

Sandown Pathfinder

Initial study report summary



from
**Southern
Water** 

Rainwater management and sewer systems

Effective urban drainage is a complex and shared problem.

The challenge evolved over time but perhaps began with the Victorians. Around 150 years ago a new 'modern' combined sewer system was established where both wastewater and rainwater were to be processed together at a Sewage Treatment Site. Today, there are over 100,000 kilometres of these combined sewers still in existence in the UK, making up one quarter of the network.

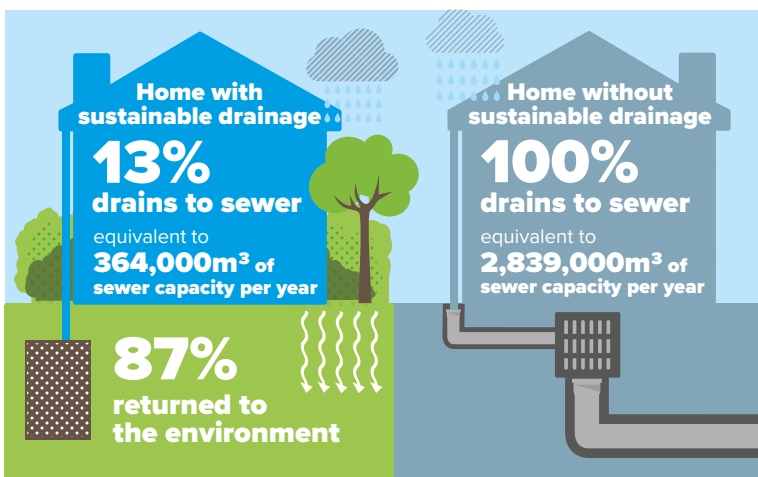
Rainfall runoff from roofs, roads, driveways, etc. can significantly increase the volume of water within the combined network, increasing 'Dry Weather Flow' 30-fold in some areas. This makes it very challenging to effectively treat the contents of the sewer. To prevent homes, businesses, and roads from flooding, storm overflows were built into the combined sewer system to release excess water to rivers and seas when network capacity is exceeded.

There are around 15,000 storm overflows in England. How often they operate and release

Southern Water's plan to reduce storm overflow releases and manage water flows within catchments

We agree with the Government position that better rainwater management is key to achieving a reduction in storm overflow releases, a reduced risk of flooding, and reduced water scarcity. This will better protect our environment and help ensure rivers and seas remain healthy.

In November 2021, we set up the Storm Overflow Task Force. This is a dedicated team responsible for driving our ambitious targets to significantly reduce storm overflows by 2030. The team are piloting schemes across our region, building long-term cross-industry partnerships, and developing a regional plan to ensure we have a sustainable system fit for the future. Sandown catchment is one of five innovative pathfinder projects the task force is currently working on. Our aim is to significantly reduce storm overflow releases in Sandown, from the 2020 baseline.



Sandown drainage system

Almost all the sewers serving Isle of Wight towns are combined. The flow from these urban areas is ultimately pumped to Sandown. Wastewater arriving at Sandown Treatment Works can quickly jump from a 'Dry Weather Flow' of 350 litres per second, to over 3,000 litres per second in a matter of minutes. This system is representative of many similar towns which would benefit from better rainwater management. Working in partnership with communities and other agencies, we're working to reduce the pressure on the combined sewer system, find alternative means to effectively drain our urban spaces and observe the Government's two rainwater management principles:

- Rainwater should be treated as a resource to be valued for the benefit of people and the environment, not mixed with sewage or other contaminants.
- Rainwater should be discharged back to the environment as close as possible to where it lands or channelled to a close watercourse without first mixing it with sewage.

Water run-off for a development of 10,000 homes.
Based on 90mm of rainfall per year.

to the environment varies widely, ranging from infrequent (less than 10 spills per annum) to frequent (greater than 100 spills per annum).

We welcomed Defra's Storm Overflows Discharge Reduction Plan (published in August 2022). It sets industry wide targets for overflow reduction alongside a wider expectation that water companies need to ensure that their infrastructure 'keeps pace with increasing external pressures such as urban growth and climate change'. The report also acknowledges the significant investment in terms of cost required to make lasting change, against a current context of a cost-of-living crisis for customers. As we are already delivering in all our Pathfinder areas, we are confident that not only will we achieve the targets set, but that we'll likely exceed them.

Type of intervention

Better rainwater management provides an opportunity for utilities, councils, and communities to improve our urban places.

