Royal Portrush Golf Club

County Antrim, Northern Ireland

United for success

Course Manager:
Graeme Beatt, Royal Portrush Golf Club

Irrigation Technician:
Chris Calvin, Royal Portrush Golf Club

Designer and Consultant:
Adrian Mortram, Adrian Mortram Associates

Contractor:
Jim Price, MJ Abbott Limited

Distributor:
Robert Jackson, Reesink Hydro-Scapes

Product manufacturer:
Simon Squires, Toro

Products chosen for the Dunluce Links (18 holes)/Valley Links (18 holes)

Sprinklers:
- Walkways – Toro PRN & T5
  Tees – Toro T5 / T7 & Flex35-6B
- Fairways – Toro Infinity55 & 36 & 55-6 & 35-6
- Green approaches – models as for Fairways
- Green surrounds – models as for Fairways
- Greens putting surfaces – models as for Fairways

Quantities:
- Toro PRN-TA with 590GF Sprinkler Body = 757
- Toro T5 Sprinklers = 381
- FLEX35 B Series Multi Trajectory with Main Nozzle Adaptor = 424
- INFINITY35 = 1175
- INFINITY55 = 153

Central control system:
- Originally Toro SitePro GDC then upgraded to Toro Lynx GDC
- Toro Lynx LSM

Solenoid valves:
- Toro P220G – 1" & 1½"

The club

Royal Portrush Golf Club provides one of the world's greatest links challenges and is proud host to three Open Championships. Two 18-hole classic links courses are situated among dramatic sand dune systems on the North Antrim Coast of Northern Ireland. Their design and management are deeply rooted in their natural surroundings, providing a challenging playing experience that reflects the club's strong commitment to environmental stewardship and sustainable golf principles.

Overseeing the high standards demanded and ensuring constant attention is given to maintain the renowned club are Course Manager Graeme Beatt and Chris Calvin, Irrigation Technician.

Deliverables

This project spans almost two decades and covers the irrigation milestones in the club's constant quest for always evolving and benefiting from the latest technological developments, innovations, and feature advancements that Toro has to offer for both its central control system and sprinklers.

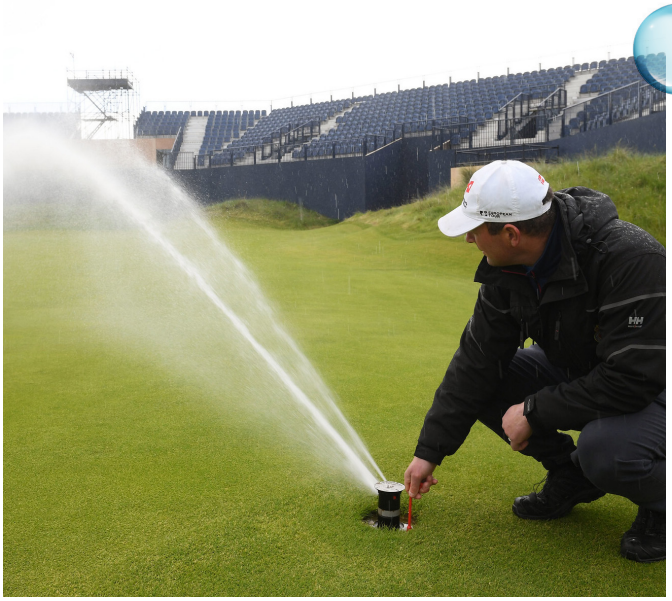
The first stage, specified by Adrian Mortram Associates and carried out between October 2008 and March 2009, saw a complete irrigation remodel across the Dunluce and Valley Links – covering greens, tees, approaches, fairways, walkways, and surrounds. The new irrigation design needed to bring comprehensive and uniform coverage and futureproof the water source, storage, supply, and delivery, using the best the industry could offer.

Further updates followed to bring in new control system technology, sprinkler design updates and accommodate course changes in conjunction with The R&A in advance of the 2019 and 2025 Open Championships.

Graeme Beatt, Course Manager, says: "We need to always protect turf health in a sustainable, efficient way and deliver world-class playing conditions that meet tournament standards. Links turf thrives when it is kept firm and lean, not lush. We need an irrigation solution that essentially allows us to spoon-feed water. The climate is variable; the site is exposed and subject to wind – there is a lot to consider in terms of best practice irrigation."

> **Royal Portrush is always striving for continuous improvement and ensuring best practice in all aspects. Irrigation is vital to preserve the integrity of the turf and playing surfaces in an unpredictable coastal environment. This advanced system from Toro enables us to produce tournament-grade conditions while minimising water use and supporting our sustainability goals. The work completed is, in my opinion, the best it could be.**

Graeme Beatt
Course Manager, Royal Portrush Golf Club



Challenges

The layout of the legacy (non-Toro) system didn't extend to the greens and ran off mains potable water of insufficient supply. The water storage facilities needed enlarging to allow for enough water storage capacity to accommodate an adequate supply in a sustainable way.

Water application through the old system did not allow for precise targeting of specific areas, and this led to discolouration of the grass due to over-watering and pooling in some areas and insufficient irrigation and dry patches in others.

