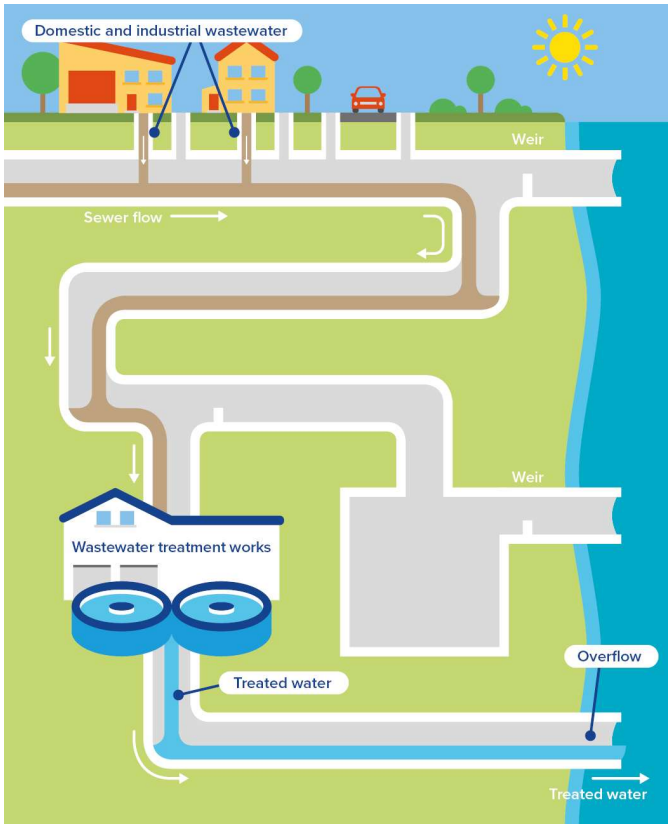
Clean Rivers and Seas Task Force

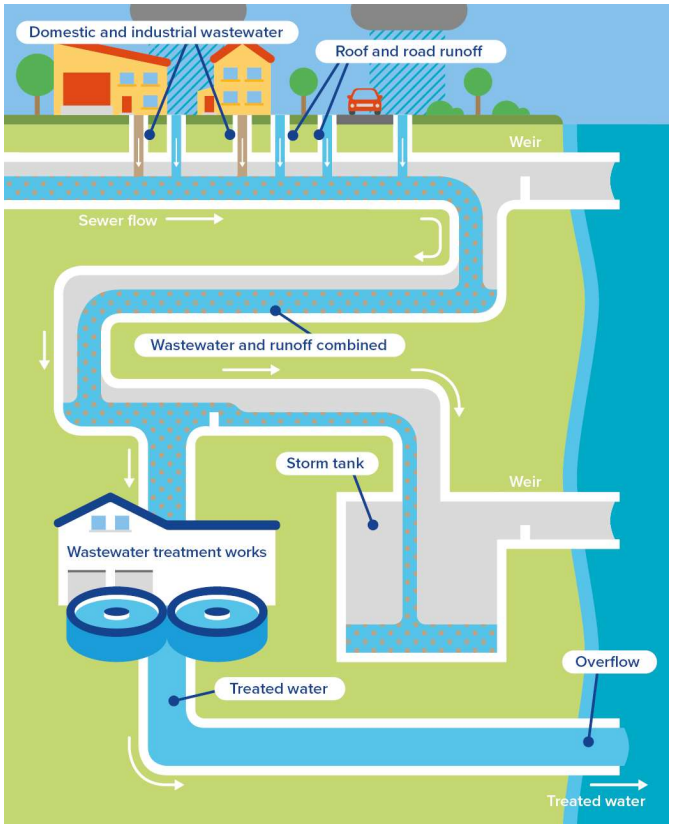
from Southern Water

Why CSOs exist?

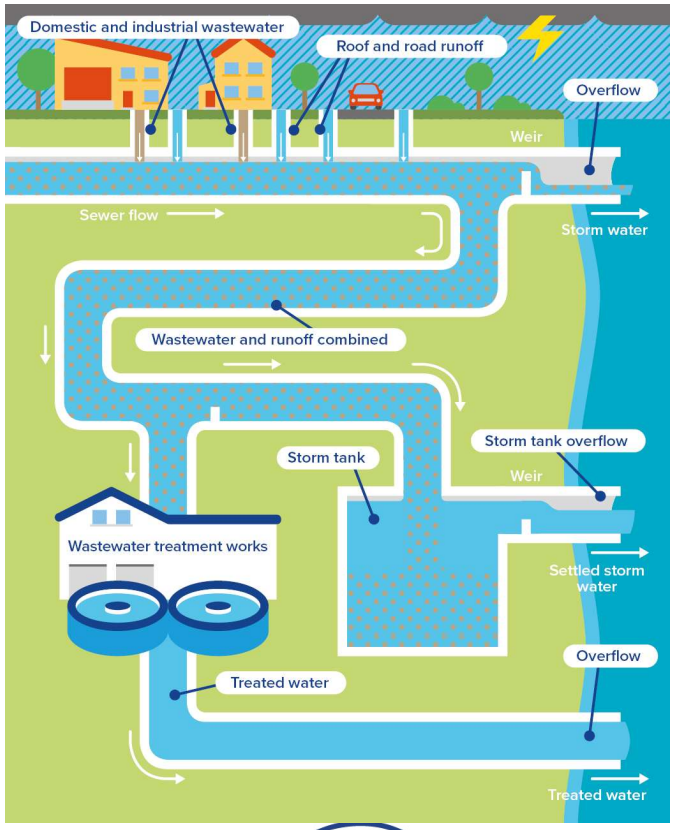
Dry conditions



Heavy Showers



Severe Storm



Approximately 1000 CSO's within the Southern Water Region.

