LEADING DRAINAGE DESIGN SOFTWARE
WHY *MicroDrainage*?

The first version of *MicroDrainage* was developed in 1983 and evolved with the UK water industry as the leading software tool for drainage design. Today it is extensively used throughout Europe, Africa, Asia and the Middle East.

*MicroDrainage* is a range of fully integrated modules, developed for the design and modeling of surface water and waste water systems. The modules can be used in isolation or combined with other modules for additional integrated functionality. The modules deliver high quality, compliant designs and reports that can be used by consultants, engineers, authorizing bodies and environmental agencies. This powerful software can handle projects ranging in size from small developments to new cities.

**Design for Your Environment.** Whether working with an existing sanitary (foul) network or designing a greenfield project, *MicroDrainage* gives you the tools to effectively deliver compliant detailed designs.

**Design to the latest standards.** The latest National SuDS (Sustainable Urban Drainage System) Standards, Sewers for Adoption and Code for Sustainable Homes guidelines are incorporated within the software to assist designers manage quantity, quality and amenity as well as compliance.

*MicroDrainage* incorporates BIM (Building Information Modelling). All elements of the design are connected and interact within the design to ensure accuracy as flows and volumes change.

**Design in 2D then view in the 3D Worldview.** Define water table, rock strata and landscape features such as trees, houses and other buildings. Maps and photographs can be inserted as background images in both Plan and 3D Worldview. View real-time animation of water levels within the network in graphical form.

**Easily import and Export.** GIS data can be imported in a number of formats including .pwr, .csv, .txt, .xml and .asc. Export new drainage network designs into multiple modelling software formats.

**Illustrate flood flows.** A 3D ground model of the site can be imported, triangulated and indicative flood flow paths illustrated for exceedance.

**Input or import rainfall data.** Specify rainfall profiles directly for international use or undertake continuous analysis of time series rainfall. Use FSR or FEH rainfall data, access the UK MET office DELUGE® rainfall database to populate rainfall data for designs within the UK. Scale rainfall to model climate change.
Rainwater Harvesting. In line with latest industry standards, MicroDrainage can design for rainwater harvesting.

Design graphically within MicroDrainage. Import drawings directly into DrawNet allowing pipe networks to be auto-designed directly on them. Design and edit drainage layouts within the AutoCAD®/Civil 3D® (2012 - 2014) environment with our DrawNet CAD module.

Model infiltration structures, runoff and flow controls. Calculate the greenfield runoff rates and volumes, quick storage estimates and infiltration feasibility. Specify an input/unit hydrograph or model inflow from green roofs or rainwater harvesting tanks. Design storage and/or infiltration structures, flow controls including; soakaways, infiltration trenches, porous car parks, cellular storage, ponds etc. Estimates of volumes for excavation, porous fill material, net storage. Drain down times can be calculated to confirm the feasibility of each option. Link several structures to determine their combined hydraulic and pollution removal performance.

Detailed pipe and manhole Design. Deliver storm, foul and existing pipe designs that include manhole and pipeline schedules and longsections. Design and size pipes using either Rational or Modified Rational Methods. Specify slope, fall or auto design to give self-cleansing velocity and optimize the network to maintain minimum cover depth. Mark connections as either a sealed manhole, junction or a standard open manhole.
Pollution estimates. A Pollution Summary can be generated to estimate the range of pollutant removal percentages achieved in accordance with CIRIA methodology.

Model extreme rainfall. Apply rainfall data directly to the terrain. The water is allowed to find its own way into the 1D system via 2D overland flow. Analyze flood flow paths, simulate events and test designs to determine critical levels and design flaws. Evaluate multiple storms for a required return period, collate results and identify critical duration.

Graphical flood flow path modeling. Identify depth, velocity and direction of overland flows (including the ability to output Defra Hazard maps). Identify the natural catchments, channels and areas of existing ponding on the site.

Design at a micro or macro catchment level. Split a network into individual sub catchments for independent design or combine completed sub catchments for integrated design and analysis.

Solve hydraulic problems within a drainage system. Identify, understand and solve issues within designs automatically, quickly and easily.

Customized reports. Print design data and results in pre-defined or custom reports or export to a wide range of formats such as Excel and HTML.

Easily determine billing/pricing for jobs. A library of construction costs can be maintained to enable the engineer to conduct cost benefit analyses on alternative proposals and can be used across multiple projects. MicroDrainage modules link to a very wide range of civil engineering software and can integrate with these to drive your design process.

Both 32-bit or 64-bit software version. MicroDrainage supports multi-core systems for improved software performance and maximum efficiency with system resources.
THE MODULES OF MicroDrainage

**System 1** – sanitary and storm water pipe design that includes production of manhole & pipeline schedules and longsections.

**DrawNet** - produce a drainage layout more quickly and effectively in a graphical format working alongside a variety of software platforms, rather than entering data into spreadsheets.

**Simulation** – model to incorporate controls and storage/infiltration structures. Test the model for extreme rainfall events.

**APT** - ‘Advanced Productivity Tools’ help with a range of additional functions like: editing Network Details, Rainfall Wizards, analyze return periods and illustrate 3D indicative flood flow paths for exceedance.

**Source Control** – for quick storage estimates, infiltration feasibility, quick sizing of infiltration structures and the design of storage/infiltration structures.

**FloodFlow** - an advanced 2D analysis engine for calculating flood flow paths across a triangulated terrain model. FloodFlow is an extension for Simulation/APT with bonus features added to DrawNet/APT.

**CASDeF** - optimize pipe sizing and storage/infiltration structures.

**QuOST** - to complete taking-off, billing and pricing the job.

**Channel** - Backwater Step Method determines the water levels in open channels.

**Pluvius** - unlock the UK MET office DELUGE® rainfall database.
The MicroDrainage philosophy is to inform, educate and empower clients to produce compliant design productively and efficiently.

**Technical basis**

Drainage Network Design - Uses BS EN 752 or main drainage methodologies for sanitary (foul) systems. Rational Method or Modified Rational method for surface water systems.

Modelling - Wallingford Procedure, simulating using time/area full hydrograph methodology including energy and momentum equations for dynamic analysis.

Flood Routing and Exceedance - Quick, simple indication of where rainwater will channel and pond on the surface using 2D flow analysis. Integrated 1D/2D analysis of surface flows that exceed drainage capacity.