

Our team successfully applied flood modelling and planning support to satisfy planning conditions for our client, whilst protecting a new build housing development from heavy surface water flooding.



## The Challenge

The development site was located within Flood Zone 1 but was at risk of pluvial flooding from heavy rainfall events. These events generate flows above 5 cumecs (5000 litres per second), exceeding capacity of the existing drainage culvert.

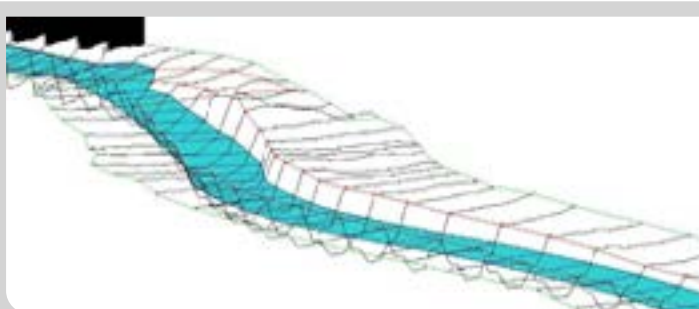
A planning condition was imposed restricting development until flood mitigation measures had been submitted and discharged by the Environmental Agency and Lead Local Flood Authority.



## The Envireau Way

Following a detailed catchment review Envireau Water determined the nature and capacity of flood flows and concluded that a flood alleviation channel should be constructed to capture overland flow and direct surface water away from the development.

The channel was designed using LSS software, whilst a HEC-RAS model was constructed to assess the depth, level and velocity of flows during different storm magnitudes. The reach of the model was determined from key hydraulic boundaries upstream and downstream from the Site.



Example of 1D HEC-RAS model



## The Result

Envireau Water produced detailed model results showing the efficiency of the designed flood alleviation channel to accommodate a range of storm magnitudes and durations.

The final design protected the new build area from heavy surface flooding, provided betterment to existing upstream flooding issues whilst providing additional attenuation measures for downstream flood risk.



We successfully achieved the discharge of planning condition for our client and enabled the development to progress.

## Need our help?

Planning is becoming more stringent, don't get caught out! We are experts in flood risk assessments & mapping, flood resilience design, as well as SUDs and storage optimisation. Get in touch with our technical lead [Lee@envireauwater.co.uk](mailto:Lee@envireauwater.co.uk).