

Galashiels – Integrated Catchment Study

Client: Scottish Water



Caley Water were commissioned to complete an Integrated Catchment Study Planning exercise, followed by a model build in InfoWorks ICM for the Galashiels study area.

The model was required to help Scottish Water (SW) assess the possible risk of flooding from sewerage systems in areas designated as potentially vulnerable by the Scottish Environmental Protection Agency (SEPA), through the National Flood Risk Assessment programme. This also necessitated an assessment of how the River Gala impacts on network performance, as the trunk sewer is located in the river itself.

The primary output from the study was to produce a set of flood maps identifying the extent and depths of predicted flooding from the sewerage system for a series of FEH Design Storms of up to 200 years return period.

Caley Water scoped asset surveys and determined the required modelling approach in order to produce a fit for purpose integrated model in InfoWorks ICM to consider interactions between drainage systems.

A 1D/2D hydraulic model was created which was calibrated against historical datasets and telemetry data to ensure the model was replicating known performance. 2D modelling analysis was undertaken, using Digital Terrain Model data to produce flood mapping outputs to understand overland flow paths.





Services provided

- Review existing data and undertake due diligence check on skeletal hydraulic model provided to determine suitability and critical areas within the model.
- Application of GIS data.
- Plan and manage asset surveys / data collection.
- 1D/2D model build and calibration.
- Hydraulic and Hydrologic modelling in InfoWorks ICM.
- Dual manhole modelling and analysis.
- CSO performance review.
- Root cause analysis of model flooding.
- 2D modelling to review overland paths and prepare flood risk maps for a range of return periods including climate change factors.
- Liaise with all relevant stakeholders throughout the project life cycle and present study findings at stakeholder meetings.
- Prepare reporting in accordance with specification.

Solutions and added value

Caley Water has knowledge and experience in determining the modelling requirements for Integrated Catchment Studies. This includes determining the requirements for watercourse modelling elements, appropriate hydrology and boundary conditions.

We are able to provide high quality fully-integrated models which allow our clients to use these as increasingly accurate tools with which to understand how all aspects of a drainage catchment interact. Our approach provided SW with a tailored product, delivered on time and within budget.

