

Sand-based field holds up to heavy play all season



Memorial Stadium's final game of the season, and traffic stress is hard to find. Note synthetic turf over a padded asphalt base for the sidelines.

Forty-eight years of play and a high-sodium clay soil lead to installation of a sand-based field.

by Ken Walter

■ The City of Fremont (Neb.) Parks Department tried aeration, top dressing and soil conditioners on the compacted soil at Memorial Football Stadium in the 1980s and early 1990s, but nothing would soften the soil. A complete soil replacement in 1993 was the solution.

The city developed Memorial Football Stadium in 1947 for two high schools and a Division II college team. Very limited field improvements had been made since the original construction, and a high sodium silt clay crown caused serious problems in the 1970s.

By the '80s, the field's root system could not penetrate beyond two inches, and poor footing endangered the players. On rainy weekends, the center of the field and bench areas would become bogs.

Complete overhaul—Mark Altman of Altman & Altman Consulting, Marshall, Minn., was hired to examine field specifications and manage seeding and turf development. Bids were let for the installation of a sand-based field and conversion of the old

cinder track to a new polyurethane track. The total project price was \$587,000, with the sand-based field development costing \$187,000. Dollars to fund the project were generated by revenues from keno gambling.

The field was demolished and excavated to a depth of 12 inches. The old irrigation system was replaced with a new system using Toro 644 heads. It was installed in the top 12 inches, to avoid contaminating the growth media with soil. Goal posts were moved to a practice field, and new, narrower-spaced posts were installed.

The sub-base was graded to approximate the final field grade, and conduits were installed for the various communication and utility lines. Four-inch perforated drain tiles were laid in 12-inch-deep trenches and back-filled with gravel. They were spaced in a herringbone pattern 25 feet apart. These



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collector drain tiles were connected to the storm sewer main around the field's perimeter. Inlets were then placed to pick up track run-off. A hardboard form at the field's perimeter separates the track's rock base and the playing surface's growth media.

The next step: 3,034 cubic yards of "G" sand, a mix of 10 percent reed sedge peat and 90 percent screened sand. The sand mix was graded to a depth of 12 inches. Again, special care was taken to keep soil out of the growth media.

Quick germination—Altman directed the fertilization and seeding. Fertilizer was incorporated into the top three inches of the growth media and watered in. On June 3, pre-germinated bluegrass seed was broadcast, followed by a seeding of perennial ryegrass drilled in four directions.

Drill and tire marks were smoothed over with a drag mat. The field was then hydromulched and watered frequently during the daylight hours.

The results were amazing. The seed was up in four days and mowed 15 days later.

The first game was played on September 3, 91 days after seeding, when the roots reached a depth of seven inches.

The turf continued to improve as the season progressed, in spite of a heavy early schedule. On occasion, three weekend games were played.

We held our first national NAIIOA playoff game on November 19. The young field came through the season with no damage and very little wear from game traffic. We played 17 games on the new field in the first season; two of them were played during rainfall, and the largest area of damage was no bigger than a dinner plate.

The turf will continue to improve over the next three to four years, as more organic matter builds from the maturing root system. Problems can arise quickly, but control treatments react well, which requires a plan that is similar to managing hydroponics:

- Soil and tissue tests taken frequently during the first and/or second year.
- Small amounts of fertilizer every 10-14 days until holding capacities improve.

After seeing how well the fields played during the season, two other colleges in the conference are considering building similar fields.

—The author is superintendent of parks and recreation for the City of Fremont, Neb.