

**THE BULL SHEET, official publication of the  
MIDWEST ASSOCIATION OF GOLF COURSE  
SUPERINTENDENTS.**

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## President's Message

Over the past two years a lot has been accomplished in the Midwest Association of Golf Course Superintendents. The credit for these accomplishments goes to the members for their progressive thinking and most of all to the Board of Directors that has served you during this period. It has been a very rewarding experience to work with such a fine group of people. Our association has a bright future and we are only experiencing the beginning of an exciting future for our profession.

Several years ago we decided to bolster the educational offerings of the Midwest Association of Golf Course Superintendents. There is no doubt that the quality and quantity of our education is at an all time high. Similarly, our golf events have become something to look forward to with a challenging event every month. It isn't easy to coordinate 120 golfers each month and handle the scoring and prizes. A lot of credit goes to all of the people working on the Golf Committee. Our monthly meetings are big events and a lot of coordination is necessary to check people in, take the fees for the day, feed 120 people, pay the bills, etc. Making arrangements with the clubs is a time consuming job that we often take for granted. Providing membership services through our membership committee and executive secretary is an important function of the association. I can't begin to tell you the number of hours required to handle our monthly routine tasks. We have made every effort to expand our membership services and evaluate the needs of the entire membership.

Our long range planning committee was established two years ago to look to the future for the MAGCS. This committee has done an excellent job of planning ahead. A committee of this nature will often be controversial as the group is looking at change. It is difficult to keep a proper balance between tradition and change. I can assure you though, that the MAGCS is prepared to meet the needs of the industry and our membership in the years that lie ahead.

All of our officers have done a super job in supporting our programs over the last two years. There has been a lot of responsibility delegated to the officers. The officers were up to the task and performed admirably. It has been a super bunch of guys to work with. The association is in very good financial shape. We have adequate funding to run our current programs and have planned for the funding needed to support future programs.

There were two more committees that originated over the last two years. Both the Commercial Member Advisory Committee and the Past Presidents' Council were developed as information sources to help guide the association. The past presidents have helped in keeping our operations in focus. The commercial members have been given a collective voice as they are an important part of our association and our industry.

The **Bull Sheet** continues to thrive and will always be one of the premier publications in our industry. Our editor is the best. Nothing else compares.

My hat is off to all of you that made my job, as your president over the last two years, an enjoyable one. The membership entrusted me with the responsibility of leading the biggest and best chapter in the country. I have been enthusiastic about that challenge and hope that you all appreciate the progress we have made during this period. Thank you to all for your cooperation and support.

**Bruce R. Williams, CGCS**  
President

## Director's Column



by Timothy Kelly  
Secretary-Treasurer, MAGCS

So far the 1991 golfing season has been real interesting at Village Links. I have been dealt a very interesting hand for this season. A lot of my plans, and my focus had to be drastically altered so far for this season. It all started last winter. When I went out early this spring some turf on certain greens and fairways was DEAD. I believe that this winter kill at my golf course was the worst I have ever seen.

Dr. Randy Kane wrote an article on the winter kill in the greater Chicagoland area. He did a very thorough job of explaining the causes of the winter kill and the impact upon the turf and playing surfaces. The article appeared in the Chicago District Golfer Magazine. I thought that it was a well written article, it was done timely, and I think it was very helpful to any Superintendent who suffered winter kill on his course. I want to thank Randy for providing this information to golfers throughout the Chicago District.

My main focus so far has been to gain turf from where it was lost on greens and fairways. I was really upset about the turf lost on the greens. This has never happened to me except when the C-15 turf was lost to the bacteria wilt back in 1982. Instead of lamenting over the lost turf, my superintendent instincts had me taking a proactive approach involving many different techniques and approaches. This involved many seedings, topdressings, some supplemental fertilization, and even some sodding. I have had some successes yet still have some work to be done. What about the future? Well, I certainly don't want to have this problem again. What will I do? This is a problem where I will utilize my years of continuing education, to help develop a new strategy for the greens. This education is a real strength, where our profession has done an excellent job, providing us with: new information, research, and technology. I feel that there is a wealth of opportunity for myself and other superintendents. All I need to do is to take advantage of it! The spring of 1992 and beyond will continue to offer challenges and interest to all superintendents. One of our best resources is our sharing of information and our development of continuing education within our profession.

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## Architects' corner

**Robert Trent Jones Jr. has this to say:**

"Wetlands are the key to golf course development in the 90's."

