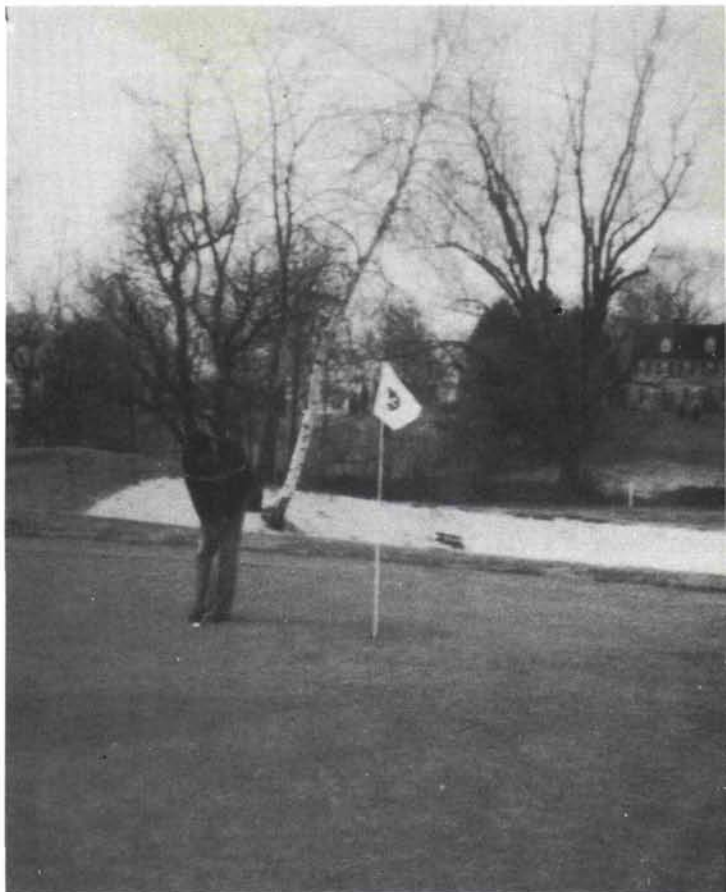


# “Three Years of Experience with A USGA Green”

by **BOB PHIPPS**, Superintendent,  
Shorehaven Golf Club,  
East Norwalk, Connecticut



*Shorehaven golf professional Kelly Moser, putting on USGA green in late March. This green was ready for play — all older greens were too wet and soft.*

*In the May, 1976, issue of the Green Section Record, the article “Mair Sand, Honeyman” by Stanley J. Zontek appeared. It reviewed the advantages of using high sand content for greens. One golf course superintendent’s efforts in constructing such a green was discussed. In that article, it was promised that a follow-up report by the golf course superintendent, Robert Phipps, would appear at some future date. His report follows after three years of living with a USGA green.*

**I**CAME TO the Shorehaven Golf Club in Connecticut in the spring of 1972. At the time the club decided to initiate a long-range golf course renovation program, including the reconstruction of some putting greens.

We decided to build the first new green in accordance with the USGA Green Section Specifi-

cations for Putting Green Construction. The first step was to send samples of sand, soil and organic matter to the USGA Green Section Laboratory for analysis and determination of the proper top soil mixture. They recommended the use of eight parts of the sand we have available and two parts of our humus (8-0-2). (See Figure 1.)

To shorten the length of time the new green would be out of play (and lessening the membership inconvenience associated with new putting green construction), we decided to first develop a sod nursery. It would be 15,000 square feet in size and constructed with the same top soil mix as planned for the new green. Thus, we would avoid a soil layering problem when the nursery sod was brought into place. Penncross creeping bentgrass was dormant seeded in the nursery at 1½ pounds per 1,000 square feet.

In the fall of 1974 we reconstructed our sixth green precisely to the Green Section specs and sodded with the turf from the nursery. It was easily opened for play the following spring.

The following is what we found in maintaining a USGA green over the past three years.

### FERTILIZER

Our older, heavier-soil greens normally are very lightly fertilized and receive between 2½ and 2¾ pounds of nitrogen per year. However, when fertilizing the new nursery and green, we have used from three to five pounds of nitrogen.

A word of explanation is due. When we constructed the nursery, we placed eight inches of the sand-humus mix over native soil. The root system developed exceptionally well and went through the eight inches of top mix and into the native soil below. We started fertilizing in the spring with ½ pound per 1,000 square feet of nitrogen per month in April and again in May. The turf responded well and filled in quickly. By the end of the season we had applied a total of three pounds of nitrogen. The reason so little nitrogen was used is because we did not have an extensive drainage system under the nursery. However, extensive drainage was built into the new green, thus a greater leaching loss and need for more nitrogen.

During the first year with the USGA green, we applied approximately four pounds of nitrogen per 1,000 square feet. We felt this was a lot when com-

pared to what the other greens on the course receive. However, the new green did not wear or grow as well as expected. In 1976, we applied over 4¾ pounds of nitrogen. The green was better, but still not up to par. This past season, we applied slightly over five pounds of nitrogen and the growth, wearing quality and putting quality greatly improved. We feel that we now have a fertility program that will work and give us the desired results.

We supplemented the applications of nitrogen with superphosphate and sulfate of potash as per soil tests to achieve slightly over a 4-1-2 ratio of N-P-K. Iron and magnesium were also applied periodically throughout the season. We feel this balanced fertilizer program gives us the best results.

### WATERING

Shorehaven is located on Long Island Sound in Norwalk, Connecticut. We usually have a regular breeze coming in off the water. This makes it necessary to water our older greens every morning and to syringe every afternoon during periods of stress.

