



Mapping the historical alignment of a rare chalk stream using GPR and other geophysical techniques: A Case Study

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This case study describes how GPR survey has been successfully deployed to assist in a landscape restoration project in the UK.

Historically many river courses have been artificially redirected due to changes in land and water use from associated human activity such as; irrigation, milling, abstraction and ornamental landscaping. However, because the river channel is no longer on its natural route, the river can become disconnected from ground water recharge over time. The new channel can become vulnerable to drought, over abstraction and to disturbance of the river bed. With increased periods of low or no flow, unmaintained the new channel can experience increased rates of sedimentation, and eventually the river channel disappears.

This case study describes how a site wide geophysical survey utilising GPR in conjunction with other non-intrusive techniques was used to identify the position of a rare historic chalk river channel in order that it may be restored.

The aim of the project is to assist with the redirection of the river back onto its original course. This scheme is part of a wider programme of projects that aims to protect and restore the UKs rare chalk streams.

The GPR survey successfully identified the buried, gravel filled, channel. The data were integrated with other data to provide a comprehensive model of the site. The data indicate the evolution of the channel prior to realignment with several historical channel routes at varying depths present in the survey area. An intrusive investigation is being undertaken in early 2019 to verify the geophysical results which will be followed by renaturalisation works.