### **Wetlands!**

The very word throws fear into the hearts of developers, architects and builders. On the other hand, it sets off red lights and sirens with governmental offices and regulatory agencies.

With today's satellite photography, the government has been able to obtain pictures of every acre of land in the country and every body of water. Even the smallest puddle remaining after a heavy rain seems to qualify as wetlands under today's definitions.

If golf is to prosper in the '90's, and satisfy the pent-up demand for new courses, golf is going to have to reach a reasonable, working relationship with governmental authorities.

### **Environmental hurdles**

Nearly every golf course project today faces a series of environmental hurdles from sometimes conflicting authorities — national, state and local. Each project is dealt with as an individual case and there are few standards that are interpreted uniformly across the country.

The policy of most offices of the Corps of Engineers and the EPA is "no net loss", which means that developers must restore or create wetlands equal in size to any that they destroy in the course of construction. In actuality, however, many governmental agencies have called for restoring or rebuilding two to three times as much wetlands as used for the golf course.

This, of course, can greatly increase the cost of the golf course, and in some cases, actually kill the project. Often developers become discouraged during this permit process and decide to look for another site. Or, the project can be approved on a 1-to-1 basis and then field inspectors (usually from another agency) call for 2:1 or 3:1 mitigation once construction begins.

### **Interesting Pilot Project**

Lake County, Illinois, is planning a \$10.2 million renovation of a 450-acre marshy parcel to study how wetlands relieve flooding, support plants and animals and purify water. A combination of state grants, funds from the EPA and private donations have paid for the initial work, but an additional \$2.2 million is needed to build more experimental wetlands.

This is the type of research project that is desperately needed because those of us in the golf business genuinely believe that rebuilt wetlands, designed to replace those used for a golf course, can be every bit as effective in preserving the environment as natural wetlands.

In the Lake County areas that went into operation earlier this year, water levels are controlled mechanically with sluices and pumps. The marshes planned in the next phase would be "passive" areas where water levels rise and fall naturally. By studying differences between the passive and mechanically controlled, areas, researchers hope to improve techniques for restoring or preserving the fragile habitats of swamps and marshes.

Recently, I have been actively involved in the regeneration of an existing wetland at the University of Wisconsin Golf Course in Madison, Wis. In this case, the wetland limits were clearly defined and staked in the field with strict erosion and construction damage protection measures applied. The par-3 third hole bisected an upland prairie directly adjacent to the established wetland.

(continued page 4)

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(Architect's Corner cont'd.)

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With the emphasis on preserving America's wetlands, the country, as well as the game of golf, needs the type of information promised by the Lake County and University of Wisconsin projects, as well as similar ones planned in other areas. Modern technology can be the bridge between preservation and well-planned development.

*Robert Trent Jones Jr. is president of the American Society of Golf Course Architects, which has offices in Chicago, IL.*

**Credit: GCD&O/Spring 1990**

## Water Usage

**G. Tyler Miller, Jr., "Living in the Environment"  
In Turfgrass Environment, Summer 1989**

The average American uses 1,800 gallons of water daily:

- Direct Person Use — 8% daily use (per person)

Bath: 30-40 gallons

Shower: 5 gallons/minute

Cooking: 8 gallons

Toilet flushing: 3 gallons

Lawn sprinkling: 80 gallons/8,000 sq. ft.

(a median size lawn=7,000 sq. ft.)

- Indirect Use — 92% daily use (per person)

Sunday paper: 280 gallons

One pound aluminum: 1,0000 gallons

One automobile: 100,000 gallons

1 egg: 40 gallons

1 ear corn: 80 gallons

1 loaf bread: 150 gallons

1 gallon whiskey: 230 gallons

1 pound beef: 2,500 gallons.

"While green lawns and flower gardens may be conspicuous consumers of water, one of our most precious natural resources, how effective are outdoor watering bans in helping to solve a very serious problem? As Kathleen K. Wiegner noted in *Forbes* magazine: 'Bricks in toilet tanks or shutting off sprinklers hissing on summer lawns makes better symbolism than sense in dealing with water shortages.'

"Symbolic acts seldom solve serious problems and more often than not, they serve only to redirect attention from other problem. For most areas, the problem is not green vs. brown lawns, it's more a matter of determining the value of water and planning sufficiently far in advance to ensure adequate supplies are present when they're needed.

"Conservation is important, because water truly is one of our most precious natural resources. The concern is that we create effective conservation programs and not merely symbolic gestures that have little real meaning."