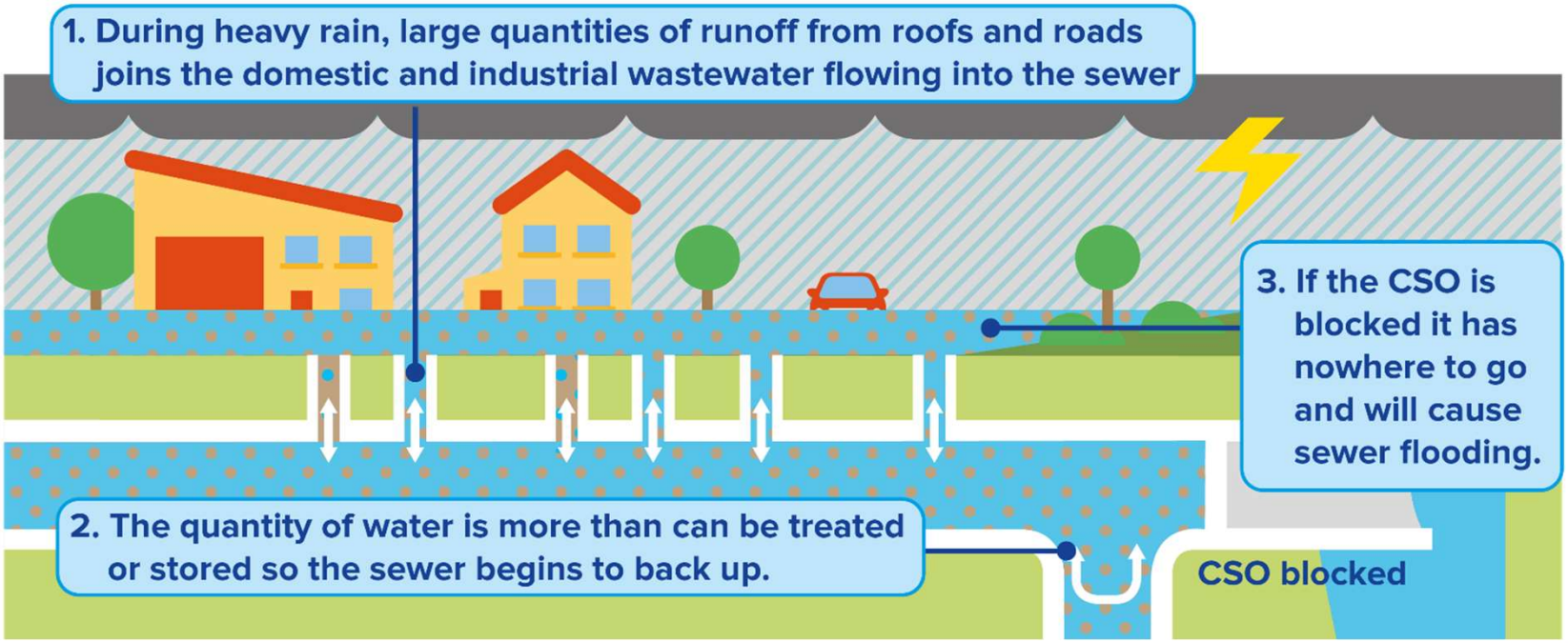
[What are storm overflows? (southernwater.co.uk)]

[Latest news, reports, and updates (southernwater.co.uk)]

WATER for LIFE from Southern Water

What is a CSO and why do they exist?

CSOs are essentially a pressure relief valve for the system to prevent the devastating impact of sewer flooding. Blocking up CSOs will cause flooding.



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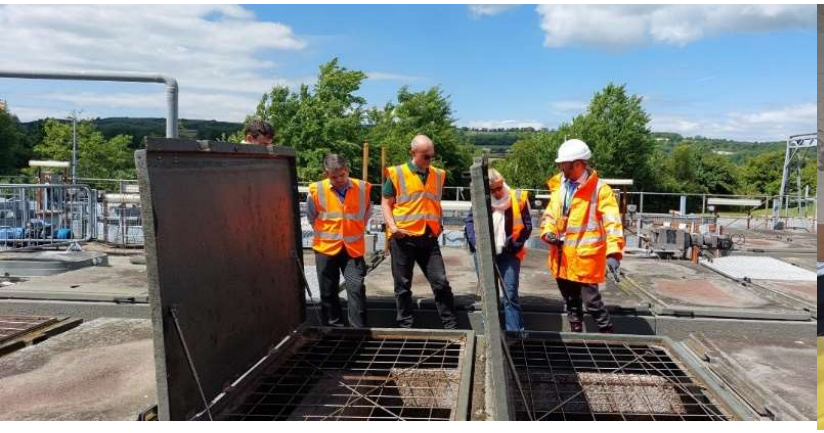
The Cleaner Rivers & Seas Task Force

- The task force is a **dedicated team** that is central to Southern Water's drive towards significantly reducing the use of storm overflows, and managing catchment flows.
- The task force is responsible for **delivering six pathfinder projects** over the next two years. The task force will seek to **establish strong partnerships** to ensure their success.
- **We have built a regional plan** to reduce storm releases.
- Weblink - [Storm Overflows (southernwater.co.uk)]



OFWAT Accelerated Infrastructure Delivery Project

Scheme delivery expectations	
Description	Scheme to deliver a reduction in storm overflow spills that impact bathing waters and inlands waters, with a strong focus on innovation and maximising learning ahead of AMP8. The programme will accelerate AMP8 WINEP storm overflows in 3 areas - the Solent, the North Kent Coast, and Chichester and Langstone Harbours. A minimum of 30 named overflows will be targeted to reduce spills by at least 420 per annum compared with the 2020-21 average. Outcomes and outputs are detailed in the table below.

Option (CapEx - £m)	Number of overflows in scope	Outcome Annual spills reduction (base year average of 2020 & 2021)	Output		
			Non-permeable Area Managed (hectares)	Number of wetlands (#)	Sewer relining (km)
£35	30	420	50 - 80	4	5 - 7

The Clean Rivers and Seas Task Force: Accelerated Plan

Our initial projects in detail

The Harbours and the South Downs

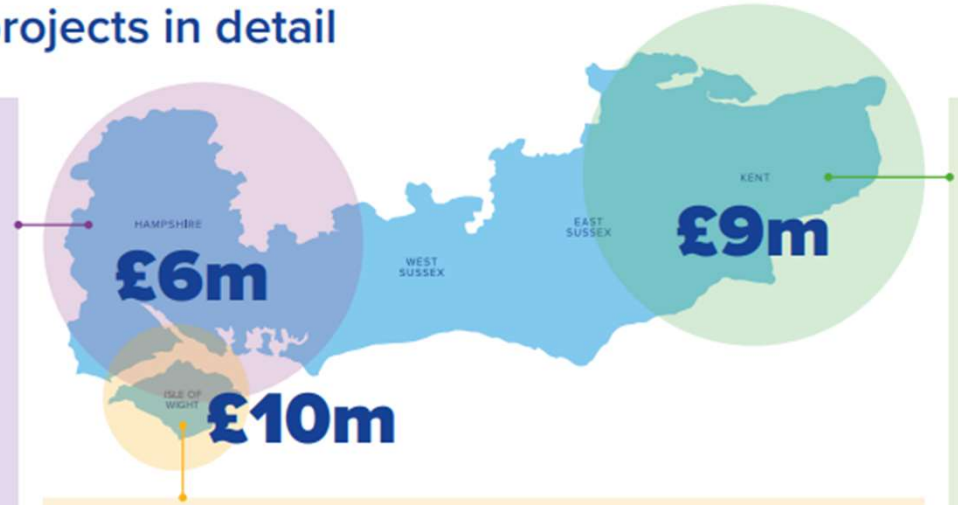
We plan to target four areas where we know that groundwater is getting into our network. Exact locations will be chosen after we've completed local surveys.

