

Sustainable Urban Development Scheme (SUDS)

Abstract

RS Hydro has recently installed a network of open channel flow meters to monitor the runoff patterns associated with innovative methods of flow attenuation including permeable paving, detention basins, swales and green roofs.

Equipment Used

Level Troll 500 level sensors, V-notch Weir Boxes and Ultrasonic Open Channel Flow Meter.

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Background

Scientists are predicting that, in the years to come, the climate of the planet will change. This will mean that some areas will become warmer and sea levels will rise. Many countries are using large areas of land for housing and agriculture that years ago will have flooded. The FLOWS programme is designed to look at the issues and deliver practical projects to identify how people need to adapt to live with water.



fig1. The Level Troll Range.

FLOWS is a transnational project with participants from Germany, the Netherlands, Norway, Sweden and the United Kingdom. Cambridgeshire County Council has acted as the lead partner in the UK. Lamb Drove is a new residential development of 35 affordable homes (built by Cambridge Housing Society) on a one hectare site. The aim of this unique and pioneering project was to showcase practical and innovative Sustainable Water Management Techniques (incorporating SUDS and property flood proofing) within residential developments.

The Project

The main objective for the project was to demonstrate measures to attenuate water flow within the development, slowing down the rate of runoff and storing water in high rainfall events. This prevents additional flood risks occurring elsewhere. In order to achieve this the scheme incorporates the following innovative SuDs measures:

- **Permeable Paving** – The paving within the adoptable roads and some of the car parking areas is of permeable construction. Gaps between the paving allow water to enter porous storage zones.
- **Detention Basins** – Sculpted depressions in open spaces help to slow down the runoff rate and store water on a temporary short-term basis.
- **Swales** – Most of the excess water from the site will be fed into a series of shallow creeks further slowing the flow of water and starting the water treatment process.
- **Green Roof** – The site includes a small demonstration green sedum roof to reduce water runoff and carry out some natural treatment of rainwater.

Our Involvement

RS Hydro designed a series of 8 v-notch monitoring boxes to measure flood attenuation within the residential scheme. A further flow meter was installed in a control site without any flood mitigation features. The project will last 12 months but is already clear that projects like this will significantly reduce the likelihood of flooding but has also improved the local appearance of the local landscape.



fig 2. Lamb Drove industrial development