

WALLINGFORD PROCEDURE LOCAL USER GROUP
AUTUMN MEETING BOURNEMOUTH

'SWITCHING-ON' OF CONTRIBUTORY AREAS

The apparent switching-on of areas for certain rainfall and antecedent catchment conditions causes problems in WASSP modelling. This phenomena has been experienced in Hertsmere and a means to alleviate the problem has been found.

A verified WASSP model of Borehamwood, an almost entirely developed urban catchment with large green areas, was produced using the latest modelling techniques and User Note concepts. The model was used in subsequent hydraulic analysis and design of flood alleviation storage schemes.

Post performance monitoring of a scheme with the aid of flow monitoring confirmed that the model was operating satisfactorily. However in Autumn 1987 during a storm with severity less than the scheme design criteria overspilling was recorded. Subsequent analysis of the flow monitoring data and eyewitness accounts from within the catchment identified that there was an apparent sudden increase in runoff from pervious areas for major events.

Changes to the verified model have been effected to make allowances for the condition of switching-on of areas and this has resulted in the production of two separate models for the same catchment to represent differing rainfall and antecedent conditions.

Enhancement of the model has only been possible, with any degree of confidence, as a result of the quantification of runoff by flow monitoring. Performance monitoring and secondary verification of hydraulic structures is always advantageous, has many benefits and should be considered as a normal requirement of scheme operation.

DISCUSSION NOTES

Technical Session 2
Paper 2.2 Discussion

R.Long ; Scott,Wilson & Kirkpatrick

The flow-survey period was 4-5 weeks only. Do you think the problem would have been recognised if bigger storms had been recorded ?

N.Harding ; Hertsmere

The storms recorded were less than 1 in 1 year. There is no doubt that the larger the storm recorded, the better.

D.Wall ; Wessex Water

A verification was carried out in Christchurch in which the run-off was 25% greater than predicted, yet the impermeable area was correct. Is it that WASSP incorrectly predicts run-off from "connected" permeable area, and how did you conclude that the extra run-off came from the "un-connected" area ?

N.Harding

The difference was 40%, too much from "connected" permeable areas alone.

M.Osborne ; HR

Are you sure you are using the correct UCWI value for winter conditions ? I would refer you to User Note 10.

N.Harding

Yes, we feel the most appropriate value is being used.

D.Dring ; Severn-Trent Water

What enhancements have you made to your model ?

N.Harding

We have two models, one each for summer and winter conditions. We have allowed for extra run-off in the winter model by adjusting the total contributing area. Monitoring is continuing in the catchment.

J.Packman ; IH

I am pleased to hear that you have permanent monitoring instrumentation. The FR equation in WASSP was formed using the original dataset, and no new data is being researched. I would like to emphasise the point that it is essential that more and more catchments are permanently monitored so that a more reliable database is built-up.

N.Harding

I agree. We are using as it stands, obviously.