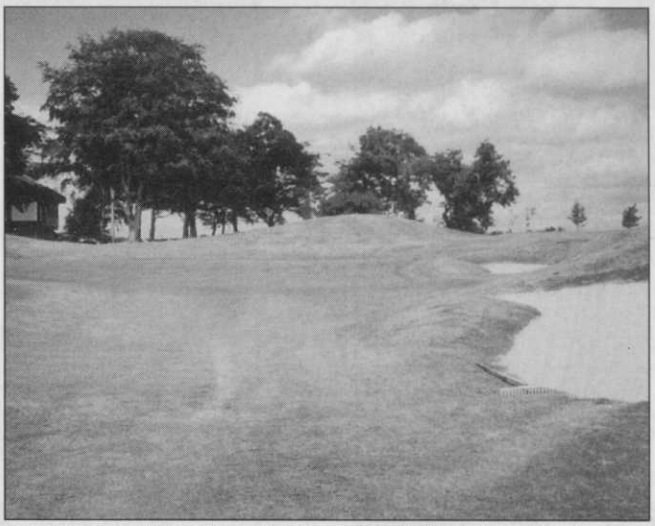
DRAINAGE

Michael Bird examines some of the options open to greenkeepers who are searching for solutions for drainage problems



Top picture: muddy puddles at Newmacher Golf Club before drainage problems were solved. Above: the course as it looks today

Drainage problems at Newmacher Golf Club in Aberdeenshire started eight or nine years ago in the areas where heavy plant had been at work. With the resultant compaction, water just lay on the top.
All the problem areas were sorted with a 100m main drain down the centre and 80m laterals every 3–4m into nearby ditches. Drains were excavated with a Kubota digger.
Pipes were backfilled within 6in from the top with 10/5mm washed gravel then 4in of 5/2mm washed grit and then 2in root zone sand. For deeper drains they used 10/20mm gravel.

Effective drainage is an essential requirement for all playing surfaces. An inability for water to keep moving either sideways or downwards can swiftly reduce superb turf to a mudbath, causing a series of knock-on effects which can be extremely costly to rectify.

Poor turf drainage not only limits water percolation, it also hinders the passage of air and warmth through the soil to the roots, restricting strong and healthy plant growth.

Prevention, as in so many other cases, is always better than the cure. However, the ability to carry out and maintain effective drainage is within the reach and means of most clubs. This can be achieved either by employing a professional sports turf drainage contractor or by using their own equipment, hired in or purchased for the job.

In many situations, it will pay to have one's major drainage works carried out using purpose-built drainage machinery equipped with laser guided levelling equipment to ensure that the pipe gradients are correct within both flat and undulating ground.

This requirement is not so demanding beneath turf which has a consistent slope in one direction or another, the aim being to drain to the lowest possible level, keeping water on the move using the lie of the land.

Whatever one's circumstances, there will always be occasions when additional drainage is needed or there is a need for rectification, maintenance or improvements to existing installations. For these jobs, greenkeepers can call on a growing range of equipment suitable for use by the "do-it-yourselfer".

Shelton Trenching Systems claims to be Europe's leading specialist manufacturer of sports turf drainage equipment, producing a series of high quality, effective products over the past decade.

The company's Supertrencher Mk Va is designed for high daily workrates cutting pipe trenches from 25mm to 135mm (1in to 5.3in) wide. Features include a longer conveyor than previous models allowing the use of larger trailers to remove the soil. Chain driven, the conveyor has a chevron belt, the speed of which can be adjusted hydraulically.

Other enhancements include the lowering and enlarging of the soil exit port and the fitting of a stainless steel deflector plate. Together they are said to provide greatly improved soil flow for faster working.

Options on the trencher are laser levelling and a mini gravel hopper to allow simultaneous backfilling. Designed for tractors of 75 to 90hp/ the Supertrencher Mk Va costs £9,350. It can be specified with segmented cutters with quick-change tungsten carbide tipped cutter heads.

For those preferring a trenchless system, Shelton's gravel band drainage machines can instal two 20mm (0.78in) bands of material 400mm (15.75in) apart in one

pass at depths down to 250mm (10in).

Rather than utilise gravel or sand, Shelton recommendes 3mm Lytag because of it excellent hydraulic conductivity.

Presser wheels minimise surface heave allowing the turf to be returned immediately to play while the introduction of stainless steel channel openers has enabled the use of tractors of 50hp-plus, with four wheel drive advised in wet conditions.

Available on hire at £185 per day (minimum three days) or for outright purchase from £7,895, Shelton Gravel Band Drainers come in three models, one of which permits the fitting of self-loading equipment on the tractor's three-point linkage.

The company has also introduced recently a range of turf drainage equipment suitable for use with compact tractors.

Perthshire farmer, Jimmy Gilchrist, has been producing the Daisy D Drainer since the early 1980s. Comprising a simple, single leg trenchless unit, it is suitable for mounting on tractors of 75hp-plus, depending on ground conditions and drainage depth.

Versions suitable for laying 80mm or 100mm pipe down to a maximum depth of 914mm (3ft) are available and the hopper has a shutter to regulate depth of backfill.

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Available within the Daisy D contract drainage service or for purchase at £2,600, the Daisy D Drainer can be equipped with laser levelling if required.

One multi-purpose machine which is proving its costeffectiveness on a range of jobs for landscapers, contractors, groundstaff and others is the Skidster, fitted with either a petrol or diesel engine.

Comprising a base skid-steered power unit with a rear stand-on operating platform, the machine can be equipped with a host of attachments for work on hard and turf surfaces.

For drainage works, the machine can be had with a chain trencher, front hoe excavator and bucket loader, each designed to give the Skidster the abilities of a single, specialised unit.

As a trencher, the machine is compact, self-contained and highly manoeuvrable capable of digging a 914mm (3ft) deep trench at 100mm or 150mm (4in or 6in) widths. A crumbler attachment is available and there is also the option of full crawler rubber tracks to minimise disturbance of soft surfaces.

Equipped with a bucket, the machine offers a maximum 2m (6.5ft) lift height. Offered with a variety of tyre options to suit the surface, Skidster prices start from less than £7,000.

Bigger drainage works demand bigger machines and Foster has a range of heavy-duty diggers suitable for fitting to most tractors from 35hp upwards.

The company's D2 and D2P diggers connect direct to the three-point linkage and have twin ram 180deg slewing. Because of its offset facility, the Foster D3 model is attached to the tractor using a load-bearing sub-frame.

Major difference between the D2 and D2P is the use of an independent hydraulic system on the latter. Both machines have a maximum reach of 4.37m (14ft 4in), digging depth of 3m (9ft 10in) and tear out force of 2.9 tonnes (6,3501b).

The D3's arm can be offset to any position along its frame enabling work close to walls and fences. Sideways reach is a massive 5.18m (17ft).

Offered with a choice of ditching, trenching and drainage buckets, the latter with ejector, Foster diggers cost from £3,500.