

JUST A DROP

It is not in the nature of Greenkeeper International to be alarmist, though with water companies and the NRA declaring (Flying Divots, February) that it will take two wet winters of recharge to return to average conditions, the pessimistic view must be taken: water may well be at a premium yet again. This feature article, taken from a paper given in November to an audience of European golf course developers and planners, offers the view that water is a precious commodity and must be managed with care.

With careful management the quantities of water required to maintain a golf course can be minimised. Nevertheless, whatever management systems are practised, a reliable water source will be required for any successful project: the quantities will vary according to the scope of the project, marketing philosophy, local climate, plant and soil types etc.

For 18 holes the quantities will vary from as little as 50m³/day for 18 greens only in the UK using part circle sprinklers, to circa 3000m³/day for a wall to wall project in the Mediterranean area. (1m³ = 220 imperial gallons)

The availability of water, or lack of it, may well influence the entire philosophy of the project and in extreme circumstances may force its cancellation. Thus it is vitally important that this aspect is explored in full prior to significant financial commitment.

It will not have gone unnoticed that in this country the reduction in available water for irrigation purposes has been making headline news for the past couple of years,

though what may not have been appreciated is that the problem extends throughout the southern half of Europe and North Africa. In nearly all locations, ground water levels have been dropping and there has been insufficient winter rainfall to fully re-charge surface storage facilities and the aquifer, on which increasing domestic, leisure, and industrial demands have been made.

Unfortunately golf courses have been perceived as the villain of the piece: when public supplies are curtailed why should an 'elitist' sport have unlimited supplies? I do not propose to go into the agronomic or commercial arguments, except to say that the irrigation issue does get bad press at home and overseas, and the golf industry as a whole must improve its image. It must counter such ill-informed argument with a reasoned and responsible approach to the issues, in the hope that those responsible for the provision of water appreciate the position and take more kindly and realistically to requests for abstractions. A recent policy

statement from a left of centre Spanish political party requires all new golf courses to use Treated Sewage Effluent (TSE).

The obvious source of water, particularly for the smaller demand project, is likely to be the potable (drinking) water supply, which, if not already laid on, will need to be extended to the site. Few if any water supply companies will permit a direct connection between the public mains and an irrigation system, even if the flow is available at the right pressure, owing to the need to protect the public from potential contamination of the supply. Therefore a break tank will be required and thereafter a pumping system to extract the water from the tank to supply the distribution system. Compared with the possible alternatives, the capital costs are low, but there may be planning constraints. The 'snags' with this type of supply are principally two.

The first is the extremely high cost of the water. A recently quoted project in SE England was 69p per m³, and it was estimated that this project - 18 holes, greens, tees and

GOLF COURSE, SPORTS PITCH OR LANDSCAPE IRRIGATION, The UK and EUROPE

Thinking about the many benefits to be gained from having an automatic watering system? A word with Irri-Serve will help you reach the right decision, economically.

A new system? Up-date? Extension or modification? We will be pleased to give you objective advice - backed by practical experience gained in the field - and all for just the price of a telephone call! Speak to Irri-Serve today or write...

Unit 9, Twin Lakes Industrial Park, Bretherton Road,
Croston, Preston PR5 7RF
Telephone & Fax: (0772) 601534

ISIS

IRRI-SERVE IRRIGATION SYSTEMS

*All types of
systems supplied,
installed and
serviced*

NORTH STAFFS IRRIGATION

An Independent Company



At North Staffs Irrigation we can offer a range of equipment suitable for your irrigation project. A full design and installation service is provided ensuring an effective and efficient system tailored to your individual needs. We offer:

- ★ Fully automatic Irrigation Systems (including greens, tees, approaches, etc.)
- ★ Manual Control Irrigation Systems
- ★ Phased Installations (allowing a basic water supply to be built upon to achieve full automatic irrigation over a period to suit your available finance)

Recent contracts include: Bangor, Sherwood Forest, Fairhaven, Beau Desert, Prestatyn, Accrington, etc. etc.

Contact us on 0785 812706, Fax 0782 395734 or at Ivy Mill, Longton Road, Stone, Staffordshire ST15 8TB.

We are founder members of the BTLIA.



Ornamental lake - note grass to water's edge

approaches - would require something like an additional 1000 rounds of golf purely to meet the operating cost!

Even if the economic argument can be satisfied, the other critical factor is the unreliability of the supply. At times of stress, owing to a reduction of the companies water reserves or the additional domestic load placed upon the overall reticulation system, supplies may be reduced or totally curtailed, this at a time when most needed.

In very exceptional cases, to overcome one or both of these limitations, a reservoir may be constructed to accept water from the public supply during off peak months at reduced charges, with

this water been drawn off during the irrigation season. For those of you in the UK using existing public supplies, check the supply is through a dedicated meter or you may also be paying a sewage charge for irrigation water!

