Background

Exeter City council were required to undertake a detailed urban flooding study of the North Brook Catchment. This is an area that has suffered historic flooding and the study was required under the European floods directive. In order to ground truth the theoretical modelling element of the study Hydro-Logic Services LLP were commissioned to provide a detailed network of rainfall and flow measurement solutions.

Tasks and Deliverables

The detailed network of rainfall and flow measurement solutions included:

- 10 tipping bucket raingauges
- 5 strategically located stage - discharge flow measurement sites
- 1 culvert monitoring velocity profiling device.

Benefits and Outcomes

Rainfall

HLS identified 10 rainfall logging sites that covered the catchment to determine any spatial distribution in rainfall intensities / events. Data was reported in both tip form and intensity data at 15 and 2 minute intervals.

Flow

Flow was measured at five sites by deriving a unique stage discharge relationship using HLS in house software. HLS staff have renowned expertise in analysing flow measurement ratings for challenging and complex sites. Telemetry systems were used to alert staff to target thresholds ensuring that the full range of flows could be gauged giving increased confidence in the measurements.

Culvert Monitoring

Culvert flow was measured using echo correlation velocity profiling device. This was installed in the bed of the culvert and flow was calculated using the appropriate pipe coefficients. HLS have internationally recognised experience in the use of acoustic methods of flow gauging.

If you have a similar project where you need hydrological monitoring and reporting, please contact Paul Webster on 01189 331325 or email pwebster@hydro-logic.co.uk.