We'll be sealing around five kilometres of private and public sewers and constructing up to four wetlands.

This work will reduce releases entering Chichester Harbour and other water sites and is part of our wider WINEP environmental programme for the next investment period 2025–30.

Main driver: High number of storm releases into the Harbours, enhanced knowledge of wetlands.

Root cause: groundwater getting into the network.



The Solent, the Isle of Wight

This includes large parts of the Sandown area, which includes around 90% of the wastewater treatment for the island. We'll be specifically targeting 22 storm overflows with projects in Gurnard, Cowes, Fishbourne, Wotton, Yarmouth and Freshwater.

Main driver: Impact to shellfish waters, frequent spills, customer interest

Root cause: large volumes of rainwater (surface water)

- 15 pumping station improvements
- 10 surface water misconnections redirected
- 6,000 household downpipes fitted with slow the flow measures
- 600 non-household downpipes fitted with slow the flow measures or redirected
- 30 roadside sustainable drainage schemes installed
- 1 wetland constructed

These measures will reduce rainwater run-off over a non-permeable area of around 35 hectares. In turn, this will reduce the amount of water that enters the combined sewer system, leading to a minimum 20% reduction in storm releases by April 2025 (based on 2020 baseline).

North Kent and the East

We'll expand our projects in Kent: Deal, Margate and Whitstable and introduce a new project at Fairlight East Sussex.

Main driver: Impact to shellfish waters, frequent spills, customer interest

Root cause: large volumes of rainwater (surface water)

The team will target five overflows with the following:

- 1 Treatment works optimised
- 2 pumping station optimised
- 8 surface water misconnections redirected
- 2,000 household downpipes fitted with slow the flow measures
- 200 non-household downpipes fitted with slow the flow measures or redirected
- 10 roadside sustainable drainage schemes installed

These measures will help to reduce rainwater run-off from a non-permeable area of 15 hectares. In turn, this will reduce the volume of water entering the sewer system, leading to a minimum 20% reduction in spills by April 2025 (based on 2020 baseline).

from Southern Water

There are broadly 3 main types of intervention to reduce flooding and storm overflow use:

1. **Source control** (removing and slowing the flow of rain water)

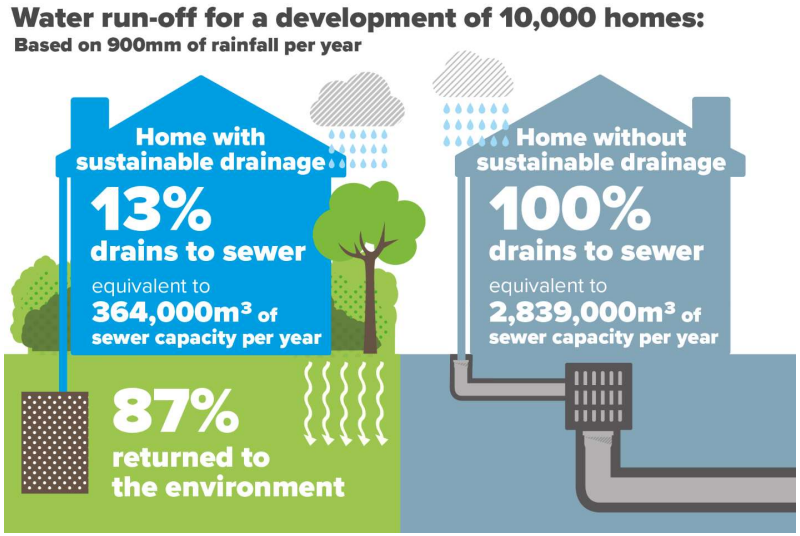
   Rainwater harvesting, Permeable paving, Green roofs, Soakaways (includes tree pits), Rain garden (swales), Planters

2. **Optimisation of existing infrastructure**

   Optimisation, tweaking of connected systems and interface, Different mechanical and electrical equipment (e.g. pumps), Improvements in pumping station and storm tank use and control, Smart network control with increased digitalisation

3. **Build bigger infrastructure** (building larger pipes, pumping stations, etc.)

   Wetlands treatment (Groundwater), Sewer lining/sealing (Groundwater), Larger sewers, Large storm tanks, Large treatment works



