

Project: **Adult Learning Centre, Evreham**
Client: **Buckinghamshire County Council**
Date: **2003**

Key Aspects:

Drainage Survey
Retro-fit Sustainable Drainage Design
Hydraulic Modelling
Best Value Engineering

Project Aims:

The project required the delivery of a replacement surface water drainage system from the roofs of an existing educational centre.

Project Summary:

Evreham Adult Education Centre was extended during the 1980's and the drainage for the building was based upon soakaways. However, the roofs historically flooded during storms, regularly causing flood damage. Bucks County Council had tolerated the problem until the centre was internally refurbished and several computer suites installed. The Council decided that the drainage had to be rectified to avoid any costly damage. EPG Clear's remit was to investigate the problem, identify the cause(s) and to design an adequate retro-fit system that could also accommodate more onerous storm events than the original design.

Design overview

The first action undertaken was an investigation of the existing drainage system, which revealed that the original soakaways had not been appropriately constructed and were in fact simply deep trenches.

There were no records of specific site investigation or calculations to support the original soakaway design. EPG Clear carried out soil permeability tests at the site to BRE Digest 365 to determine infiltration rates and response zones within the existing soils. The trials revealed the soils to have medium range permeabilities ($10^{-4}/10^{-5}$ m/s).

The main constraints for the retro-fit design were the frequency of services to the centre, the restriction on excavation depth (proximity foundations), lack of available working space and maintaining full access and use of the facility.

In recognition of these problems the replacement soakaway design was based on the use of highly voided geocellular structures that could be constructed in shallow and narrow excavations using very lightweight plant (mini-digger). The average dimensions of the soakaway were 1m deep x 0.3m wide. Where space was available, larger attenuation tanks were incorporated.