With the hosting of two Open tournaments in and around the upgrades, one of the biggest challenges was to ensure that all works allowed for enough time for the grass to grow back in, to the point where it should be impossible to note extensive work had taken place. This can be particularly challenging on a links course, where the grass species grow more slowly. Workmanship needed to be precise and incredibly clean – there was no room for error.

Highly accurate water delivery was critical on the exposed, windy links site, as well as the ability to micro-manage each sprinkler head and adapt to unpredictable conditions. Graeme says: "The location of the club is generally something of a challenge for an irrigation system, especially for the sprinklers. It's quite a feat to deliver accurate spray in our unpredictable, windy and exposed conditions." The system needed to be weather-responsive, capable of using real-time data to determine irrigation timing and volume to reduce overuse. Precision irrigation to support ecology and agronomy plans was key.

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> It's always a pleasure working with golf clubs who understand how technology can bring huge benefits to the quality of the playing surfaces. Both Graeme and Chris are industry leaders when it comes to this, they embrace new technology and appreciate the value you're trying to bring to the project.

Robert Jackson
Division Manager, Reesink Hydro-Scapes

Solutions

The club was an early adopter of the Toro GDC system and in 2008 Toro and Reesink supported Jim Price and the MJ Abbott team with the installation – from wiring right through to the programming at the back end – and provided training for the customer.

The GDC system brought proven aerospace technology to the club to allow for longer wire runs, smaller gauge wire sizes and more simultaneous valves in operation. Using a two-wire path to communicate to buried decoders, it accommodated larger systems with fewer wire paths, optimised water use and served the club well for over a decade.

In 2017 the system was updated again to a state-of-the-art Lynx central control system with Lynx Smart Module for advanced irrigation control. The intuitive user interface of Lynx combines all essential irrigation data in an easy-to-use format and allows Graeme and Chris to quickly act on course management decisions. It gives them instant access to past, present and planned course management information from multiple irrigation system components including weather and pump stations, electrical systems, sprinklers, and field controllers. With Smart Modules installed within each Infinity sprinkler, commands are received from the central computer via a two-wire path and essential control system data is sent back to the main interface.

This technology enabled water by amount programming, ensuring exact turf moisture delivering water with a tolerance of +1 second on run times. Diagnostic updates are up to 10 times faster and automatic alerts on issues like opens, shorts, or solenoid failure are reduced from minutes to seconds. Best-in-class surge protection, precise control over watering volume and integration with weather and soil sensors mean water is now applied only when needed.

Over the years the scope of work included adding a 690m^3 Vulcan water storage tank complete with a new borehole, transfer pipework, a 125m^3/hr pump station designed and fabricated in-house by MJ Abbott, an upgrade of the station's electrical supply, the addition of five boreholes and the installation of additional mainline pipework. The irrigation coverage has been extended as new holes were built ahead of both Open tournaments.

In the early winter of 2025, ahead of the club hosting the Open Championship that year, all sprinkler heads on both the Dunluce and Valley courses were replaced. Greens, surrounds and fairways were installed with Toro Infinity sprinkler heads and with Toro Flex and B Series on the tees – a process that involved a total of 853 sprinkler heads and which the club did independently, with no contractors, under the direction of Chris.

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Outcomes

The long-term, ongoing partnership between Royal Portrush and its irrigation partners is always evolving and over the years it has delivered:

- Water security – supply and storage requirements can be met sustainably. The groundwater wells now provide sufficient water of the right quality all-year-round
- Maintaining shoot density and uniformity with a careful balance of moisture – vital for links turf, especially fine fescue and ryegrass mixes
- Improved moisture consistency over the playing surfaces (volumetric water content – VWC) due to individual head control and the ability to target in millimetres rather than minutes
- Scheduling to the second watering (calculated on millimetre application quantities) ensures enhancement of turf quality and conditions for major championship golf
- Watering is targeted – not all fairways are watered daily, but greens, tees and key surrounds are precisely hydrated as needed
- Better recovery rates and better germination on the fairways and grassed pathways

The water savings the new system design and application has brought is estimated to be up to 30 percent per unit area of maintained turf.

One of the biggest successes of the project has been the significant improvements made to the heart of the system: the pump station, water supply and storage of water have all contributed to bringing the watering window down significantly.

Prioritising irrigation places Royal Portrush at an advantage when it comes to accessing all the benefits technology has to offer. Graeme says, “Chris’ understanding of the nuances of the system is vital to its success”, while Robert Jackson at Reesink Hydro-Scapes says: “To have someone whose main responsibility is irrigation means it is always prioritised. This is a wonderful case study of best practice procedure for irrigation management.”

For Chris the success of the project is the self-sufficiency it has afforded: “Control, autonomy, the ability to problem solve, react and adapt to weather conditions and tweak for perfection, this is what technology brings and the result is natural links turf.”

Chris and his team can rely on Reesink and Toro NSN for round-the-clock customer support including software-related queries which, in Chris’ own words, is “vital.” Robert says the club will be more than ready for future Lynx software updates – such as Lynx Drive – when it launches, and the club will be one of the first to benefit from the latest software.

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