

# BRINGING IRRIGATION up to par



Article supplied by Toro

Above: Neil using Lynx Map App on his smart phone to manually run Flex 34 sprinklers on 9th Green. Right: Aerial view of course

Anyone involved in managing a large irrigation system knows that its performance can change over time. Even with good maintenance, wear of sprinklers, pumps and other components tends to reduce efficiency. As the system performance declines costs rise until the point where an upgrade is warranted. Mandurah Country Club has recently faced this challenge and thanks to the collaboration between the golf course staff, the chief supplier, Toro, the contractor, Total Eden and the willing assistance of enthusiastic club members, the Club now has a refurbished irrigation system that is performing better than ever.

Neil Graham, the course superintendent, joined Mandurah Country Club in 2016.

“It soon became clear that we had significant wiring and reliability problems with the existing control system. We had good support from Toro for the system, but it was not as immediate or as comprehensive as the current NSN service because of the age of the controller. It was pretty simple to justify to the Club why they should invest in a new control system and decoders because of the persistent problems due to the age of the system” said Neil.

“We chose the Toro Lynx GAC decoder system as it allowed us to replace all the wiring and decoders while maintaining all of the existing hydraulic hardware. Our experience with the existing Toro system combined with the features of the new Lynx GAC central control system made it a simple choice. Lynx offers more precise run times and better diagnostics of the voltage and amperage, which makes finding problems so much easier. The higher surge protection, which is included in the Lynx system, is also a big advantage in our environment.”

Neil saw the renovation as an opportunity to collect some valuable data about the irrigation system and has produced some up to date, accurate maps and plans of all the irrigation assets. Mandurah has an active volunteer program for its members and guided by Neil, the members marked the location of all key assets including every sprinkler, solenoid, decoder and valve box. The location of each asset was marked with paint. This enabled PerthCAD to fly the course with drones and create new plans, in 3D, of the whole course and of the irrigation system.

As Neil explained. “I had prior golf course involvement with John Walker from PerthCAD which gave me the opportunity to look at accurately mapping wire paths, sprinklers and valves. John had just commenced mapping with a Drone and after several discussions, I decided to proceed. Volunteers marked sprinklers and valves and the wire paths which allowed for accurate GPS coordinates to be determined for each asset across the whole course. The 3D imagery gives us an excellent tool on the Lynx system for managing the system now. It will also help in future upgrades as it allows contour drawings to be completed simply, during construction projects. We will always have good plans of our system as a result.”

The new system required the installation of a new two wire path and new decoders. Total Eden were chosen to perform the task of installing the new control system, and ploughing in the new decoder cables, decoders and surge protection systems. The new two wire path was laid in less than a week. This was achieved thanks to some good planning and the work of Mandurah CC Technician, Lyall who had clearly marked out all of the wire paths.

The wiring up of decoders and installation of the Control System took a further week. During the installation staff from the Club, Total Eden and Toro checked the integrity of every piece of cable at each valve location.

“It was a time-consuming task that took nearly two days but demonstrates the commitment to quality of all the people involved” said Neil.

As soon as the cable was installed and tested, Mandurah CC engaged PerthCAD to prepare the as constructed drawings. PerthCAD flew drones over the whole course taking over one thousand images showing the cable paths, valves and the sprinkler locations. The result was a GPS plotted, photo realistic image of the golf course.

The Lynx GAC central control system has the capacity to use GPS data to map the irrigation system and ultimately control the overall irrigation scheduling. The manager can use simple interactive maps of any part of the system and course to control all irrigation operations.

“During the audit of our system we noted the location and condition of every sprinkler, valve types, coils, nozzles and number of sprinklers on a block. Each valve was given a code and entered into the new Lynx GAC database. This allowed us to enter accurate details into the Lynx system to improve distribution uniformity across the course” said Neil.

The Lynx database was built using the information from the drones, original as constructed drawings and the data collated from the earlier sprinkler audit. This led to the creation of new hydraulic flow management, which results in the system operating within the limitations of the pipework, ensuring correct sprinkler pressure at all locations on the course. As a result, water uniformity has improved, the pumping system is operating at its best efficiency point and the Club is saving water, energy and money.

The club also took the opportunity to install six Toro TurfGuard sensors, to measure soil temperature, moisture and salinity at critical points on the course. The data from the TurfGuard sensors is automatically relayed to the Lynx software, providing maintenance staff much needed information that can be used for pest control, fertilizer programs and watering regimes.

Superintendent Neil is delighted with the results. “The new Toro Lynx system has improved the distribution flow across the course with more accurate data going into the hydraulic tree to improve the evenness of watering. We also have more control over our watering because of the mobile phone apps which are a standard part of the Lynx package. These apps on my phone give me complete control and access. The improvement in course quality has been noticed not only by course staff but by members and visitors too. Toro’s backup and service are second to none. The whole team including the Club members, Total Eden, PerthCAD and Toro worked together to do an excellent job” said Neil.

“The Lynx GAC central control system has the capacity to use GPS data to map the irrigation system and ultimately control the overall irrigation scheduling.”