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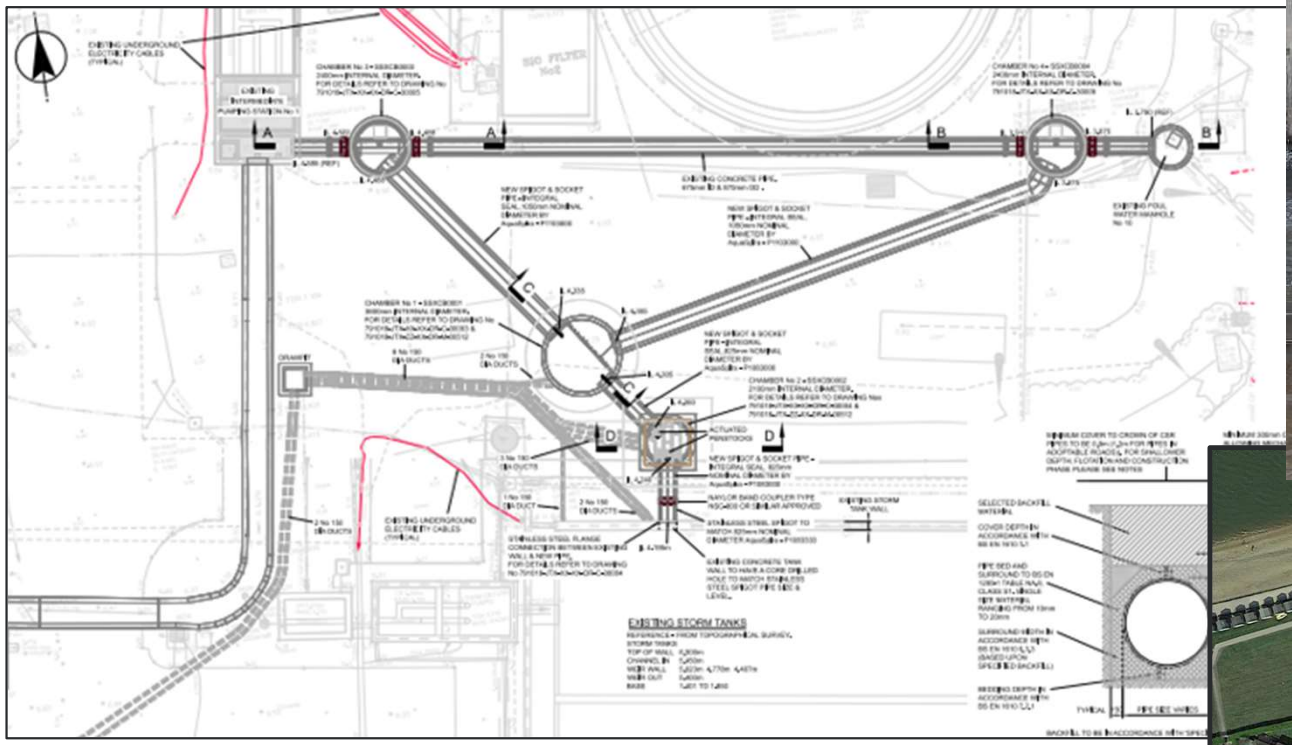
Optimisation

