

Saving Atlanta's Centennial Olympic Park from Concert Damage



Sand capping with an inorganic soil amendment protects grass from hordes of music fans

By Rena Wish Cohen

In 2015, downtown Atlanta's landmark Centennial Olympic Park suffered a muddy beating from the feet of concertgoers. The 21-acre park saw 18 inches of rain in two months at the height of a spring festival season that drew 57,000 people for one, three-day event alone. The combination of heavy rains and heavy foot traffic left the area without a blade of grass once the mud dried, forcing a 100-day shutdown of the 3.5-acre concert area to regrow the ground cover.

Most of the rain-ravaged section was simply aerated, fertilized and irrigated, but, on the advice of a local turfgrass specialist, park officials decided to create a 10,000-square-foot demo area using a sand cap-based drainage system similar to those used on golf courses. The system included a new subgrade topped by drainage tiles, a 4-inch layer of grav-

el, and a 6-inch layer of sand mixed with 15 percent Profile Porous Ceramic (PPC) Greens Grade — an inorganic soil amendment that holds moisture nutrients and improves firmness and drainage in sand-based root zones. The goal was to compare mud and damage resistance between the areas with and without a sand cap when rain struck.

The first big test came in October 2015 at a sold-out Foo Fighters concert attended by 20,000 fans. Despite near-daily rain from the previous week and a steady drizzle during the event, the grass in the sand-capped section survived with little damage. In contrast, the untreated area turned nearly as muddy as before and was reduced to a hardscrabble expanse of brown with barely a trace of turf when the weather cleared.

"The sand cap was a tremendous success compared to the untreated native soils," says Steve Ware, ground operations manager for the Georgia World Congress Center Authority, which owns and manages Centennial Olympic Park. "We attribute that to a great design specification."

Those results prompted park officials to sand cap an additional 30,000 square feet of turf the following summer. The rest of the core 3.5-acre area is expected to be capped in phases in coming years. "Our hope is to be able to better handle our current and future event schedule because we have the right soil structure to withstand the constant traffic," Ware adds.

Olympic Legacy

Originally built for the 1996 Summer Olympics, Centennial Olympic Park is Downtown Atlanta's largest green space and one of the most lasting legacies of Atlanta's time in the Olympic spotlight. Since the 1996 Olympic Games, the park has attracted \$2.2 billion in new development



Crews install new sod on the surface of Centennial Park after completing work on an innovative sand-capped root zone to promote better drainage and minimize grass damage during rain events.

to Downtown Atlanta, with an additional \$1.5 billion in development planned for the future. It functions as a performing arts venue, community gathering space and an anchor for downtown development.

The grass had tolerated light foot traffic for years without any major turf damage. Then, in 2011, the park began holding larger, ticketed events as part of an effort to boost the city's convention and tourism business. The bigger crowds initially had little effect on the turf, thanks to cooperative weather and a limited schedule, but the destruction sustained during the 2015 festival season sparked a search for a means of damage control.

"They needed to get the park back into shape, and, at the same time, they wanted to increase the number of events at the venue. They couldn't do that under the existing soil conditions," says Clint Waltz, a turfgrass extension specialist at the University of Georgia College of Agricultural & Environmental Sciences, who has served as a consultant to the park for many years. "If they had another extreme rain incident with a fuller schedule, they wouldn't be able to restore the turf fast enough for the next event to provide a quality facility, much less a safe one."

Sand-Cap Fix

The challenge was that the entire park space was built on native soils with only surface drainage. Also, in the decades since its construction, the contour of the site had changed, leaving just a 3-percent grade that offers little protection against a heavy rainfall.

Waltz recommended the sand-capping technique to create a subsurface drainage system that would flush excess water through the sand and gravel layers and into the drainage pipes. Based on his Ph.D. work, he also advised Centennial Olympic Park to mix an inorganic soil amendment into the sand layer at a 15-percent rate to produce a firmer surface and better drainage than the sand/peat mix that is frequently used for sand-cap projects.



Once installed, the sand-capped section of the lawn looks identical to the rest of the park's grass-covered areas. The system of drainage tiles, gravel and sand mixed with an inorganic soil amendment is hidden beneath the sod.

Organic materials like peat can degrade over time, causing instability in both the mix and the turf surface. This also leads to reduced drainage that in turn depletes the oxygen in the soil and harms the health of the grass plant. Multiple studies have shown that inorganic soil amendments eliminate these complications and become a permanent modification, leading to increased adoption in sand-capping applications.

The effects at Centennial Olympic Park are perceptible even in the absence of a crisis situation. "We notice the drainage is continuous throughout the system. Water is always moving, and we now have a percolation rate of 13 inches per hour," Ware says. "You can practically feel the difference."


Long-Term Payoff

Since the big rains of 2015 and installation of the new drainage system, Centennial Olympic Park has also modified a number of grass-maintenance procedures to stay ahead of damage and wear.

The grounds crews have increased fertilization by an extra round and have added

irrigation and solid-core aeration in the sand-capped areas. On the untreated sections, they contract out two aerations and perform an extra hollow-tine aeration in between. In the event of major damage on those sections, they re-sod rather than simply fertilizing and irrigating if there is less than 70 percent leaf coverage.

Ware believes that sand capping the park's most heavily used 3.5 acres is important to maintaining a healthy, damage-resistant green space that can accommodate the park's expanding event schedule. With no direct public funding to the park, he also views it as a smart investment that will pay off by reducing seasonal expenses.

"We are really aiming for sustainability. We don't want to have to rebuild or resod each time there is a concert or event," Ware says. "The sand-cap strategy enables us to make a long-term investment and have sustainable turfgrass that allows the park to be a great place for the people of this area to enjoy — rain or shine." 

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