

Installing drainage for a *synthetic* race surface

By **Tori L. Durliat**

In horse racing, horse and jockey safety is top priority. Racetracks across the world are continually looking for ways to make their racing surfaces safer and more consistent.

With conventional dirt tracks, water drains horizontally, which can compromise the track's condition by allowing it to freeze in cold temperatures or become muddy after hard rains. These types of conditions could lead to a decrease in the number of starters, increase in the number of injuries and in the number of cancelled racing days, all of which can contribute to unappealing wagering and reduced track attendance.

Some racetracks are turning to other drainage and synthetic racing surfaces to help solve the problem.

For example Polytrack is made up of a blend of fibers, recycled rubber and silica sand covered with a wax coating that allows water to flow vertically through the top surface to the sub-layers below and helps avoid a freezing or inconsistent racetrack. The sub-layers include porous macadam and dense aggregate rock that provide a solid foundation while the vertical drainage system carries water away from the track. Together they work to provide a safer, more consistent racing surface.

Three North America racing facilities have announced that they will install this type of system, including Keeneland in Lexington, KY.

In the heart of Kentucky's Bluegrass Region, this storied racetrack was originally built in the 1930s and has since played host to some of the greatest races in the history of the sport. Keeneland's grandstand, concessions and

wagering technology had all been modernized, but the main racetrack's design and layout had stayed the same.

In 2006, Keeneland Association Officials made the decision to replace it with the vertical drainage system and Polytrack combination. "Our track has not changed much since it was laid out and constructed using mules prior to our first race meeting in 1936. The time had come for us to take advantage of the latest, cutting edge advancements to create the safest racing environment possible, furthering the mission outlined by our founders to build a

model racetrack," says Keeneland's President and CEO Nick Nicholson.

Keeneland's existing dirt track was not having drainage problems. The reason the new vertical drainage system was installed was because it's a prerequisite to the Polytrack. One needs the other to function properly and the success of the final product is totally dependent on the two working in unison.

Installation

The project began in May and needed to be complete by the end of August, in time for



Three runs of perforated pipe were put in, running parallel to each other around the track, spaced 20 feet apart.

IRRIGATION & DRAINAGE

Keeneland's fall race meeting. Engineers and contractors were all under pressure.

The construction professionals stressed that quality drainage would be key to the project's success. They used Advanced Drainage Systems (ADS) pipes and Nyloplast structures and basins. Three runs of perforated pipe running parallel to each other around the track were put in place, spaced about 20 feet

apart. Then every 300 feet around the track the three perforated pipes were connected to a cross drain perforated pipe that ran toward the inside of the track. These cross drains connected to the Nyloplast manholes, spaced 300 feet apart.

Under the inner part of the track, just past the rail, a system of pipe was installed to gather the water coming from the track

to the Nyloplast manholes. This system drained in multiple directions around the entire inner portion of the track. The pipe diameter ranged from 8 inches at the high point and grew in diameter to 30 inches at the low point.

At the low point of the manhole a 42-inch diameter pipe was placed across the track and over the back slope to an existing manhole.

Pipes and basins were also used around the clubhouse lawn areas for drainage of the newly established grades.

Elevation of the grandstand apron changed as well. This required an end-to-end drainage structure to empty the runoff of the trench and roof drains.

The track and drainage installation incorporated almost 9000 feet of drainage pipe and 62 Nyloplast structures and basins, 16,000 tons of specialized Polytrack material, 90,000 tons of limestone, and 4,500 tons of porous asphalt.

"The ease of adjustment on the Nyloplast really played a key role, especially in the grandstand area because of the number of existing roof drains. We used ADS pipe to tie the new system into the existing one," said Tommy Cramer, project manager, Central Rock Mineral Company. "The pipe with its longer length and ease of use with the Nyloplast made for an ideal setup," said David Curry, Central Rock Mineral VP.

The track's inaugural fall race meeting in October 2006 was a huge success, seeing record attendance and increased total wagering. The new design also attracted an extraordinarily high number of starters, as well as a large contingent of Breeders' Cup-bound horses.

"This meet has been extraordinary for us in so many ways," said Nick Nicholson. "[The surface and drainage system] performed well . . . it remained very safe throughout the meet, despite getting more than twice the usual amount of rainfall during the month."

In early 2006, The California Horse Racing Board declared that all major tracks in the state would have to install a synthetic surface by December 31, 2007 or have their racing licenses annulled. ■

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Elevating the grandstand apron required an end-to-end drainage structure to empty the runoff of the trench and roof drains.



Keeneland has hosted some of history's greatest races.