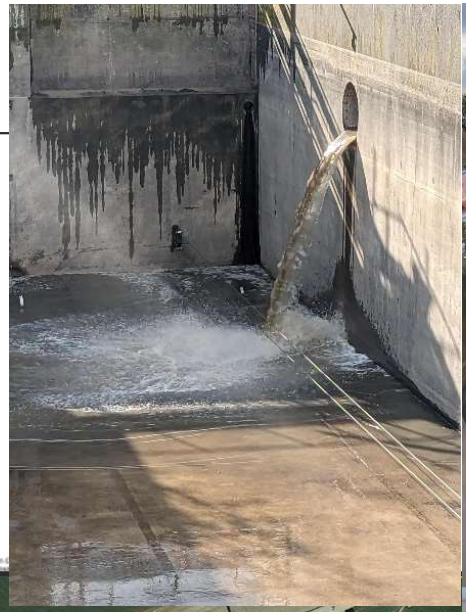
Whitstable, Deal

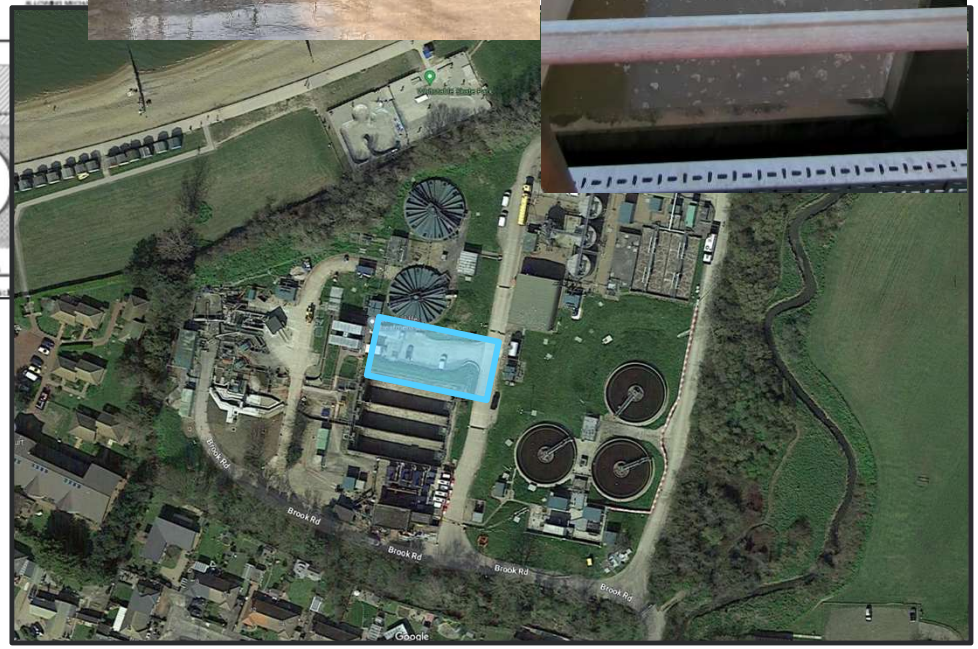
WATER for LIFE

from Southern Water

Swalecliffe Treatment Works



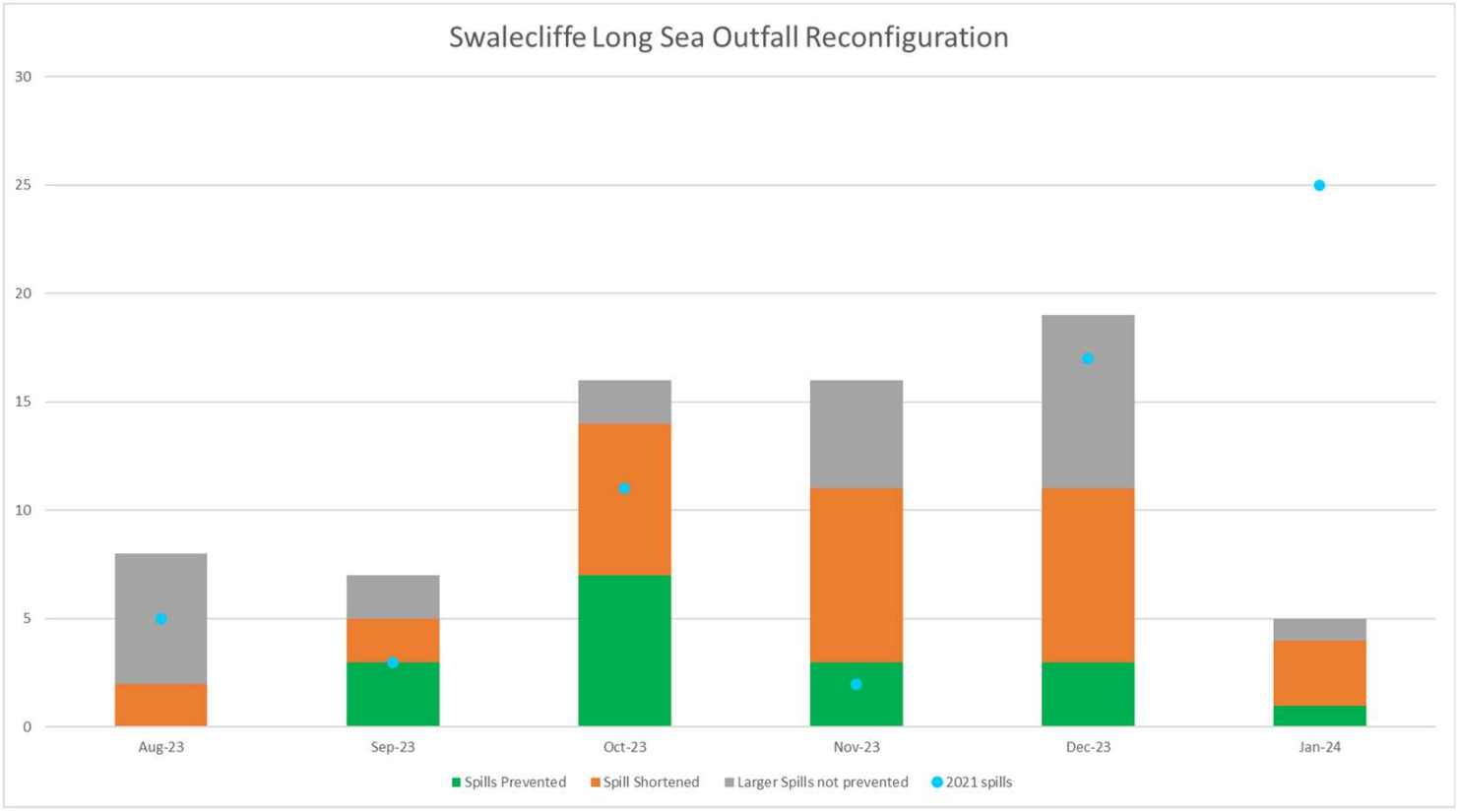


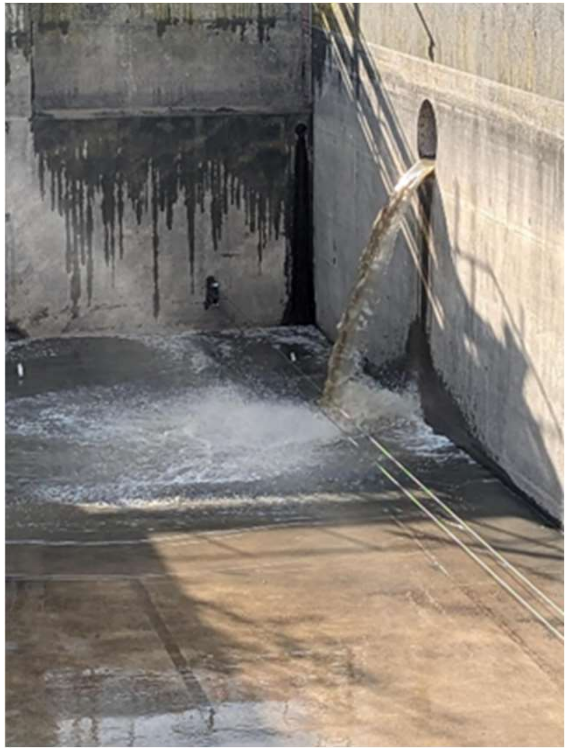


Anticipated 20% average reduction in Long Sea Outfall events.

In operation since 21st August 2023.

Swalecliffe Long Sea Outfall reconfiguration





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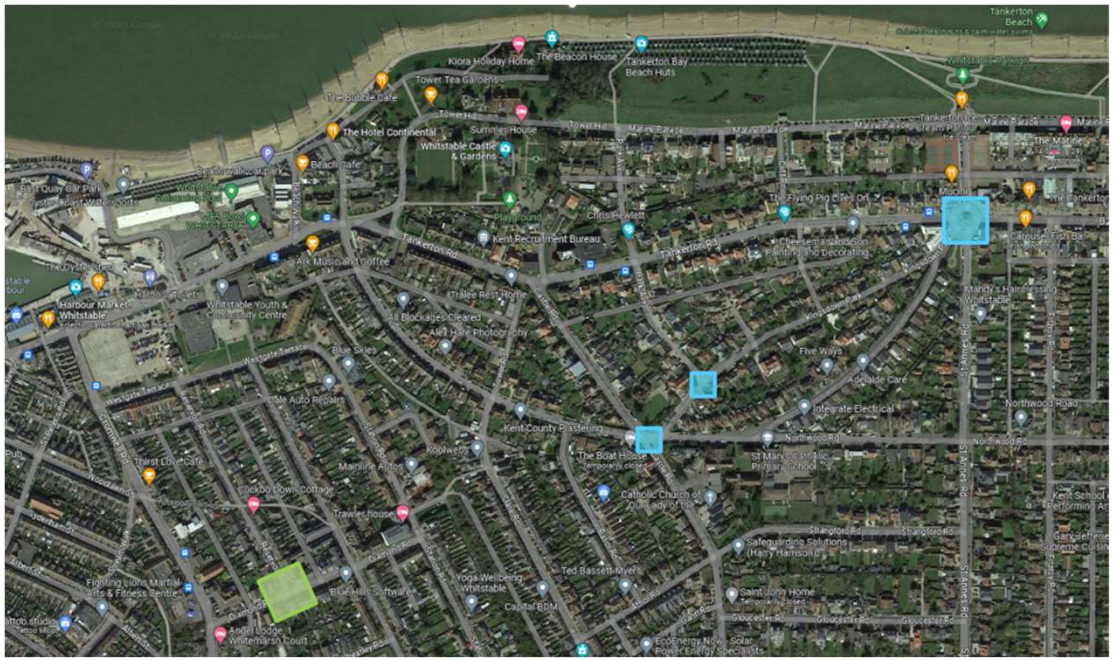
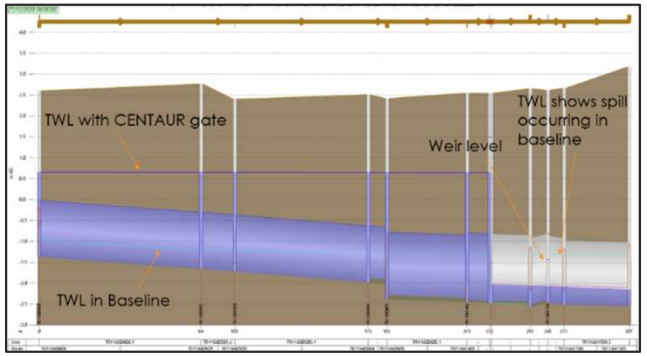
Centaur Gates



