

Technical Bulletin –

Hidden Water Storage Tanks

2iC Consultants have pioneered the installation of underground irrigation reservoirs to the European golf and sports industries. In the past, most storage tanks have been sited above ground. They are visually unattractive, often require planning consents, have a lifespan of generally less than twenty years and are susceptible to vandalism. Affordable hidden storage has now become a viable alternative.

Underground storage systems have the advantage of being:

- Completely hidden from view and requiring no planning consent
- Can be installed beneath a fairway, practice ground, tee or car park
- Have a life span in excess of sixty years
- No access is possible – they are safe and vandal resistant
- Have a modular cell construction – any size is possible
- Cost no more than an above ground tank*

2iC Consultants is an independent irrigation advisory, design, and project management company. 2iC will appoint the necessary contractors to install the underground reservoir to their design, and ensure that the club gets the best price. 2iC sells no products or labour and are unconnected with any supplier or manufacturer.

2iC will:

- Assess the water requirement of the irrigation system
- Accurately survey potential sites for the underground tank
- Design the tank and its connection to the irrigation system
- Produce detailed engineering drawings for contractors to work to
- Appoint local ground works contractors, lining contractors and cell installers to install the works
- Sign off the works and approve the warranty

* Comparison of 200m³ storage capacity over tank life-time

The system:

The storage systems are comprised of a series of modular cells (of various manufacture) with a void ratio of approximately 95%. Ten cubic metres of cell will store 9.5 cubic metres water. A tank in an area of 20m x 20m and 2m deep holds approximately 800 cubic metres of water.



Construction of the tank

Water is supplied to the underground reservoir as normal, and is abstracted for irrigation as normal. The tank does not necessarily need to be sited immediately adjacent to the pump house, and on new irrigation systems it may not be necessary for a pump house to be erected at all.



Seeding of the tank



Site ready for cultivation

The reservoir is covered with around 0.5m of replaced soil and the site is cultivated as required. No frost protection is necessary and no maintenance is required.

Hidden storage reservoirs are suitable as direct replacement of above ground storage tanks to a capacity of approximately 1000m³. Where additional storage is required – such as for the storage of water from a winter abstraction licence - 2iC recommend the construction of an above ground reservoir, which they will also design.

2iC Consultants:

- Conducts environmental impact assessments and carries out hydrological monitoring
- Applies for abstraction licences (so far in excess of one hundred)
- Designs above ground reservoirs with capacities up to 50,000m³
- Designs innovative and dual-centred automatic irrigation systems
- Trouble-shoots and assesses existing irrigation and pumping systems

For more information on a completely unique collection of skills and experience call 2iC Consultants on 01529 300224 or visit www.2ic.co.uk.

Offices in Surrey, Lincolnshire and Herefordshire.