

## New drainage technology solves field woes

In Karnes City, Texas, a typical small Texas town, football is king. It's also a source of town pride and competition with neighboring towns.

Like many of its neighbors, Karnes City holds its fall football season as one of the year's top social events.

For several years, however, the school had a major problem with the natural turf surface on the field. In spite of all the maintenance crew's best efforts, the Bermudagrass was not growing vigorously enough to provide the quality turf cover needed for beauty, pride and safe play. Re-seeding large bare areas continually failed to produce the desired result. Players were still playing many games in the mud.

This small rural school, however, was able to correct this unattractive and potentially unsafe sports field condition with a minimum disruption to the surface, for a very low cost compared to complete renovation.

### The problem

School superintendent William Gary contacted Richard Duble, Ph.D., of Texas A&M University's cooperative extension service last March. Soil samples were taken and sent to A&M. Duble found severe pH and salt problems. The pH ranged from 9.5 to 10.5, and the sodium (salt) level ran 4000 to 5000 parts per million (ppm)—both too high to sustain healthy turf. The very low water permeable soil also needed surface run-off of excess water from rainfall and irrigation.



Installing the TerraFlow system laterals. The white areas are where turf was not able to survive because of high salt.



Digging the trench for the 12-inch TerraFlow trunk line along one sideline using the Ditch Witch 1010 trencher.

### The solution

Duble offered two options: (1) remove and replace the soil to at least a three-foot depth over the entire field; or (2) install a subsurface drainage system to flush the salts from the existing soil. He suggested a call to Warren's Turf Nursery to discuss a new type of drainage system Warren's was introducing.

On April 21, Bob Milam of Warren's inspected the field. He found that 65 percent was lacking ground cover with bleached-looking soil indicating high salt. His proposal:

- 1) Install a Warren's TerraFlow Prefabricated Composite Draining System.
- 2) Aerate and fertilize with Warren's 18-5-8 30% SCU fertilizer.
- 3) Apply a 90 percent sulfur dispersal.
- 4) Flush with four to five inches of water per week for four weeks.
- 5) Re-sod the remaining bare areas with Warren's Bermudagrass sod from its Little River Sod Farm at Buckholtz, Texas.

### The implementation

Work began June 17.

The TerraFlow Drainage System was installed in a herringbone pattern down the length of the field. Because of an 18-inch crown, the TerraFlow merely followed the slope of the field from the crown to the sidelines. All trenches were backfilled to within two inches of the surface with coarse

washed sand to facilitate rapid water draw-down from the surface.

Trenching using a Ditch Witch 1010 trencher took 45 man/hours. TerraFlow installation took 100 man-hours. Sand backfilling took 60 man/hours. The trenching spoils were bladed with a tractor into the remaining two inches of the trenches, requiring six hours of tractor/operator time. The excess soil was removed from the site using a front-end loader and 20 man/hours.

Total materials used: 6,200 lineal feet of six-inch TerraFlow, 950 lineal feet of 12-inch TerraFlow, 10 rolls of duct tape, 36 feet of eight-inch PVC pipe and 35 yards of course sand. Total cost was about \$11,800.

After the flushing and treatment program, the school reported a dramatic improvement in quality of the existing turf. On Aug. 6, 3900 sq. yds. of common Bermudagrass was sodded. The new field was irrigated with two inches of water once a week until mid-September, about a week after the first game.

### The result

With a simple installation of this new technology in drainage, the Karnes City school system was able to solve the untenable soil/salt problem and receive a permanent efficient drainage system. At last report, school officials proclaimed the field "the best ever." **LM**