Diamond Road CSO, modelled c60% reduction in spill

Tankerton Circus CSO, modelled c40% reduction in spill



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Surface Water Connections

Whitstable, Deal. Fairlight

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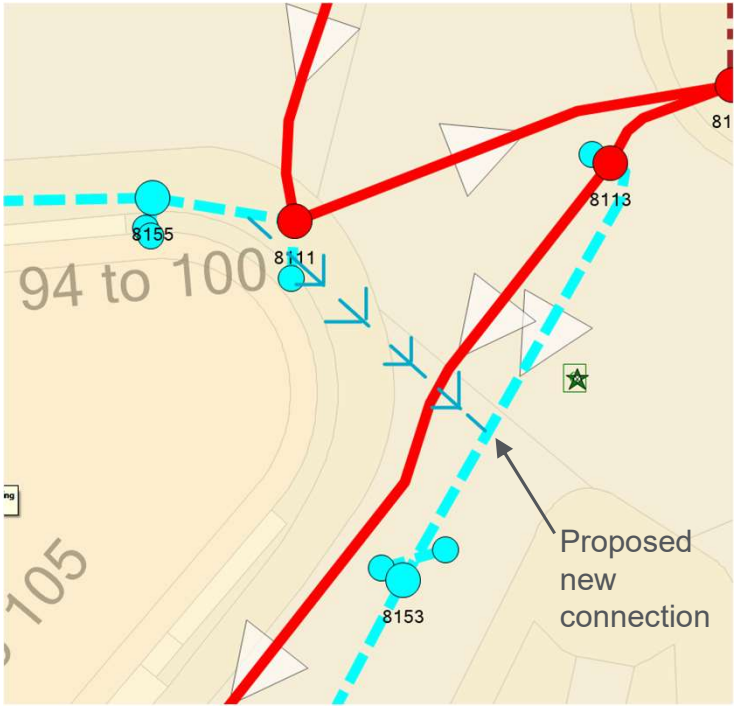
Tankerton Road

- Surface Water Connection directly discharging into Tankerton Circus CSO.
- New connection to bypass CSO and divert flow directly into surface water line.
- Managing at least 0.5ha of impermeable area.
- Works to commence 2/2024



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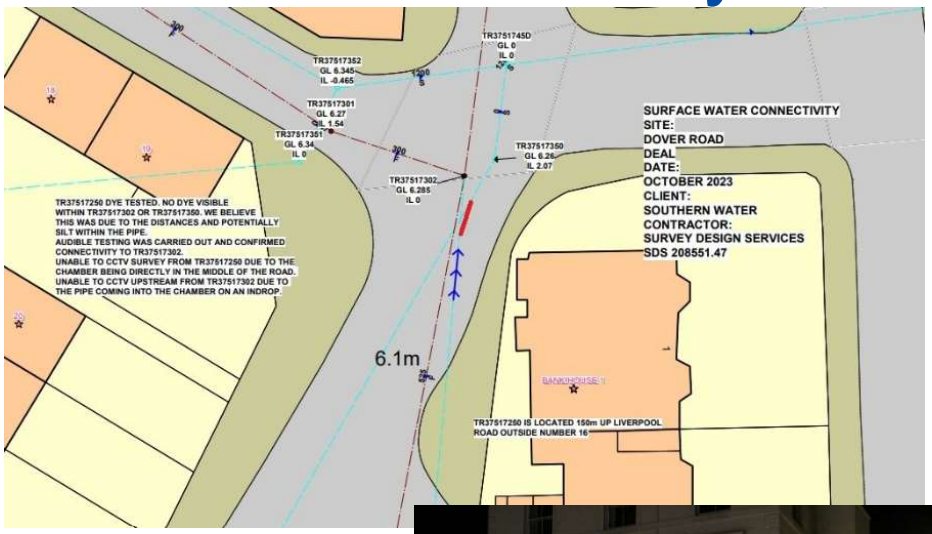
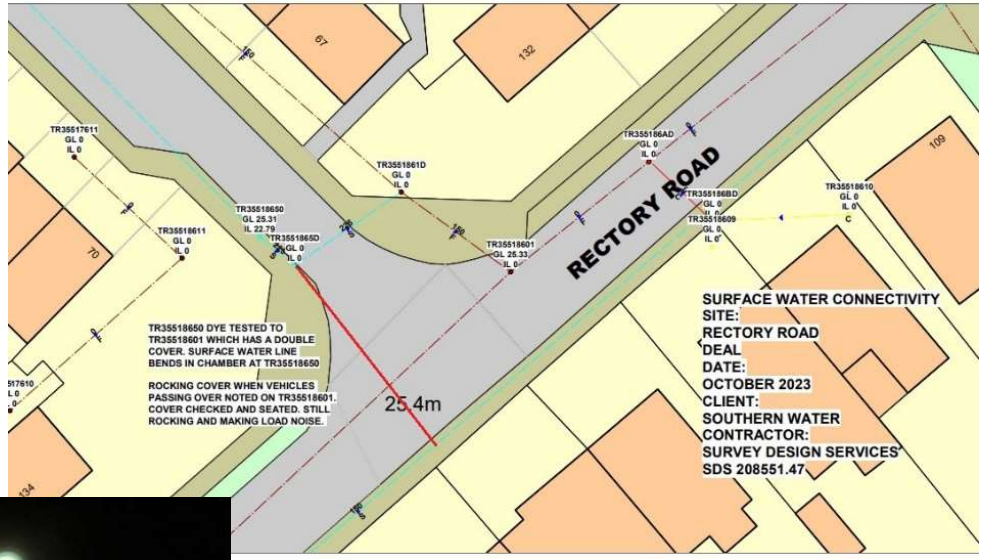
Dover and Rectory Road, Deal





Tested to confirm surface water is discharging into the foul network

WATER for LIFE from Southern Water

SuDs Schemes

Whitstable, Deal, Margate

WATER for LIFE

from Southern Water

SuDS – Highways Margate

Gloucester Avenue

Proposed street improvements

Introduction: the Pathfinder Project

The Pathfinder project is a collaborative project which aims to improve water quality throughout Kent. The project aims to reduce the amount of surface water runoff from hard surfaces (roads, paths, roofs etc) entering the combined drainage network. The effect of this will be to reduce the number of spills from Combined Sewer Overflows (CSOs)

As part of this project, funding is available to undertake landscape improvements to sites (such as Gloucester Avenue) which can help the project achieve this goal.

