

Residents of Mendora Road in London benefit from Permavoid stormwater storage and treatment beneath permeable paving

Permavoid and Permafilter geotextile have been installed beneath permeable paving to manage stormwater on busy residential street.

Retrofit
SuDS under
permeable
paving



Urbanisation, coupled with climate change, has led to a disturbed water cycle and an increase in flood events in the UK. This has placed immense stress on London's combined sewer systems, which were developed over old river culverts. In order to compensate for the loss of permeable green space that would previously have alleviated the risks of excess stormwater, Polypipe was able to supply its unique geocellular system at Mendora Road, a typical suburban street in Fulham.

Polypipe's Permavoid geocellular system has been installed as a retrofit SuDS solution for source control creating an engineered stormwater solution, designed to alleviate the flood risk from the existing combined sewer system.

Permavoid was installed beneath permeable paving under car parking bays on both sides of Mendora Road. Harnessing Permavoid's 95% void fill ratio, 3,600 cells form two attenuation tanks providing 136m³ of stormwater storage.

Due to the location of the tanks directly beneath residents' cars, Permafilter geotextile was installed beneath the permeable paving at the top layer of the tank to treat any stormwater contaminated by oils and pollutants from vehicles parked above, before the water enters the storage tank. The sides and bottom of the tanks are surrounded in a geomembrane to allow for the attenuation of stormwater.



The retrofit SuDS solution will reduce the flooding risk, by protecting properties and basements on the street by intercepting surface water run-off, reducing the flow to the combined sewer system.

CASE STUDY

Project

Counters Creek Flood Alleviation Scheme, London

Client

Thames Water

Application

Source control, treatment and attenuation of stormwater beneath permeable paving

Product

Permavoid and Permafilter geotextile

Martin Bennett, Project Director of the Counters Creek Sewer Flooding Alleviation Scheme said,

“The implementation of the SuDS solutions marks an important milestone in the delivery of the wider project which will help alleviate the misery of sewer flooding for local residents. Together with the proposed storm relief tunnel which will run under both local authority areas, upgrading the existing local sewer network and the SuDS schemes, the ability of the sewer network to cope with heavy rainfall will be greatly improved and we are delighted that in this instance we have been able to work collaboratively to provide such an innovative solution.”



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The tanks were designed to fit the footprint of the narrow street, taking in to account the existing underground services and the load bearing requirements of the parked vehicles. Due to the strength of Permavoid and its capability as an interlocking 'raft', the shallow tanks reduced excavation requirements and needed only 130mm of cover, which minimised disruption to residents during the staggered installation process.

Mendora Road is part of a three-street scheme designed to alleviate flood risk in streets built over the Counter's Creek river system. Monitoring performance on the street will provide evidence to show how joint engineered and soft SuDS systems will provide a viable solution that can be applied across a wider area.

