

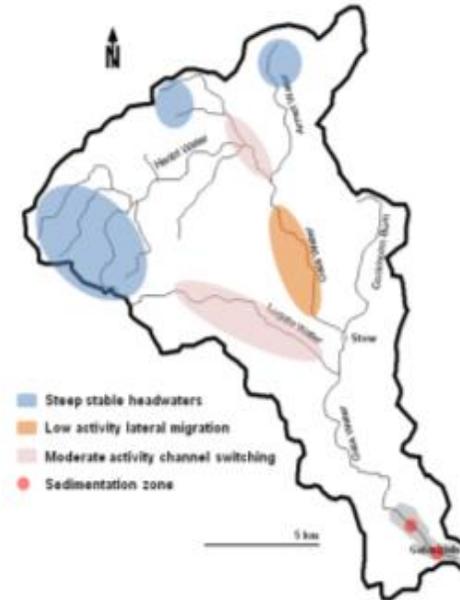
Galashiels

Geomorphological Audit

Contract Brief

A geomorphological audit of the Gala Water catchment was undertaken as part of the development of flood protection works at Plumtree and Wilderhaugh in Galashiels for Scottish Borders Council.

Analysis of the dynamic fluvial geomorphology provided an integrated perspective on the processes influencing river behaviour and helped predict the magnitude of channel response to the proposed works, which include modification of the existing flood defences and selective removal of in-channel bar deposits.



Description

The findings of the geomorphological audit were as follows:

- The channel appears to be broadly in regime with contemporary flow and sediment supply levels.
- Active bar features suggest good mobility of gravel sized material down the system.

- The inactive incised headwater channels presently release only a small sediment supply which has led to stabilisation of wandering sections.
- Tributaries in the middle reach display extensive exposed gravels in the banks, suggesting recent incision and cantilever failure, supplying a significant volume of material to the active channel.
- The high volume of stored sediment and active channel through isolated wandering reaches would make them ideal locations for the redeposition of material removed from the channel in Galashiels.

The findings of the dynamic assessment were as follows:

- The channel through Galashiels has undergone significant modification with modified banks and armoured bed preventing incision and being over-wide, leading to the formation of bars.
- The proposed modifications to the channel will have little effect on the energy levels or channel stability.
- Removal of the lateral bar at Plumtree would create a depositional zone, disrupting sediment supply downstream and potentially causing increased erosion of the Netherdale bar.

We would love to talk to you. Please call Stephen Farrar on 0131 319 2940

or email: stephen.farrar@jbaconsulting.com

www.jbaconsulting.com

JBA Project Reference: 2009s0521



2012 finalists
Royal Academy of Engineering
The MacRobert Award
for innovation in engineering