What is being proposed?
Adaptation of existing grassed verges along Gloucester Avenue, to take rainwater run-off from the road surface into shallow, grassed channels, and new tree planting.

Why is this work proposed?
The modified verges will collect and channel rainwater, which will be absorbed into the ground and by plants. These types of Landscape design features are called "SuDS" (Sustainable Urban Drainage Systems). *See next page for more info on SuDS.*

Will this change the street?
Very little - the proposals are designed to fit into the existing layout/verge footprint. The profile of the grass surface will be shaped to provide a shallow channel. Changes will be relatively small, and offer environmental benefits in terms of surface water management and flood risk reduction.

Where is this proposed?
Southern half of Gloucester Avenue (see right)

When will the work take place?
To be confirmed - expected to be in late 2023, subject to Kent County Council approvals and consultation.

ABOVE: impression of what the proposed swales along Gloucester Avenue will look like.

Questions or comments?

For further information on the project, or to have your say please visit detailstobeconfirmed.co.uk, or contact address@detailstobeconfirmed.co.uk.

Sustainable Urban Drainage Systems (SuDS)

The Pathfinder project is developing and building Sustainable Urban Drainage Systems ("SuDS") in the Kent area.

These proposed projects will reduce the flow of surface water entering the combined sewer network. The key aim of the Pathfinder project is to reduce spills from Combined Sewer Overflows (CSOs).

Why are SuDS needed?

A increase in rainfall and storms due to climate change, combined with an increase in development (hard paved surfaces such as roads and paths) means that the existing drainage network is full to capacity. In high rianfall events this can lead to flooding and CSO spills

Surface water picks up pollutants as it runs across roads and other surfaces, enters the drains and ends up in water courses reducing the quality of the water. Many drainage systems in towns and cities are part of the combined sewer system - this takes water from both surface rainfall, and waste water from buildings.

In high rainfall events, the drains fills to capacity. When this happens, excess water is released into rivers and the sea. Where this water comes from combined drainage systems, waste and other contaminants are often contained within the discharge.

SuDS help by reducing the flow of water into drains, which reduces the strain on existing underground drainage networks. This can help prevent spills from Combined Sewer Overflows (CSOs), reducing flooding, and improving water quality.

What do SuDS look like?

There are lots of different types of SuDS - you've probably walked past one on the street and not even noticed! They can look like planters, grassed verges, treepits, or other landscape features. This page shows some examples:


