

Clear and present danger: how utilities can make a stand

Jonathan Bird describes how Gloucestershire utilities beefed up their flood defences during and after the recent floods

While the government is due to conduct an extensive review on flood protection, the threat of more heavy rainfall before the end of the year means the immediate onus is on utility companies themselves to implement defences and protect their sites. After the devastating floods in Gloucestershire, it is perhaps not surprising that local utilities Severn Trent, National Grid and Central Networks are taking immediate action.

At the end of July, as waters in Tewkesbury continued to rise and looked likely to flood Mythe water treatment works for a second time in as many weeks, a team of contractors and Royal Engineers joined Severn Trent to quickly implement more than one kilometre of chest-high flood defences around the site in just 27 hours.

At nearby Walham, news footage of the National Grid substation there showed the water level perilously close to flooding the site. An emergency operation was also put in place to surround the area with a perimeter wall of defences. Both sites are now protected from the threat of more flooding by the Hesco Concertainer system, a patented design which, although it can be deployed swiftly in an emergency situation, is designed to act as a longer-term flood defence.

David Wickens, quality manager at Severn Trent, says of the new perimeter barrier at Mythe: "It really does bolster the defences of this site from further flooding quite significantly... [providing] a good measure of protection for the next few years."

The design itself consists of linked wire-mesh, fabric-lined baskets that pull out manually in a matter of minutes into barriers

nearly one-and-a-half metres high, which can be filled with aggregate to form robust defence walls.

Traditionally these barriers have been used in civil engineering applications and to combat coastal erosion. They are now mostly used as blast mitigation walls to protect troops in Iraq and Afghanistan and were also implemented in New Orleans to upgrade levees in the aftermath of Hurricane Katrina.

After the success of the projects at Mythe and Walham, Central Networks is deploying the Hesco defences at the nearby Castle Meads substation. The site, which was built 50 years ago, lies right on the flood plain surrounded on both sides by the River Severn. Until this summer Castle Meads had never before seen such flooding.

"As soon as we believed that the site was at specific risk we started to erect temporary flood barriers," says Mike Hood, civil engineer at Central Networks. The sandbags and temporary barriers, on loan to Central Networks from the Environment Agency, are now being replaced with Hesco's more permanent solution. Central Networks is also conducting a review to evaluate the risk of flooding at its other sites throughout the Midlands and to ensure that those most at risk can be protected.

It is hoped that other areas in the UK will be able to benefit from the lessons learned in Gloucestershire. While politicians set up committees to conduct reviews and others argue about bolstering defences around utilities, many of which are situated on flood plains, it is clear that there is an immediate need to find fast and cost efficient solutions if utilities are to be maintained in the short term as rains persist.

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