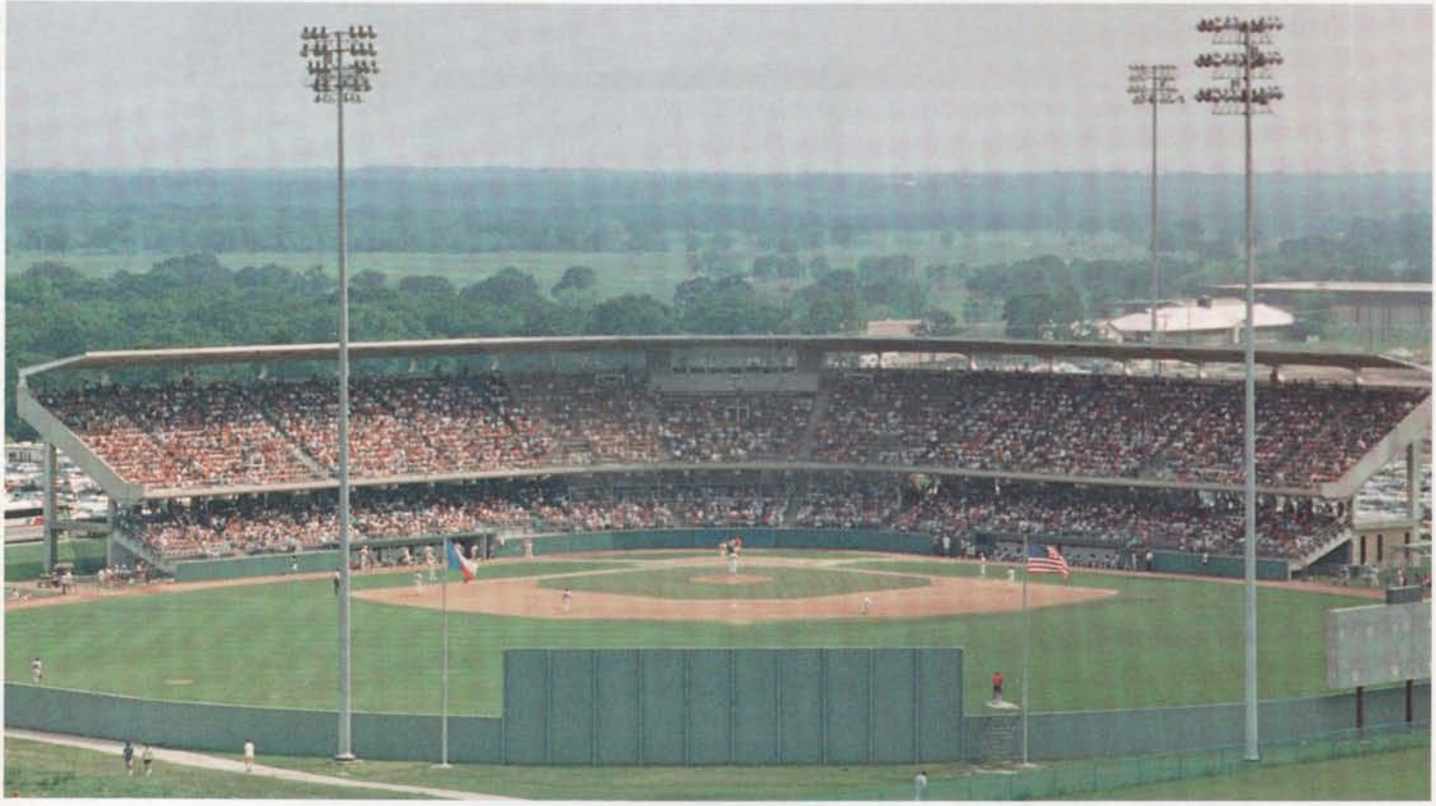

Olsen Field:
Collegiate Diamond Sparkles

Sports are often a family affair for many people, whether on the field as a player, in the stands as a spectator, or in the case of Leo Goertz, on the field as the head groundskeeper of Olsen Field at Texas A&M University. Goertz gives much of the credit for being the winner of the 1988 Baseball Diamond of the Year Award in the collegiate category to his two older brothers and his widowed mother.