Many courses and planned projects are in the theoretically enviable position of having surface water (rivers, streams or lakes) on or in close proximity to the site, but again there are snags, for in very few countries is a direct unlicensed abstraction from these sources permitted.

Licensing is required to protect the rights of other existing and potential users of water from the same source, and owing to ➔ 36

ON COURSE TO IMPROVE YOUR GAME!

Unnoticeable, except by the keenest eye, our pop-up sprinklers come into play, when the last stroke has been completed, to help revive the course after another busy day. The final round of all - every tee and every green, refreshed by just the right amount of watering, to look at their best for tomorrow's golfers. Automatic irrigation systems, designed, supplied, installed and serviced, by one of the UK's most experienced companies.

For full details contact:



GOLF COURSE IRRIGATION SYSTEMS

Ringwood · Hampshire · BH24 3AS. Tel: (0425) 472251

Exclusive UK distributor of **RAIN-BIRD** Sports Turf Irrigation products

AD REF 74

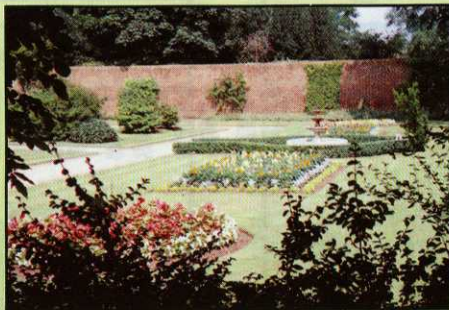
MIDLAND IRRIGATION

THE AUTOMATIC CHOICE FOR THE AUTOMATIC WATERING SYSTEM

All leading irrigation equipment installed, serviced and supplied. Serving the UK and Europe.

For further details contact **MARK GANNING**
2 Fairdene Way, Great Barr, Birmingham B43 5JS
Telephone 021 358 1246

AD REF 356



BRITISH OVERHEAD IRRIGATION LIMITED

UPPER HALLIFORD GREEN, SHEPPERTON, MIDDLESEX, TW17 8SB.
 TELEPHONE: 0932-788301 FACSIMILE: 0932-780437.

WORKING WONDERS WITH WATER - SINCE 1923

GREENKEEPER INTERNATIONAL March 1993 35



AD REF 229

BRITISH TURF & LANDSCAPE IRRIGATION ASSOCIATION

Hunter®

The Irrigation Innovators

**SOLE UK
DISTRIBUTORS
for the HUNTER
GOLF RANGE
of SPRINKLERS**

**SPORTS GROUND
IRRIGATION
Sales**

**6 Stuart Road,
Market Harborough,
Leics LE16 9PQ**

**Tel: (0858) 463153
(0858) 464853
Fax: (0858) 410085**

AD
REF
397

The answer

35 → the aforementioned crisis situation which has arisen, a licence may well be refused or at best limited to abstractions at off-peak periods and/or constrained to ensure that stipulated minimum flows are maintained in the stream or river. Thus there may well be a requirement for a reservoir. In some countries these supplies can be so seriously polluted that agronomic and health factors will have to be taken into account: ridding this water of undesirable deleterious material, so as not to effect the performance of the mechanical components of the system, may also increase the capital costs.

The operating cost may well be low, in this country typically the licence will permit the amount used to be charged for at approximately 1.5 pence m³. However, be warned – there are moves afoot to increase the cost per m³ and to stipulate a minimum charge which may well in the foreseeable future be the maximum permitted by the licence. Nevertheless this should still be a long way off the cost of potable water.

The third principal source of water for golf course projects is ground water, ie. that contained in water bearing underground strata. It should be initially established if the site overlies such strata, and that the required quantities can probably be obtained. Again, the full licencing procedure must be followed. In most countries no work can start until such time as the relevant authority has given its consent, the full licence will not be granted until the borehole has been proved, and consent does not imply a license will be issued. As with surface water, to ration supplies a balancing reservoir may be required and certainly from our experience it is more economical to install even a small one, pumping for 24 hours from the borehole to extract at night for the irrigation cycle. Quality may be an issue.

There is no doubt that in some countries or regions of same, the authorities are, or will be, putting pressure on new golf developments to use treated sewage effluent. This solution, however, is not as straightforward as some would

FLANDERBLADE LTD

A family firm with over twenty years experience
(thirteen as our own company)

We design, supply and install irrigation systems

Maintenance contracts available.

Video available of work completed.

