Project Data Sheet

Richard Allitt Associates Ltd
CONSULTING ENGINEERS

PROJECT

Brooklands Close Flooding Study

CLIENT

Southern Water

- Sewerage
- Rivers
- Coastal
- SUDS
- Land Drainage
- Hydraulic Modelling
- Flood Risk Assessments
- Drainage Area Planning
- Asset Management
- Flood Alleviation
- Flooding Investigations
- Feasibility Study
- Drainage Design
- Environmental Aspects
- Inundation Modelling
- Surface Water Management

This study was to build and verify a model to establish the mechanism which was the cause of winter flooding of 20 properties and to develop a solution to resolve the flooding.

A 16 week flow survey had been undertaken over the winter period and a number of storm events had been recorded. It was noted that following rainfall a number of sewers remained surcharged for a considerable time after the end of the storm. Closer examination of the hydrographs showed that Rainfall Induced Infiltration (RII) was occurring and that the peak flows occurred some time after the peak surface runoff.

A detailed verification exercise was undertaken using the whole of the 16 week period modelled as a single 'event'. The infiltration module within Infoworks was used to model the RII. It was found that the effects of RII lasted for up to 48 hours and this was established as being the main cause of the flooding. It was also found that the RII did not actually occur in the sewers in the valley bottom as one would expect but was most pronounced in the sewers in the valley sides. The degree of RII was not uniform across the catchment and it was therefore necessary to use 3 RII profiles to simulate the different rates of RII into the sewer network.

A number of options were considered with two viable costed options being fully developed to resolve the flooding. The favoured solution diverted some of the flows in the steeper valley sides away from the vulnerable areas in the valley bottom.

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