Since his father died when Leo was three, he has had to make the most of what fate has given him. When his brothers played high school sports at New Braunfels, TX, he volunteered to be a student equipment manager for their teams. Goertz hustled on the sidelines as much as his brothers and other students hustled on the field. He thrived on the responsibility and on being part of a team effort.

Peter Garza, baseball coach at the school, recognized Goertz's surprising attention to detail for a high school student and entrusted him with preparation of the field before practices and games. He taught him as much as he knew about baseball field maintenance and gave him room to make small mistakes and to innovate. "The two best teachers in life are experience and mistakes," Goertz states today. "Mistakes teach you either to innovate or to stick to the basics. You need to do both to get by in sports turf maintenance. When money is short, all you have to rely on is innovation, motivation and manpower."

When his brother graduated and went on to Texas A&M, Leo knew he would follow him shortly. He wanted to study agricultural economics and needed a way to help pay his tuition, room and board. During a visit to the university in College Station, his brother, who played baseball for the Aggies, introduced him to Assistant Coach Jim Sampson. He told Leo that the university was just completing a new baseball stadium called Olsen Field and three student managers would be paid to help maintain it. A recommendation from Coach Garza to Sampson helped him win one of the positions beginning with the 1978 fall semester.

"My goal was to help pay for a degree in ag econ, not to become a grounds foreman," he recalls, "but when I walked onto Olsen Field for the first time, something clicked." The fear of being one student out of thousands at the huge campus disappeared. His brother was there on the team, he spent much of his time as he had before— around baseball—and he liked the ag econ currriculum. He was too busy to get lonely or depressed.

For seven years Goertz worked more than 20 hours each week at Olsen Field and went to classes. "You get paid for 20, but you end up spending most of your time there during baseball season," he adds. In 1985, before he graduated, Sampson left. The university approached Goertz about taking the full-time position. Taking the assignment meant he would have to cut his class load further, or give up his goal of a degree. Even though he had been urged and tempted to switch his major to turf management, he had stuck to his original major of ag econ. Nothing was going to stop him from finishing.

Figuring opportunities like this didn't come along very often, and since the ag market was pretty shaky, Goertz took the job, cut back his classes, and remained a member of the Aggie baseball family.

By this time, a few wrinkles were beginning to show up in the seven-year-old stadium. The biggest was right field. For two days after a rain or a day after irrigating, players complained that mud oozed up through the Tifway bermudagrass onto their

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shoes. Since the team both practiced and played games in the stadium, the mud was especially annoying.

Campus landscape architect Eugene Ray explained to Goertz that the stadium was built over a thick layer of clay. There was no subsurface drainage in the outfield, only surface drainage that fed into French drains just outside the foul lines. The area where the right fielders stood most of the time had become packed down, creating a 30-foot-square pocket where water collected.

"I guess you could say that my first attempt at a major innovation was a mistake," admits Goertz. "We drilled 50 holes in right field more than 15 feet deep. The idea was to break through the clay layer and create subsurface drainage that way." Since the holes were 12 inches in diameter, Goertz had a lot of dirt to carry off the field. The bottom three-quarters of the holes were filled with washed gravel. Geotextile was placed on top of the rock and the remainder of the holes were filled with mason's sand before the plug of sod was replaced.

"It didn't take long to find out our efforts were off base," he remarks. "It rained hard the next day. Water drained into the holes but stayed there. Instead of drains we had 50 wet spots. We had not penetrated the entire clay layer. We ended up removing the sand and rock and filling the holes back in with soil."

