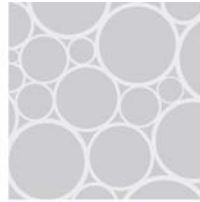




ENVIRONMENTAL



FLOOD RISK



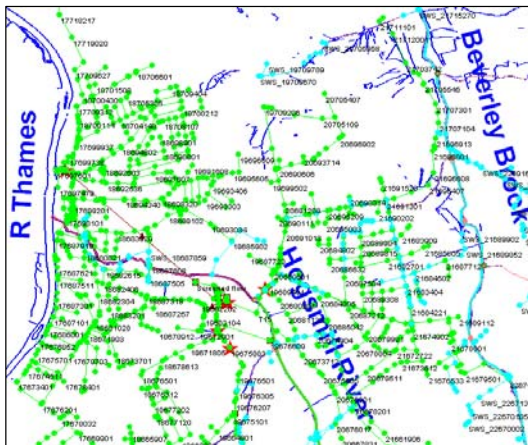
DRAINAGE



ECOLOGY

# Hogsmill UPM Study

Thames Water Utilities Ltd, 2003-04



## Project aims

The project was required to assess the potential water quality impacts of flooding relief options on the Hogsmill River and the Beverley Brook.

It involved the key aspects of:

- InfoWorks Modelling
- Water Quality Modelling
- UPM River Impact Analysis
- CSO Assessments

## Project summary

The study area covered the sewerage catchment draining to the Hogsmill STW. The catchment area includes Epsom, Ewell, Kingston and Surbiton and

has a total population of some 400,000. Thames Water supplied a verified InfoWorks hydraulic model and this was used as the basis for developing a water quality model.

The InfoWorks model was updated to include the major surface water systems together with river units to represent the major watercourses. Flow and sewer quality data was used to calibrate the model for sewer quality parameters.

The model was verified for BOD and ammonia, split between the dissolved pollutant load and that attached to sediment.

To obtain a representative assessment, a stochastic rainfall series was generated from 20 years of historic rainfall for the catchment. This was analysed and ranked to create a manageable data set to run with the model.

The InfoWorks UPM tool was used to assess the river impacts of the existing system and a number of CSO options. River impact assessments were carried out against both the percentile (RE) and Fundamental Intermittent Standards (FIS). A staged approach was taken to use constant load and, where justified, QSIM pollutant analyses.

A number of options and scenarios were considered for constructing an emergency relief overflow to prevent flooding within the catchment and at the STW, while minimising any river impacts.

The study included a series of sensitivity analyses to check the robustness of the both the options and the InfoWorks UPM methodology and assumptions utilised.

