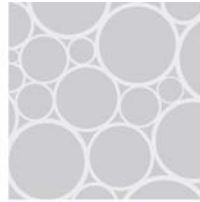




ENVIRONMENTAL



FLOOD RISK



DRAINAGE



ECOLOGY

# Coventry DAP

## Severn Trent, Asset Delivery, 2006-09

### Project aims

Model build and verification of the Coventry catchment to type II standard. The catchment consists of 12 drainage areas primarily discharging to the large Finham STW.

### Project summary

The study area covered the sewerage catchment draining to the Finham and Marston Lane STWs. The population of the catchment is some 340,000. No models of the catchment were available, asset data was supplied by Severn Trent Water was used as the basis for developing a hydraulic model.

The InfoWorks model was built and verified against a phased short term flow survey consisting of three discrete phases. 249 flow monitors were installed across the three phases. In addition, a long term flow survey was installed at 15



key strategic locations across the catchments covering the entire duration of the three phase, short term flow survey.

Verification was phased along with the flow surveys with four largely hydraulically independent models built and verified. These were later combined into a single model covering the entire Coventry catchment, the combined model contains some 22,580 nodes.

The long term flow survey was used in the verification of both the phased model build and verification and as an aid to checking the combination of the four discrete models. Due to the length of time that the long term survey was installed (34 week – Spring to Autumn 2007) various conditions altered over the duration of the installation. This required careful consideration as to which to apply to the final model used for structural, hydraulic and operational assessment.

Slow response flows were key to the verification of the final model and extensive application of the Ground Infiltration module within InfoWorks was required. It was found that levels of slow response altered significantly over the verification events captured. This had to be based on the long term flow survey as for two of the short term phases very little slow response flows were seen in the observed data. Without the installation of the long term flow survey, much of the slow response observed in the catchment would not have been discovered.



The long term survey involved flow monitoring in some large diameter sewers (circa 3m). Standard and non-standard monitors

were installed dependant on site conditions, rigorous investigation of flow data and calibration was required in order to gain confidence in observed flow.

Due to the various velocity profiles in large diameter sewers, complex analysis of the raw data and recalibration was necessary to provide accurate observed flow survey data.