After learning from his mistake, Goertz approached Dr. Richard Duble, extension agronomist for the university. The French drains on the sidelines still worked well, partly because the perforated pipe in the bottom of the trenches had been wrapped in geotextile. Goertz also had plenty of rocks from the previous attempt. Water gathered by the French drains was piped under the outfield fence to a nearby storm drain.

Ray, Duble and Goertz agreed that filter fabric should be included in any solution they came up with. But the recent experience had soured them and the crew on rock.

Ray had recently heard about a drain product consisting of geotextile filter fabric wrapped around a plastic core. The core is not a pipe, it resembles the bottom half of an egg carton and serves as a skeleton for the fabric. Air space between the core and the fabric is available for water flow.

Turf Drain in the outfield was installed by the Texas A&M grounds crew.

The continuous eight-inch-tall, inch-wide strip is inserted into a pattern of narrow trenches. Sections or branches of the drain line are simply taped together without fittings. Once the network of pipe is installed in the trenches, it is backfilled with sand to the surface.

"We like to use our own manpower and equipment on special jobs," says Goertz. "We could install the wrapped drain lines with the university's trencher and crew without having to shoot grades for each trench. By following the surface grade, we had the right grade for the trenches."

The school selected Turf Drainage Company of America as the supplier of the drain lines. The company's Turf Drain had been used successfully by a number of golf courses. Texas A&M was one of the first athletic fields to utilize the drain system.

That fall, Goertz bought and installed just enough drain for right field. Seven mains with six fingers each were installed and connected to the pipe in the French drains on the first base warning track. The second try did the trick. "After a rain, I periodically check the outlet in the storm drain to see how much water the system is taking off the field," he states. "Two days after a rain, water is still trickling into the drain."

Satisfied that he now had a workable solution to draining the heavy clay soil, Goertz

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again consulted with Ray and Duble about doing the rest of the outfield. With the athletic department's blessing, the next summer 3,000 more feet of drain were installed in center and left field.

The final touch was to topdress the entire outfield with 600 tons of mason sand. The layer of sand on the surface helps move the water laterally to the drainage trenches. The bermudagrass had no problem growing through the sand. Each of the past two summers another 200 tons of sand have been added to the outfield.

"We're holding off on the sand for the time being," adds Goertz. Ray's campus crew aerates the outfield to help mix the sand into the clay and to encourage the bermuda to root deeply. Ray may cut slits into the sand and topsoil this fall with a Yeager-Twose aerator to assist surface drainage to the side drains. "The outfield is now in great shape within four to six hours of a downpour. We rely on tarps for the infield."

The total cost of the outfield drainage project was $10,000, including $4,000 for the drain line. "We're very fortunate to have a $250,000 endowment fund for upkeep of the stadium," says Goertz. "By using the interest from an endowment, you are protected against budget cuts. Endowments are used a lot for other types of university funding, so why not field maintenance? I think they can play a major role in improving fields at colleges, parks and schools.

"Many times I've heard coaches say they spent so much to fix up their fields. That's great, but one thing must be remembered. You just spent that money to fix it up. If you don't take care of the field with daily maintenance, then you just wasted your money."

Goertz's friends call him a weather fanatic. He calls the university weather station and the U.S. Weather Service three times on game days. When he gets up in the morning and before he goes to sleep at night he turns on the weather channel on cable. "I do it as much for the infield dirt as anything else," he says. "If the chance of rain is 30 percent or higher, we cover the infield before we leave at night. We sleep better that way."

He admits he is more concerned about the dirt than the turf. "You can be the world's greatest turf man and mess up in baseball because of the dirt," he advises. "The infield dirt has to be just right all the time. That is where you should spend most of your time and effort."

Drain network in left field backfilled with sand.

Every groundskeeper has his own formula for the infield dirt. "It's hard to find good clay that doesn't have rocks in it," says Goertz. "Even when you get most of the rocks out, it may not give you the crust you want, pack as well as you'd like or hold moisture the right way. Fortunately, there are amendments you can use to improve local clays."

