

## Case study #07

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ResilientTogether is a Defra-funded project that aims to build a Smart Catchment to enhance flood resilience. Our Innovation Case Studies showcase new and creative approaches to building a smarter, more resilient catchment.

## Covert 'turtle' gauging station

Camouflaged free-standing gauging stations to reduce the risk of vandalism and theft



Figure 1. Covert 'turtle' gauge at Standalone Farm

## ResilientTogether

ResilientTogether is creating a Smart Catchment, through innovative technologies and techniques, to reduce flood risk to people and places, enhance the water environment in the Pix Brook catchment and improve community resilience.

The project is achieving this through a close-knit partnership that collaborate to deliver six inter-related work packages. This case study comes from the Flow Monitoring work package which aims to enhance the flow monitoring and telemetry network to improve understanding of flows within the catchment and establish near real-time flow monitoring.



Figure 2. 'Turtle' gauge measuring Pix Brook water level

## Challenge

Radio Data Networks Ltd (RDN) have installed a river level monitoring network across the Pix Brook. One gauge is located at Standalone Farm, upstream of a small weir. In this location the risk of damage to the asset from vandals and thieves is high due to its visibility and ease of access. This risk is further magnified as there is no structure (e.g. bridge) to mount and secure the gauge onto. Therefore, an innovative way to deter unwelcome attention and secure this valuable asset was required.

## Innovative Solution

Innovation can come from applying well established techniques to a different field. In this case, camouflage and covertness techniques used by the Armed Forces to protect assets can also be applied to the Pix Brook to disguise and protect telemetry assets

The solution is a free-standing structure that either stands on one bank with an outrigger holding the radar level sensor (Turtle) or a spanning structure across the river (Sedan Chair). The gauge and controls are located in a box that is painted to full NATO camouflage colours. As added protection against theft and weather conditions, the boxes are filled with 200kg of concrete and secured using padlocks. These gauge designs overcome the need for a structure to mount the gauge and allows for easy relocation (see Innovation Case Study #04).



Figure 3. 'Sedan chair' water level gauge

This innovation had previously been demonstrated on Chalk Streams by RDN for several drought deficit monitoring programmes for Anglian Water. This is the first time the gauge has been deployed for real-time flood monitoring.

If you want to hear more, please contact [ResilientTogether.project@Centralbedfordshire.gov.uk](mailto:ResilientTogether.project@Centralbedfordshire.gov.uk) or visit our website <https://resilienttogether.org.uk/>