The USGA green is watered "deep" every three or four days and is never syringed. We sometimes find we have to shorten this watering interval, not

Results of the soil analysis that was made for Shorehaven.

MISSISSIPPI STATE UNIVERSITY AGRONOMY DEPARTMENT GOLF PUTTING GREEN SOILS LABORATORY POST OFFICE BOX 5248, STATE COLLEGE, MISSISSIPPI 39762 PHONE: AREA CODE 601 - 325-4181 OR 325-5660 DR. COLEMAN Y. WARD - DR. ROLLIN C. GLENN				SOIL ANALYSIS AND REPORT										
				SAMPLE NUMBER: MSU - GPGSL - 73 - 56										
				DATE: July 27, 1973										
				SENDER OR CLUB: Shore Haven C. C.										
				ADDRESS: East Norwalk, Conn.										
PARTICLE SIZE ANALYSIS											pH 1:1 H <sub>2</sub> O			
SOIL MIX MATERIALS	GRAVEL >2 mm (> 9 mesh) %	TOTAL SAND (9-300) mesh %	SILT .002-.05 mm (<300 mesh) %	CLAY <.002 mm %	SAND FRACTIONS									
					VERY COARSE 1-2 mm (9-16 mesh) %	COARSE 0.5-1 mm (16-32 mesh) %	MEDIUM 0.25-.5 mm (32-60 mesh) %	FINE 0.1-.25 mm (60-140 mesh) %	VERY FINE 0.05-.1 mm (140-300 mesh) %					
Sand	5.05	92.4	2.04	.51	7.9	21.0	46.7	14.8	2.0					
Loam A	18.4	40.1	33.49	8.01	5.1	6.8	1.7	10.0	6.5					
Loam B	2.4	42.9	44.93	9.77	4.2	9.0	11.2	9.8	8.7					
% Ash = 14.6														
MIXES EXAMINED (PARTS IN TEN)			BULK DENSITY g/cm <sup>3</sup>	% PORE SPACE		INFILTRATION RATE-INCHES OF H <sub>2</sub> O/HOUR	PERCENT MOISTURE RETENTION AT PRESSURE INDICATED						MIX. pH	LIME NEEDS lbs/1000 sq. ft.
SAND	Loam SOIL	Humus AMENDMENT		CAP.	NON-CAP.		40 cm of H <sub>2</sub> O	1/3 atm	2/3 atm	1 atm	3 atms	6 atms		
10	Loam A 0	0	1.44	21.0	24.5	8.5	14.5	.69	.69	1.2	.54	.52	6.9	
9	0	1	1.59	24.2	23.3	5.2	17.4	2.7	2.6	3.0	2.2	1.6	6.5	
8	0	2	1.24	29.3	23.7	3.4	23.7	4.7	3.8	4.3	2.9	2.4	6.5	
8	1	1	1.38	28.7	19.3	3.2	20.8	4.4	4.2	4.8	3.4	2.7	6.5	
7	1	2	1.32	34.7	15.3	1.2	26.4	5.3	4.2	4.5	3.1	2.5	6.3	
8	Loam B 1	1	1.42	29.5	16.5	2.9	20.8	8.0	8.6	4.3	3.2	2.4	6.2	
7	1	2	1.28	35.1	16.9	.68	27.6	6.7	6.5	6.3	5.0	4.2	6.3	

Soil was analyzed as received (100% moisture) and uniformly incorporated to a six-inch soil depth



August, 1977,  
a super putting green!

because the green actually requires water, but because the mounds surrounding it (on different soil) are drying out and showing the need.

#### **DISEASE**

With the excellent drainage and a longer time between watering, fungicides can be applied every two weeks. Our older greens are sprayed weekly.

#### **WEEDS**

We have had no trouble with weeds. A pre-emergence crabgrass control is the only herbicide we have applied. *Poa annua* invasion over the past three years has been minor.

#### **INSECTS**

We have had cutworms in the USGA green, but not any more than the older greens. Overall, we have experienced no special insect problem at all on this green.

#### **OTHER OBSERVATIONS**

Golf shots hit onto the USGA green hold well. For this reason, and because of excellent drainage and a deep root system, aerification can be greatly reduced, if not completely eliminated. It is in marked comparison with our older greens where these operations are normally scheduled.

Interestingly, the sand in our bunkers is the same as used in our top soil mixture. When it is blasted on the green, it disappears quickly. After three years we have not observed any "layering"

condition caused by sand on the edge of the green. In fact, the sand exploded out almost acts as a top-dressing. We feel the normal sand accumulation will not cause problems.

In the past few years we have found more of our members playing golf later in the fall and when weather permits, in the winter. We allow play on frozen greens. The only time we close our greens is in late winter or early spring when they begin to thaw and become soft and prone to foot printing. However, because of its high sand content, the USGA green thaws and becomes firm faster in the spring and is not as soft and mushy as the older, heavier-soiled greens. If we had all 18 USGA greens, we could open much earlier in the spring, thus certainly pleasing many of our golfers.

#### **CONCLUSION**

The USGA green has been found to use more fertilizer than the other greens, but this is greatly offset by a saving in water, aerification and fungicides, plus the labor to do these jobs. Being able to play the green earlier in the spring pleases the membership and could be a source of additional income. This would be especially true on municipal golf courses.

At present we are reconstructing the tee on our par-3 15th hole. The topsoil will be the same 80 per cent sand/20 per cent humus and sod will come from our nursery. We are looking forward to a tee that will have firm footing for a good golf shot and good turf year-round.