Each year Goertz has four tons of material shipped to College Station for Olsen Field. "The cost of shipping can be more than the cost of the material, but the difference it makes is worth the expense. One help is to plan ahead and get together with other groundskeepers for one group order instead of ordering the same stuff individually."

Twice each year Goertz works one ton of calcined clay into the base paths, once in January prior to baseball season and again in September prior to the fall workouts. The clay particles hold moisture without breaking down. When mixed with the existing clay and wet down, they help create a loose crust that isn't muddy, hard or dusty. Base runners get solid footing and a soft surface to slide on.

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Every day for nine months the infield dirt is conditioned and lips in the turf are brushed out.

The infield is mowed with a walk-behind greens mower.

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The Olsen Field crew uses a nail drag every day during the season to keep the base path mix level and the right texture. Drag mats made of artificial turf on a one-by-six-inch frame smooth out the dirt before it is wet down with a hose connected to a quick coupler behind the pitcher's mound.

The mound and the batter's box have their own special mixes. A pitcher, batter and catcher require better footing than base runners. They need more than a surface crust. They need a deeper layer of packed dirt that gives less without being rock hard. For this reason Goertz has two types of Beam clay shipped from Partac in Great Meadows, NJ. One is used for the landing area on the mound. A six-inch-deep layer of the firm, red clay is maintained at all times. No other type of clay is used in this area and all repairs are made with the special clay.

The mound is worked every day to keep it smooth, firm and uniformly moist to the full depth of the mix. Holes in the landing area must be properly refilled with an inch or two of the mix at a time, wet down and tamped to match the moisture and hardness of the surrounding mix.

The batter's and catcher's boxes need firm dirt, but not as firm as the mound. The dirt outside these boxes, however, should be the same as the base path mix. Goertz uses Home Plate mix for both boxes. It is basically a 50:50 mix of mound mix and base path mix. "We use a bag a week to keep the home plate area in shape," Goertz points out. He also covers the home plate area much of the time.

Every few weeks the crew recuts the edge between the infield dirt and the turf. Goertz is a stickler on straight edges and lips of dirt in the turf. "We hand-rake the edges every day to keep lips from building up," he adds. "The key to baseball field management is doing the little things every day to keep things under control.

"This may seem like a lot of trouble, but the infield is the main difference between a great field and an average one," he adds. For this reason, Goertz and his crew concentrate their efforts on the infield.

In fact, they don't mow or maintain the outfield. Ray's campus crew does, in addition to making all the stadium's fertilizer and pesticide applications. Goertz's crew mows the infield with a Jacobsen walk-behind greensmower three times each week, double-cutting on game days. The clippings are removed on the infield but not on the outfield.

For half of the stadium's nine-month busy season, the field is overseeded perennial ryegrass. In November, the field is aerified, overseeded and topdressed. By mid-January, when the Aggies start practicing in the stadium, the ryegrass is well established. The season starts in February and can go to the end of May if the team makes the conference finals. It fell just one game short of going to the College World Series last year.

The Tifway starts coming out of dormancy in April. "Transition is not a major problem," states Goertz. If it looks like post-season games are likely, he irrigates every night for five to ten minutes to keep the ryegrass growing. If not, he shuts the water off for three days and leaves the cover on the field for 20 minutes in the morning sun. The ryegrass quickly surrenders to the bermudagrass.

The bermudagrass benefits greatly from spring rains. "One inch of rain is worth three months of irrigation with our saline water," says Goertz. "It greens up all right with irrigation. But after a rain, the bermudagrass has a spurt of growth that gives it a great start for the summer season. Without the rain we have to fertilize heavier to make up the difference."