Features such as urban wetlands, planters, roadside swales, and rain gardens provide a habitat for wildlife as well as recreational benefits for the local community. Alongside these measures designed to slow and/or divert the rainwater from draining into our combined sewers, we are also looking at two other types of intervention:

1. Making better use of existing drainage features within the catchment e.g. our assets, roadside gullies, private water pipes, etc.
2. Adding additional treatment capacity to our existing drainage infrastructure.

Havenstreet a case study

Havenstreet is a village with a population of 4000 that is served by a combined sewage system. Our model shows that if the area receives more than 5mm of rain in 12 hours, the station will likely release. This typically happens more than 20 times per year and results in more than 2 days of continuous discharge per year.

Following our Pathfinder processes, we made the following interventions.

- We offered all 182 properties a 'slow drain' water butt. 132 accepted and 12 wanted extra. This is over 9000m² of non-permeable area attenuated from the sewer.
- We Identified all properties with >300m² roof area and offered them a range of interventions including SuDS planters, disconnections, soakaways or rain gardens. Uptake was 100%.
- We worked with the Local Authority to remove surface water that was causing nuisance but also entering highway gullies.

- We Risk assessed the removal of surface water connections that have been erroneously connected to the foul.

The interventions took place during the first two weeks of August 2022, as of publication the site has not released. Furthermore the area has had 10mm and 30mm storm events whereby the model predicted the site would have released due to the system being overwhelmed. We will be rolling out this methodology to larger and more urban parts of the Isle of Wight in winter 2022.

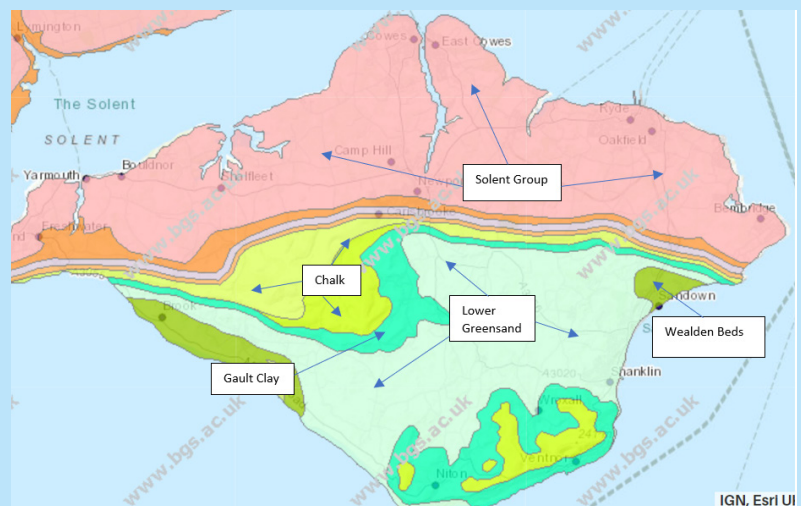


Installed slow-drain water butt in Havenstreet

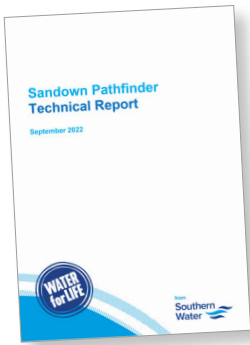
Rainwater management – scale of interventions required

Water companies are not solely responsible for drainage. They are one of many organisations involved in ensuring communities stay protected. Changes are impacting all sectors of UK society, from intensifying weather conditions, to increased urban development, and a greater demand on water as a resource.

To achieve what is needed, utilities, councils and communities need to work together to achieve mutual benefits. We want to act as a catalyst, proactively engaging with partner organisations and the community to collaboratively address the challenges.



Geology map of the Isle of Wight



Next steps

The [full technical report](#) sets out types of interventions that could be implemented to reduce storm releases in Sandown. These include site optimisation initiatives, identification of large impermeable areas and roofs and roads where property or highway SuDS would be effective.

While some actions can be put into place immediately, some will require design and procurement time or trialling. Residents should expect to see early interventions during winter 2022, with regular progress updates posted on our website.



Sandown catchment



Get in touch

You can also find out more about what we're doing to reduce the use of storm overflows across the region on our website at southernwater.co.uk or on our social media channels:

 twitter.com/SouthernWater

 facebook.com/SouthernWater

If you have any questions or want to get in touch, please email: customer.services@southernwater.co.uk

