



Borough of Poole

SIMULATING 'ILLEGAL' CONNECTIONS TO A FOUL SYSTEM

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SUMMARY

In 1985 Poole Borough Council, under the direction of Wessex Water, commenced a strategic review of the drainage system in accordance with the recommendations set out in the Sewer Rehabilitation Manual (SRM).

Following completion of the surface water studies detailed consideration was given to the foul system. Historical records revealed that most hydraulic problems were specifically related to periods of heavy rainfall. As the foul sewers displayed significant storm response WASSP-SIM was considered to be the most suitable method of hydraulic analysis.

An earlier impermeability study had uncovered a sparse number of impermeable areas draining directly to the foul system and these were incorporated into the model. Comparison between the model and results from a short term flow survey showed that only a small percentage of attached impermeable area had been discovered during the impermeability study. The conclusion was that the vast majority of illegal connections were formed in such a manner that they were not visibly evident i.e. blind bends and connections without access chambers.

In order to validate the model a force-fitting exercise was carried out on the basis of the flow survey. The problem then became a massive over prediction of flooding when running design storms with the validated model. Further examination of the data available indicated that the net effect of 'illegal' connections was to throttle flows from high intensity rainfall.

This paper will be taken from a practical engineering viewpoint and will cover the following topics:-

- The determination and distribution of contributory areas to foul systems.
- Observed storm response of 'illegal' connections and modelling options.
- The adopted design philosophy and it's verification.