In June, Olsen Field is the site of many high school championship games. Little League uses the stadium for its regional tour-

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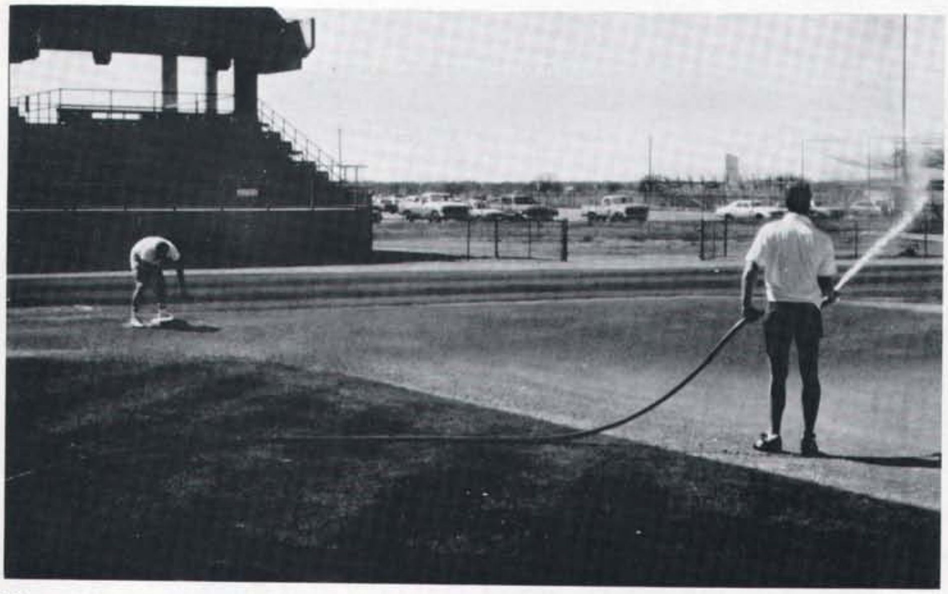

The moisture level of the infield dirt is carefully maintained.

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naments in August. The baseball season ends in early October with the Aggies' 30-day fall practice. All these events are played on the Tifway bermudagrass.

In a typical season, Olsen Field hosts nearly 60 games and all the practices for the university. "I'd love to have a practice facility for baseball," says Goertz. When he is not taking care of the stadium, Goertz is helping Ray with the girls softball field, the practice football field and the track complex. The girls have been national fast-pitch softball champions for three out of the past eight years.

Kyle Field, the university's football stadium, is artificial turf. When the baseball team needs to practice on artificial turf, it borrows the football stadium for a few days. A $7-million indoor practice facility will be constructed within the next five years.

But Goertz has grown up with Olsen Field and natural turf. "I've been lucky to start out on a new field and stay with it," he says. Experience has taught him how to adjust the Toro hydraulic irrigation system during the season for both ryegrass and bermudagrass. He may change the irrigation schedule for the 23 stations from week to week.

Each station has an average of three heads that run about 20 minutes every three days. There are five quick couplers on the field to which hoses are connected for wetting down the infield dirt, bullpens and warning tracks. The first is behind the pitcher's mound. Two more are located next to the bullpens and the final two are located in the outfield. "If we had a power failure in the middle of a hot spell, we could still irrigate the field with the quick couplers," states Goertz.

Beside saline water, Goertz has other concerns that require extra attention. Purple nutsedge invades the bermudagrass in the summer. Applications of MSMA kill the existing nutsedge foliage but not the nut below the surface. This summer Goertz will try a new product called Image that controls the nut as well as the foliage. Three or four times every year the warning tracks are sprayed with Roundup to kill any emerging weeds.

Annual bluegrass is a problem in the overseeded field. He also had an outbreak of brown patch and dollar spot two years ago shortly after overseeding. This year he plans to apply Rubigan, a fungicide that controls both diseases in addition to having a supressing effect on annual bluegrass. "It helps to have some of the leading agronomists in the country on campus," says Goertz.