Call Mr Laker
Tel/Fax: (0903) 724545.
Mobile: (0831) 200072

Flanderblade Ltd., 20 Whiteacre,
Littlehampton, West Sussex BN17 7JA

FULL MEMBER OF BTLIA

AD
REF
218

lies in communicating

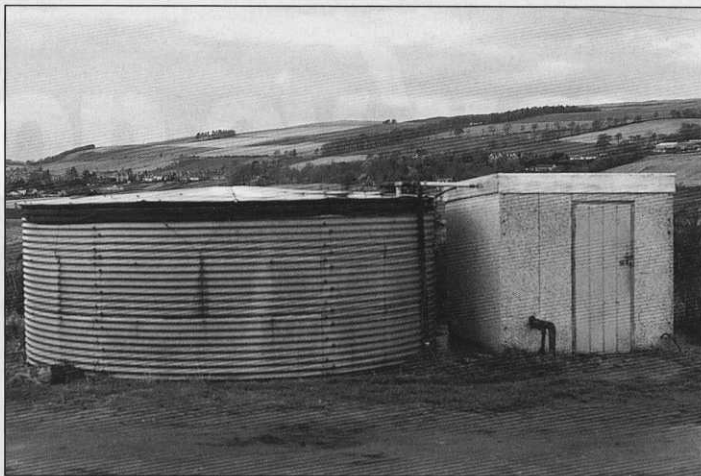
think, as there are quality and quantity issues.

The obvious quality issue is one of odour and, by implication, health. It must be confirmed that the quality will be such that all recognised standards are achieved at all times, (or alternatively at not insignificant cost if further treated). The chemical analysis may be such that a high salt content, (or in industrial areas heavy metals), is such that there may be short or medium term persistent harmful effects on the turf sward.

Discharge quantities may vary according to the time of day, and in holiday areas weekly, therefore it must be confirmed, or arrangements made, to ensure the correct quantities are available at all times for irrigation purposes. Although there may be no charge for taking TSE, there could well be a high capital cost in transferring the water from the plant to the site and further treatment to bring it to an acceptable level.

Technically, in this country, no licence is required. However the NRA will take into account the effect on flows in streams and rivers and may, if the discharge is critical to the environmental balance, object to its use.

Finally, on sites with certain soil types it may be possible, providing the golf course design and drainage plan take it into account, to store surplus rainfall in a reservoir for irrigation use. You will have noticed that whatever the source there will in most cases be a need for a balancing tank or reservoir, ranging in size from say a nominal 50m³ for a 'greens only' project, to say 60,000m³ or more for 18 greens, tees and fairways in the UK if the entire season's requirement needs to be stored. It is important to note that storage reservoirs



Typical public supply balancing tank for a UK greens only project



Winter storage reservoir drawn down at the end of the summer. Note unsightly view from adjacent tee

should for preference be situated off course, as inevitably they will become unsightly when draw-down, thus there is a requirement for additional land to be made available, which should be taken into account at the feasibility stage and subsequently at the

planning application.

To ensure the most economic and practical answer to this ever increasing problem, it is vitally important that the client, his golf course architect, agronomist and irrigation consultant, co-operate fully. Their combined knowledge

should, except in the most extreme cases, provide a solution. The irrigation consultant, with his wide range of experience, will establish with the agronomist the nett water requirements of the project and convert these into gross requirements (which are significantly higher), taking into account such factors as irrigation efficiency, overthrow, lake surface evaporation losses etc., and probably in warmer climes, landscape requirements. Thereafter he will establish how this water is to be sourced, confirming quality and quantity, and whether or not there is a need for a reservoir (if so its capacity), treatment etc., apply for licences and handle all the negotiations and all paperwork that entails. To ignore the water requirements at the planning stage is at the developers peril!

To summarise: Potable supplies – generally for smaller projects have a low capital but relatively high operating cost, the quality is good but can be unreliable. Surface water – low capital and operating costs, a reservoir may be required and a licence will be needed, quality should be confirmed as acceptable. Ground water – a high capital and low operating cost, quality generally is good, a licence and reservoir is required. Treated Sewage Effluent (TSE) – this is a minefield: probable high capital costs with major quality issues. Rain water – feasible in some cases, high capital, low operating cost. Reservoirs – these are required in most cases, costs (additional to land purchase) will vary dramatically depending on soil/strata types and, of course, volume required.

■ The author, Philip York, is an irrigation consultant with Philip York and Partners.



For the installation, maintenance and repair of all makes of irrigation systems on golf courses, bowling greens, tennis courts and any playing areas, farms and garden sites.



IRRIGATION SPECIALISTS



Suppliers of galvanised PVC and polythene pipes and fittings, valves, pumps, agricultural and pop-up sprinklers and associated equipment.

Main area dealer for

TORO

AD
REF
27

Unit 18, Camphill Close, Dallamires Lane, Ripon, N. Yorks HG4 1TT
Tel: (0765) 602175. Fax: (0765) 603488. Directors: Eddie and Linda Simms