

Grundfos irrigation system preserving world-class golf course



The Wisely is a private members' golf club, situated in 224 acres of lush countryside in the historic village of Ripley, Surrey, UK. Close to the River Wey, with three natural lakes, the 27-hole, state-of-the-art course was designed to preserve the green beauty of its surroundings.

The situation

Effective irrigation is critical for any golf course to maintain the healthiest grass and the optimum playing conditions. An irrigation pumping system is the course's beating heart, pushing water through a complex network of pipes and sprinklers, to greens, tee, fairways and roughs.

The Wisley's sole source for irrigation water is one of the three natural lakes within the course. The site is graded for an aquifer abstraction license by the Environment Agency, limiting the volumes of water that can be extracted to 300m³/h. The regulations are in place to ensure the water source is safeguarded and that abstractions do not damage the environment.

Installed in the floor of a brick-built pump house, a 6m deep wet well is connected to the lake by a large gravity-fed pipe and the raw water is screened to prevent fish entering the system. The pumping system draws water directly from the well when needed, delivering it via more than 12km of pipework to 1,250 sprinklers, ensuring the course is in tournament condition all year round.

Each pump pushes the flow through one of the four pipes connected to the golf course irrigation network, via a flowmeter. The irrigation water also passes through a 100 µm filtration system to ensure sand and grit does not enter the sprinklers. When in operation, the pumps move approximately 1,500m³ of water per night and are controlled to maintain a constant

pressure of 8 bar. The pump system is set below the Environment Agency abstraction licence threshold, so as not to breach the conditions.

Most of the pumping occurs overnight from 8pm to 5am, from March to October. Servicing, repair and maintenance normally takes place over the wetter, winter period, when irrigation is needed less frequently and parts of the system can be taken offline.

Having been installed more than 10 years ago, parts of the pumping station were in need of an upgrade. Weak spots had been identified, with small leaks beginning to appear on the manifold pipework.

The wall-mounted controller was coming to the end of its life and was incompatible with other irrigation brands and products, with no software updates available. Additionally, four Grundfos SP submersible borehole pumps, designed for pumping groundwater, had been in the wet well for a number of years and were due to be serviced.

John Lockyer, The Wisley's Director of Greens, said: "The Wisley is regarded as one of the best golf courses in the country, and we pride ourselves on creating an all-season haven for our members. A key priority is maintaining our surfaces and our biggest investment, other than course itself, is the pumping station. This has an impact on the health of the course - if we don't have a reliable supply of water, we can't produce a world-class course."

The solution

With an existing pump service and maintenance contract in place with Grundfos, the largest pump manufacturer in the world, The Wisley also elected to upgrade the pumping station control panel and pipework.

Project planning and design began in August 2021 and onsite work began in January 2022, with a recommissioning deadline set for 1 March 2022. The plan was to bring the system back online before the course's summer playing season when water is needed most.

When engineers inspected the existing pumps during the service, they found that they were also nearing the end of their operational life. Therefore, the decision was taken to build and install four new Grundfos SP95-6 submersible pumps, to bring greater long-term security to the entire system, and extend the recommissioning deadline by two weeks.

The resulting project specification was:

- Replace the ageing control panel with a bespoke Grundfos CU352 multi-pump control unit with GRM remote monitoring functionality
- Remove the existing manifold pipework and rebuild in robust, high grade, stainless steel
- Remove the four existing submersible Grundfos SP borehole pumps and replace with four new SP95-6 pumps designed for pumping groundwater



- Remove existing CRIE15-09 jockey pump and replace with new CRIE 15-09 jockey pump complete with IE5 permanent magnet motor.

The new multi-pump control unit uses Grundfos Remote Management (GRM), an internet-based platform which allows The Wisley's irrigation engineer to monitor and manage the pump system from anywhere in the world. Operators only require a web browser and internet connection to access live pump data via their mobile device.

Available parameters include power usage and flow rates, and the platform can also send alerts if there are operational issues such as sudden drops in pressure. Grundfos engineers can also access the platform in the event of operational issues, making it possible to work with the client to fix problems remotely, saving significant time and resources against making a site visit.

Made of high-grade, corrosion-resistant stainless steel, the new SP95-6 pumps are highly durable and energy efficient, thanks to an optimised hydraulics design. They will therefore bring a long-term reduction in electrical usage. Siting submersible pumps in the wet well was assessed as still being the most cost-efficient option, rather than the alternative of building a holding tank and extra set of surface-mounted booster pumps.

The result

The Wisley's irrigation pump station has been upgraded to become a highly efficient, flexible and effective asset. The new remote monitoring capability means those with access can control the pumps and respond to alerts from any location.

The new system is reliable and robust, providing long-term security and the water is delivered more consistently while using less power. Having a single supplier carry out the design, installation and ongoing maintenance has streamlined all processes and offered enhanced functionality as all elements now interconnect.

With the Grundfos project team working closely with The Wisley's irrigation engineers, all deadlines were achieved - the system was fully operational in mid-March, just before the start of the crucial watering window. Grundfos engineers recommended servicing two pumps every two years, on a rolling cycle.

Grundfos National Sales Manager Mark Webb said: "From the very beginning, this project was a partnership between Grundfos and The Wisley and we completely understood how critical the pumping station was to the business.

"While the project was relatively small in scale, it was highly complex in that we were replacing the heart of the golf course within a tight timeframe, and we only had one chance to get it right.

"Despite the project brief changing in the early stages – switching from a service of existing pumps to the supply and installation of five new pumps – the project team, working with The Wisley's engineers, met all deadlines. The Wisley is highly regarded by the golfing community, and we are proud to have played a part in maintaining its reputation for quality and prestige."

John Lockyer said: "We value and respect our surrounding environment, and work to limit the impact we have on it. The reliability of

the Grundfos system gives us peace of mind that we will never use more water than our license allows and that no water is wasted.

"Our tagline is to be tournament ready every day. We are confident that we now have high-functioning future-proofed irrigation system, comprising the best products that will serve us long into the future. Grundfos communicated well, resolved issues quickly and were very flexible."



Trademarks displayed in this material, including but not limited to Grundfos, the Grundfos logo and "the think innovate" are registered trademarks owned by The Grundfos Group. All rights reserved. © 2023 Grundfos Holding A/S, all rights reserved.