Further information:

Edenvale Young Associates

www.edenvaleyoung.com

Project Contact:

Chris Whitlow,
Director

chris.whitlow@edenvaleyoung.com

0117 214 0530

Project Description number:

EVY0276

Project Type

Flood Risk/Consequence Assessment

Flood Forecasting

Detailed Design

Calibration & Optimisation

Flood Map Challenges

Scour & Geomorphology

Water Framework Directive

Environmental Impact Assessment

Training

Key Words:

Fluvial Modelling (ISIS-TUFLOW)

River Restoration

Water Framework Directive

Client and stakeholders:

Environment Agency

West Cumbria River Trust

Natural England

Naddle Beck Channel Restoration

Edenvale Young were commissioned by the West Cumbria Rivers Trust to investigate changes to flood frequency and risk associated with a proposed scheme to restore an engineered channel to a more natural state.

Illustration 1: Perched channel reach of Naddle Beck

Project Details

Naddle Beck flows from its headwaters on Castlerigg Fell in Cumbria towards its confluence with the River Greta.

A reach of Naddle Beck is perched due to historical engineering and channel alignment. The subsequent sedimentation and reduction in capacity has led to erosion and frequent over-topping.

A channel restoration scheme aimed to reduce the frequency of flooding to farmers land adjacent to the Naddle Beck, improving access and the quality of the land for pastoral farming.

The re-alignment of the channel to a more natural state would also raise the ecological status of the watercourse through improved hydromorphology in line with WFD objectives.

The study was carried out by firstly developing an ISIS-TUFLOW model to assess the flood regimes in both the baseline and with-scheme scenarios.

The flood mechanisms predicted by the model were then verified using observations from a flood event in 2011. Verification gave confidence in the model to accurately represent the flood regime.