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## Soil Drainage Systems That Function

Carl H. Kuhn,

One can oversimplify the definition of drainage by saying that it is simply ridding oneself of unwanted water. Were it only that simple for the person who must maintain a golf course, a school playfield, a football field, soccer field or park; were it only so simple for the budget-makers of golf courses, school districts or park departments. Drainage might better be defined as "If you haven't got it, you also do not have a playable surface". In the area west of the Cascades in particular, and to a lesser degree in the drier areas, year-round healthy and **un-saturated** sportsturf surface cannot exist without proper drainage.

Before we get into the specifics of curing the problems of drainage on turfed areas, be it golf, football, soccer or whatever is played on that surface, let us review what I prefer to call the "Simplistic Philosophy of Drainage". This over-simplified explanation is intended to help us rid ourselves of the old-wives tales, voodoo, witchcraft and guesswork that permeates our professions.

### The Simplistic Philosophy of Drainage

Seldom, if ever, were golf courses, parks, playfields or school grounds ever sited because someone recognized the fantastic drainage capability of the underlying soils. Hence it is not uncommon for major drainage problems to crop up **after** the golf course, park or playfield has been constructed. One can understand why golf courses, with 90-150 acres of land are relegated to correcting many drainage problems afterwards. For parks and playfields the usual excuse for not correcting them at the time of construction is **budget!** This is our way of life.

After many of these sporting facilities have been built, the Maintenance Staff discovers that Mother Nature, through the medium of glacial action eons ago, dropped something less than beach sand at the site. More likely here on the west slopes of the Cascades, she dropped silt, clay or both, materials that may permit water to infiltrate and percolate, but **very slowly**. Add to this dilemma an overabundance of rainfall that seems to be present continuously from October through March or April (or June in 1984), and we find two natural conditions detrimental to quick dissipation of surface moisture ... **slow draining soil and an excess of water**. These are natural conditions for this area. Add to this a third, but indirect natural condition ... mild winter weather which encourages outdoor activity for twelve months of the year. The crowning touch occurs through a man-made ingredient; heavy traffic of golf shoes, golf hand carts, golf riding carts and maintenance equipment on golf courses and football players, soccer players, intermural athletics, adult leagues and maintenance equipment on playfields. All four of these conditions combine to create untenable playing conditions on turfed surfaces. Destruction occurs through the following action.

- A. Water, being inherently lazy, migrates vertically through the soil because of gravity and will continue to do so as long as the soil is not saturated.
- B. If the soil is fine textured, i.e. silty or clayey, the water moves through at a very slow pace. Hence, we find the problem with heavy rains running off of these soils rather than down into and through them. This may all be good

(continued page 9)



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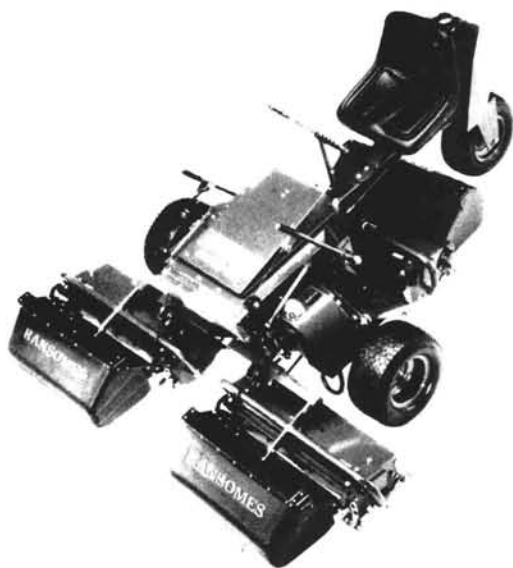
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except when the runoff simply moves from one part of a golf course to another, we have solved some of the problem in one place at the expense of an added problem at another place. On a flat sportfield, we simply form a lake until percolation or evaporation takes place. Even crowned fields, puddles and saturated surfaces are common.

- C. When the pores of the soil are completely full of water, the material is in a saturated condition. Any activity which causes a disturbance of the material tends to change the soil characteristics and may destroy whatever natural drainage channels that might have existed. Additionally, organic material decays or rots on the surface, often causing surface sealing and slowing infiltration.
- D. Old turf sometimes exhibits heavy layers of "Thatch", the longterm build-up of dead grass stems, leaves, etc. If not treated each year with appropriate equipment, water movement is further restricted.

