

Going to the Mat With Mother Nature

Turf reinforcement mats save course from being damaged by wind and wave

**BY FRANK H. ANDORKA JR.,
ASSOCIATE EDITOR**

Wind and water have shaped the

TPC of the Twin Cities in Blaine, Minn., from the beginning. Winds in the area routinely reach 20 mph to 30 mph. They howl across the 61 acres of lakes on the property and create waves rivaling those on nearby Lake Superior. But the combination of wind and water cause erosion on the golf course.

The problem

When the owners hired superintendent Pat Franklin to supervise the course's grow-in in 1999, he understood he had to battle Mother Nature. But until he visited the

Problem

Strong winds and wavy water threatened to destroy some of the course's most striking features.

Solution

Turf reinforcement mats held the soil in place long enough for the turf to thrive and protect it from erosion along lake banks.



course and saw the destruction she could do firsthand, he didn't realize the scope of the problems he would face. The wind made the grow-in difficult because it wreaked havoc with the sandy soils.

"We would shape features for the course and two hours later they would be gone," Franklin says. "You'd find sand drifts across cart paths that reminded you of snow drifts. There was rarely a calm day."

When the construction company dug the lakes, workers dumped the sandy soil on land designated for the course. Nearly 5 million cubic yards of material were moved on to the course — but it didn't stay in place long, Franklin says. He knew the turf would prevent soil erosion if he could give it time to grow, but the winds made that almost impossible.

"I remember walking the course and seeing irrigation pipes exposed on my first

visit," Franklin says. "The pipes had been buried three feet under the surface. That's when I got my first inkling that I wasn't working under ordinary conditions. It wasn't unusual to wear goggles while touring the course because the sand was blowing."

In addition, several holes abutted lakes. He knew the water would eat away at holes on the course where the lakes provided a spectacular backdrop for play. He needed a permanent solution to protect the soil from the water, too.

"Grass is strong, but it's not strong enough to survive a constant buffeting by the waves," Franklin says. "It was going to need help."

The solution

Turf reinforcement mats provided Franklin, now the superintendent at the TPC at Deere Run in East Moline, Ill., with the solution he was seeking. The mats come

The course used 44 acres of temporary mats to battle wind erosion during construction.

in two varieties: temporary and permanent.

Temporary mats keep the soil in place until the turfgrass' root structures take over the job. Then they erode away when they no longer serve their purpose, leaving strong stands of turfgrass behind. Permanent mats are designed for areas that will continue to be buffeted by wind and water. They slow erosion so the subsoil doesn't wash away and take the golf hole with it.

Franklin decided American Excelsior Co.'s Curlex mats would solve the problem of wind erosion during grow-in. After reconstructing tees and other features three or four times, Franklin says he installed the temporary turf reinforcement mats.

"The only other answer was to water the course to

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Real-Life Solutions



The permanent mats were installed (above) to protect the course from the waves. The healthy turf along the bank shows that the mats worked (left).

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keep the sand wet," Franklin says. "I did that, but it wasn't enough."

To ensure that tees, mounds and other sculpted areas wouldn't blow away before the grass took root, Franklin and the construction crew rolled out 44 acres of the temporary mats, using a crew that ranged from six to eight people. They used sod staples to hold the mats in place and then shingled them into place on the slopes of the course. Franklin says even that process was difficult because of the sandy soil. "There wasn't a lot for the staples to hold on to," he adds.

In fact, the wind occasionally tore the mats from the side of the hills. But they held long enough for the turf to establish strong roots. As a result, the lush fairways now provide a nearly perfect playing surface.

"It allowed the course to have differences in grades that wouldn't have been possible because of the winds," Franklin says. "It adds visual interest to the course."

On the banks of the water features, Franklin wanted a permanent solution. That's when a local distributor suggested he try North American Green's Seed 350 permanent mats, which were thicker than the temporary mats. They're made of polypropylene strands with a straw/coconut mix sown in them, says Dan Larsen, of Brock White Co., the distributor that worked with Franklin. The natural fibers in the permanent mats absorb water and prevent them from degrading, Larsen says.

Franklin rolled the permanent mats in 6-foot stretches on to the banks, eventually covering 1,000 square feet. He stapled them and added aquatic plants under water to hold the mats in place and deflect the waves' force as they hit the shore. More than a year later, the holes along the lakes show little sign of erosion.

"The permanent mats ensure that the holes that exist today will exist for the foreseeable future," Franklin says. ■

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