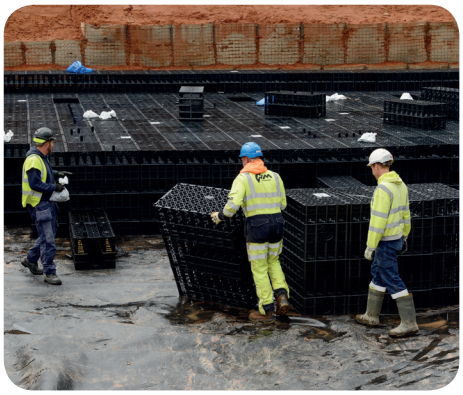
Polypipe enhances flood protection for Kidderminster residential estate

Polypipe has supplied a complete attenuation solution for the £1.3 million Linnet Rise Flood Alleviation Scheme in Kidderminster.

Polypipe SuDS solution enhances long-term flood protection for Linnet Rise



The lack of capacity in the existing highway drainage network placed many properties in the residential area of Linnet Rise at risk of flooding, with the consequences most recently seen in 2007, when thousands of pounds' worth of damage was caused by flooding following torrential rain. The solution delivered by Polypipe and NMCNomenca addressed the site's drainage issues for the long term, whilst keeping installation time and disruption to a minimum. Working closely with contractor NMCNomenca and Severn Trent Water, Polypipe supplied a complete prefabricated solution using Polystorm geocellular tanks, together with pipework, manholes and catchpits all manufactured off-site. The solution allowed installers to negotiate the tight parameters of the Linnet Rise site, where space to manoeuvre plant equipment presented a challenge. Polypipe's solution was fully adoptable with existing Severn Trent Water systems.

Polypipe's solution enhanced flood defence and ensured minimal intrusion into residents' useable space

The final design saw the installation of two Polystorm geocellular tanks at a depth of 3.2 metres, under two resident owned car parks on the Linnet Rise site, providing 366m³ and 479m³ of storage respectively. The tanks were formed using Polystorm cells, which boast a 95% void fill ratio. This solution maximised the tanks' storage volume within the limited space available for an attenuation system on this compact housing estate. These tanks will safely store flood water in the event of surface water sewers reaching capacity following heavy rainfall, before releasing water back into Severn Trent's watercourse once the downpour has subsided. The two tanks were laid at a 1 in 150 gradient across both length and width, to facilitate drain down to the primary inlet and outlet located in the bottom corner of the crates. This ensures that any sediment entering the tank from the surface water sewer is flushed out through the same flow path. Three channels were also installed in each tank, to promote water flow dispersal throughout the geocellular crates and provide inspection points along the length of the tanks, which are accessible via six specialist access turrets located outside of the site's car parking bays. Polypipe's gravity return design means that the two tanks will fill and empty without using any pumps or valves. Therefore, following installation, the system will cost little to run and require minimal future maintenance by Severn Trent Water. Polypipe's ability to manufacture pipework, manholes and catch pits off-site provided a perfect solution to the project's limited working space and the need for quick installation. The supply of high quality parts, designed to the project's exact specification and delivered directly to site, meant that the system could be installed in a single day, reducing both contractor costs and disruption for local residents.

"This project highlights the capabilities that our SuDS water management systems can deliver in improving the quality of life for residents in urbanised areas. Forming a vital part of this retrofitted alleviation scheme for Linnet Rise, our tailored solution countered the limitations of the original drainage system to offer long lasting flood protection."

Rosie Cheetham, Marketing Consultant, Polypipe Civils.

CASE STUDY

Project
Linnet Rise Flood Alleviation Scheme

Client
NMCNomenca

Application
SuDS

Product
Polystorm

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