While Olsen Field does have a minor mole cricket infestation, Goertz has had no problem keeping it under control. It's the fire ants that drive him crazy. They've stayed off the field so far, but keeping them off is a constant battle. The perimeter of the stadium is treated with fire ant baits. At the first sign of a mound, it is knocked down and sprayed with a product called Eliminator. "You can't let them get a foothold," Goertz warns.

With his degree completed, he remains at Olsen Field. He travels on road trips with the Aggies when he can, to see other fields around the country. "I'm not saying that just because somebody else does something one way, that it is the right way to do it, but rather that maybe you might take that idea and develop it to suit your field," says Goertz. "Many of the things that we do here at Texas A&M we have picked up from other people."

Only one out his four student managers is majoring in turf. His name is Chet Bunch and his goal in life is to become a golf course superintendent. Another is studying to be a dentist. If the right opportunity came along, maybe they too would alter the course of their careers for the lure of the diamond.

Channel Drains

A revolution in turf and landscape drainage is quietly taking place. For lack of a better name, we'll call the products causing this revolution channel drains. They use a variety of different products to achieve a similar result: a deep, narrow channel in the soil which carries water away from a site.

The channel shape of the drains relieves some of the problems with achieving an exact slope to make water flow properly. For example, a four-inch pipe buried beneath the surface has only a four-inch tolerance in slope to make sure water will flow properly. Water and silt will collect in any low spot in the drain line. In agriculture, and in large sports turf installations, laser- guided trenchers use expensive instrumentation to provide the precise slope necessary for the drain.

The problem is that many facilities with poor drainage are reluctant to install drainpipe, for fear of the high cost of installation or problems with slope if they do the work themselves. Two solutions were devised to help open up in-house installation to a greater number of institutions and to contractors who do not have the sophisticated equipment.

The first was to install a channel of rock, pea gravel or sand in the trench above the pipe to increase the tolerance of the slope. This also improved the downward percolation of water to the pipe and assisted the horizontal movement of water above the pipe. This type of installation is termed a French drain.

British sports turf contractors took the channel concept one step further. They utilized a series of vibrating blades to open up narrow slits in the top foot of soccer pitches, inserted a small perforated pipe, and then backfilled the slits with sand to the surface. Water flowed in the sand channels much more effectively than through heavy soils.

The advantage of this system, called the Cambridge System, was minimal surface disturbance. Adding a layer of sand to the surface of the area being drained increased water movement to the sand slits in what is termed a "wicking action."

The next problem was preventing waterborne silt from plugging both the drainpipe and the rock or sand above the pipe. Geotextile fabrics were wrapped around the pipe, and in some cases the rock as well, to keep silt out of the space available for the water.

Wrapped channel drain is easily installed. Photo courtesy: Burcan Industries.

In 1969, tests at the University of Connecticut in Storrs, showed that a waffle-like piece of plastic wrapped in filter fabric, could provide a tall, open space for water to travel beneath the surface. Later, an open geomatrix was used by one manufacturer as a substitute for the plastic core. Once water passes through the filter fabric, it flows along the core or matrix, even with variations in the overall downward grade. By increasing the height of the thin core, the tolerance to slope could be made greater than with conventional drainpipe. Furthermore, the actual space available to water flow could be greater than with rocks or sand.

The advantage of the prefabricated drainage channels was that they could be installed with a small walk-behind trencher cutting a narrow trench. If the sod above the trenches was cut and removed before trenching, and replaced after the trenches were backfilled, surface disturbance was minimized. The small trencher also removed less dirt that had to be transported off the site.

Some manufacturers adapted the channel concept to simplify installation of solid drainpipe connected to surfaces grates and catch basins. The tall, narrow channels benefited from a greater tolerance of slope just as the perforated versions did.

While a variety of methods exist today to take advantage of the benefits of channels over pipes, they all provide improved long-term drainage and simplify installation. As a result, correcting drainage problems is practical to a wider number of businesses and institutions.