It now can be seen that we have all of the ingredients that are necessary to slow or inhibit drainage. Take away any of the three primary ingredients, excess rain, fine textured soils, or excess traffic and you have no problem. The rain and soil are Nature's contribution; traffic is the gift of man. If we eliminate traffic, we have a nice-to-look-at-lawn but no golf course or playfield. We have no control over rain. The only variable that we can attack is the soil, its make-up or its surface. Now enters the science of corrective drainage.

#### Determine the Problem

Each site is unique unto itself. Only in places like Palm Springs where we can find thousands of acres of contiguous land of fast draining sand from the surface to 100 feet of depth, do we chance on land similarity. Here in the Pacific Northwest we must treat each fairway differently and we must read each playfield differently. We search out the vital characteristics of each individual site by ...

- Visually identifying soil characteristic through test holes.
- Conducting infiltration tests of the surface layers.
- Conducting percolation tests of the underlying areas.
- Mechanical analysis of the soil particles (sieve tests).
- Reviewing top conditions, runoff, etc.

Once the foregoing practices have been applied, one can identify the seriousness of the drainage problem and make recommendations for the correction thereof. The first identification must be to determine the source of the excess water. Occasionally this excess derived from underground sources, i.e. springs. More often the problem is one in which the existing soils cannot pass rainfall sufficiently. Underground water can be handled quickly and simply by intercepting it in cut-off trenches. When we have identified the problem as slow-draining soils, the cure is much more complex and certainly much more expensive. The question now arises as how much cure (and money) is it necessary to throw at the problem to bring the site up to our desired standards.

#### Determine the Remedy

Often one can tell why a soil is slow draining by little more than visually identifying the clays or silts. However, until the filtration tests, perc tests and mechanical analysis tests are conducted, the degree of correction action cannot be properly deter-

(cont'd. page 10)

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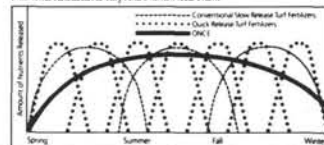
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(Drainage Systems cont'd.)

mined. Corrective treatments for golf courses or parks or playfields may require little more than frequent sand topdressing after a prior vigorous program of verticutting and aerifying. It may be that it is necessary to strip the existing sod and overlay the area with 3 to 4 inches of clean, carefully screened sand. Or, it may require a very expensive removal of the existing soil, underdraining the area and then replacing the void with carefully selected permeables, principally sand. The depth of excavation (and sand replacement) will vary depending upon the findings obtained from the perc tests and sieve analysis.

It can be seen that there are numerous options available, all with differing price tags. **However, there is usually only one correct remedy for a given site, be it fairway, playfield or park.** This is not to say that you cannot use any of the aforementioned solutions at any site; what we are saying that there is usually only one right way to provide you with the results you want on a permanent basis. Since budgets are the nemesis of all turf caretakers, it is important that we spend absolutely no more than necessary on a site to improve the drainage. This is where the perc tests, infiltration tests, the mechanical analysis and visual soil identification through test holes pay for themselves for these tests may well provide us with the data which would permit a resolution other than a complete underdrained and reconstructed area.

Let us look at some sample problems and their resolutions.

#### Example A

Playfield with dirt surface to be rebuilt and made playable for soccer. Soil sieve analysis reveals 10 to 15% of the soil material passing the No. 200 sieve and perc tests which indicate average perc of 10 minutes per inch.

Solution: Grade the area, break up the base material and overlay with 4 inches of sand. No drain tile required. Seed, fertilize and irrigate. Cost per acre equals \$20,000\*.

#### Example B

Playfield to be rebuilt. Underlying materials are mostly silts and clays with upwards of 50% passing the No. 200 sieve and perc tests averaging 90 minutes per inch. Field to be used for soccer and football.

Solution: Remove 14 inches of subgrade and dispose of same. Underdrain with 4-inch corrugated perforated polyethylene at 20-foot on center and cover with 14 inches of selected sand. Seed, fertilize and irrigate. Cost per acre equals \$50,000\*.

#### Example C

Golf course fairway with same material and perc rates as Example B. Constantly saturated during winter.

Solution: The option is always open to completely rebuild the fairway at \$50,00 per acre. Since this is likely to be quite impractical, an alternate method of improving the playability is desired. Start a program of selected sand topdressing at the rate of 1 inch per year for a three-year period. Regrade fairway to slope if possible prior to the sanding program. Install occasional drains after the sanding program has been completed. While this remedy will not give you the results of Example B, it will improve the playability and drainage. Cost per acre equals \$8,000\*.

#### Example D

Playfield with base materials of sandy nature, no more than 10% passing the No. 200 sieve and perc rates of 15 minutes

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