



PROJECT SUMMARY

Singapore Island Country Club

PROJECT ARCHITECT

- Graham Marsh Golf Design

AGRONOMIST

- Chris Gray

PRODUCT USED

- Profile® Porous Ceramic (PPC)
Greens Grade™

DISTRIBUTOR

- Centaur Asia Pacific

BACKGROUND

With a nearly 130-year history, the Singapore Island Country Club (SICC) is home to one of the first courses ever established in Singapore, setting the benchmark for private member golf. In 1924, the first 18-hole course opened and was described by the country's president as "a site not only of great beauty, but also possessing freshness of air unknown to me anywhere else in the island." Since then, SICC has grown to offer several courses.

In 2019, SICC chose to undergo an extensive \$50 million renovation on its "New" and "Millennium" courses and a driving range. The club wanted to increase golf course capacity, introduce modern sustainable methodology and technologies, and create a refreshing and enhancing design that would meet the needs of all members and guests. The 27-hole layout boasts three 9-hole courses and stunning views along the nation's nature reserve.

With a renovation of this size and notoriety, SICC appointed Graham Marsh Golf Design (GMGD) as the architect with the goal of leveraging his 40 years of experience as a Touring Golf Professional and more than 30 years of experience as a golf course architect.



CHALLENGES

While SICC has a history of prestige and prominence, it was not immune to challenges. Singapore is prone to heavy rainfall, and on average receives around 90 inches of rain per year. Agronomist Chris Gray recognized that drainage would be an important factor in the performance of the turf grass, and to the local landscape since the golf course is adjacent to Singapore's central water storage reservoirs. Plus, the course needed to be worked around the constraints of the existing infrastructure. Above all, the biggest challenge would be exceeding the club members' expectations for the performance of the turf, particularly the greens.



"I started using and specifying Profile PPC as a greens amendment back in the mid-2000s. I saw the benefits that an inorganic amendment such as Profile PPC can provide, which is improved water-holding capacity during dry weather coupled with an increased nutrient-holding capacity. In turn, the inorganic amendment provided increased pore space and improved oxygen levels during extended rainy periods."

– Chris Gray, Agronomist



From prior experience, Gray knew many greens in this region were constructed using straight sand or adding an organic amendment to the local sand. Straight sand can have very high water infiltration rates and minimal nutrient-holding capacity, leading to high water usage, localized dry spots and higher fertilization requirements. Additionally, an amendment high in organic matter could decrease water infiltration rates resulting in increased disease and softer than desirable putting surfaces.

Gray had worked with Profile® Products on several projects in the past and reached out to the company's team of experts to tackle these challenges. Gray collaborated with James Gordon, Southeast Asia Market Development Manager/Sales Manager for Profile Products, to conduct soil testing and analyze various greens mix options that included Profile® Greens Grade™, an inorganic soil amendment proven on thousands of greens around the world.

THE SOLUTION

Based on the soil test, Gordon recommended a mix of 85% sand and 15% Profile Greens Grade to create viable and sustainable greens. The Profile Porous Ceramic (PPC) particle found in Greens Grade is 74% pore space with 39% capillary (water) pores and 35% non-capillary (air) pores. Ideally, greens should hold the right amount of water during drought conditions but be able to drain very well during rain events. When blended with sand in a greens mix, PPC achieves this goal by improving both capillary and non-capillary performance characteristics while also increasing infiltration. PPC also adds valuable nutrient-holding capabilities (cation exchange capacity) which results in less fertilizer inputs throughout the life of the green.

"On a course with as rich a history and prestige as this, we wanted to see it excel in the long-term," said Gordon. "This solution will establish a strong foundation for the course and there's no reason why these greens should not perform well past their life expectancy."

Once applied to the tees and greens on all 27 holes and the driving range, the solution from Profile improved course conditions by enabling the greens to drain water quickly, which is critical when working in an area with extreme rainfall.

"We knew the performance of the greens in the Singapore environment was the top priority, however, we also knew that the presentation and performance of the tees was high on our agenda," Gray said. "Our goal was to be able to produce a firmer putting surface while still maintaining optimal performance in regard to air, water and infiltration. Profile's products helped us to overcome those challenges."



RESULTS

The PPC application resulted in increased drainage at a rate of 23% and a 32% increase in the water reservoir throughout the profile. The pH also dropped from 7.8 to 7.2, allowing for improved fertilizer uptake by the plant.

When work was halted due to COVID-19, Gray noted that "The nutrient-holding capacity of the greens mix was a factor in the great performance of the greens during the shutdown." The course required minimal maintenance, such as fertilizer applications, thanks to the selection of Greens Grade in the final mix design.

Once opened, these courses will be a defining feature of SICC, attracting international attention.

"We had great support from Profile's team. James Gordon helped us on the ground in Singapore, and John Maeder provided great technical assistance to get our sand and Profile PPC blend ratio at optimum levels to ensure our air/water balance and infiltration rates were in line for maximum performance."

– Chris Gray, Agronomist