Rain gardens


Swales and grassed channels

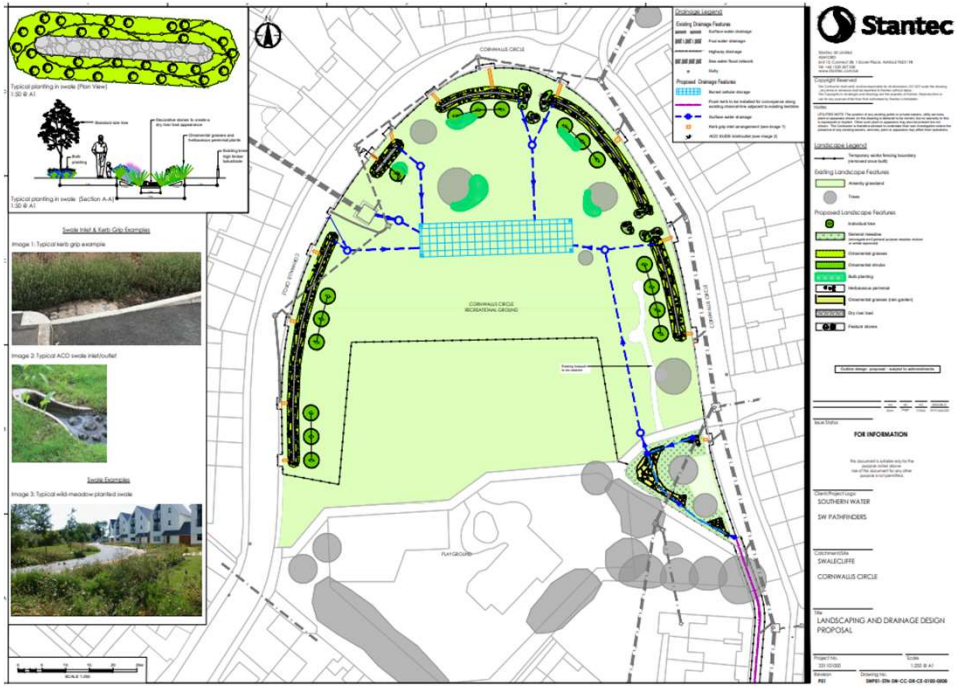

SuDS planters, smart water butts


Engineered tree pits

SW Pathfinder

from Southern Water

Large SuDS – Green Parks

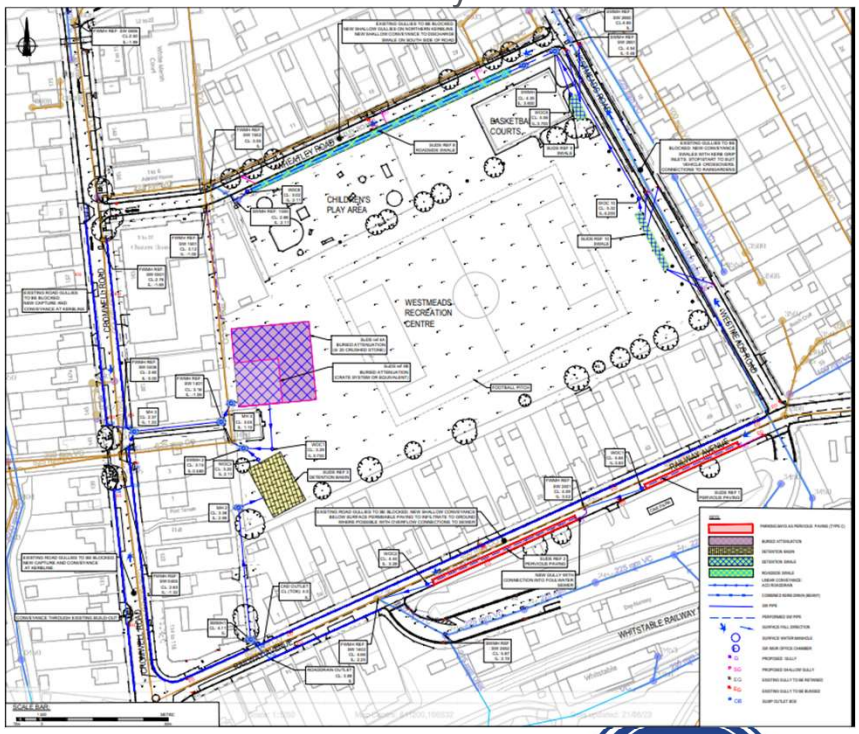


Cornwallis Circle:
Potential 1.2ha of impermeable area managed across two phases.
After a successful consultation with local residents, we are moving into Ground Investigations and Detailed design.

Westmeads Recreational Ground:

Large scale Green park managing 1.3ha of impermeable area

Canterbury CC driver to bring back football to the grounds and introduce soft landscaping to increase biodiversity



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SuDS – Highways – Whitstable Library

We are proposing some greening interventions around the Library that focus on water management and wildlife enhancement.

The proposals include green roofs on buggy and bin stores and some additional planting beds.

We are including Rain gardens to help manage rain and surface water run -off, along with engineered tree planting systems that will slow the flow of surface water into the combined drainage systems.

① Rain gardens - SuDS that capture rainfall before it enters the piped network and allows it to infiltrate into the ground.

② Wide wooden bridge for easy access through the rain garden.

④ New buggy stores and bin stores with green roofs for water management and wildlife benefit.

⑤ Engineered tree pits that manage rain water run off and benefit longterm tree health.

⑦ Gulleys for excess water to escape into a suitable overflow system.

- Managing large roof runoff and Highways drainage
- Increasing biodiversity in an urbanised area
- KCC review expected Dec 23 then moving to Detailed Design.

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Marke Wood - Green Parks - Walmer

Potential 0.50 ha of impermeable area managed. Currently in outline design

WATER for LIFE

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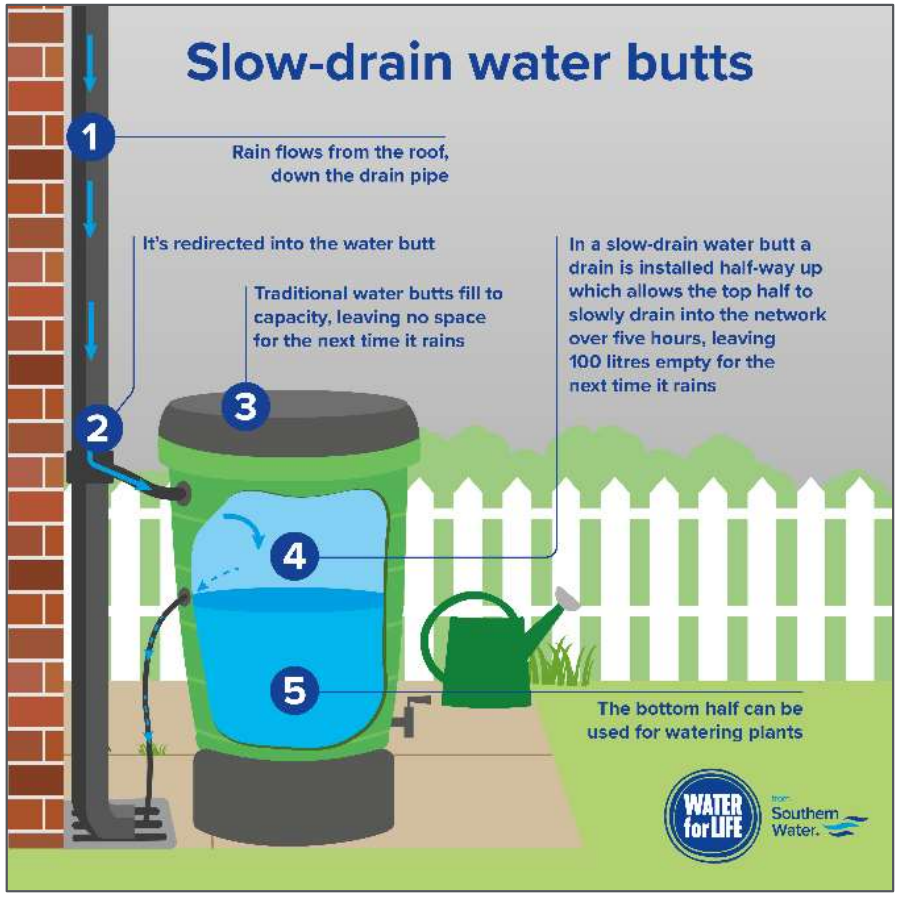
Planters and water butts

Whitstable

from Southern Water

Planters and water butts



Slow the Flow – Household and None Household

We've installed over 2000 slow the flow water butts across our region.

Targeting the large industrial roof spaces

All survey dependant.

WATER for LIFE from Southern Water

SuDS for Schools

Margate

WATER for LIFE from Southern Water

SuDS for Schools - Margate

- 13 schools participated in Cat A programme
- Other schools were removed from the project if they weren't connected into the foul sewer with two schools, Holy Trinity and St John's Church of England Primary School and St Anthony's School refusing the planters despite being connected
- Dane Court Grammar School in Broadstairs is our Kent Cat C school

Margate Cat A	Bromstone Primary School, Broadstairs
	Callis Grange Nursery and Infant School
	Cliftonville Primary School
	Drapers Mills Primary Academy
	Garlinge Primary School and Nursery
	Palm Bay Primary School
	Salmestone Primary School
	St Gregory's Catholic Primary School
	St Mildred's Primary Infant School
	St Peter-in-Thanet CofE Junior School
	Upton Junior School
	Hartsdown Academy
	Cliftonville Primary School

Cat C	Dane Court Grammar School

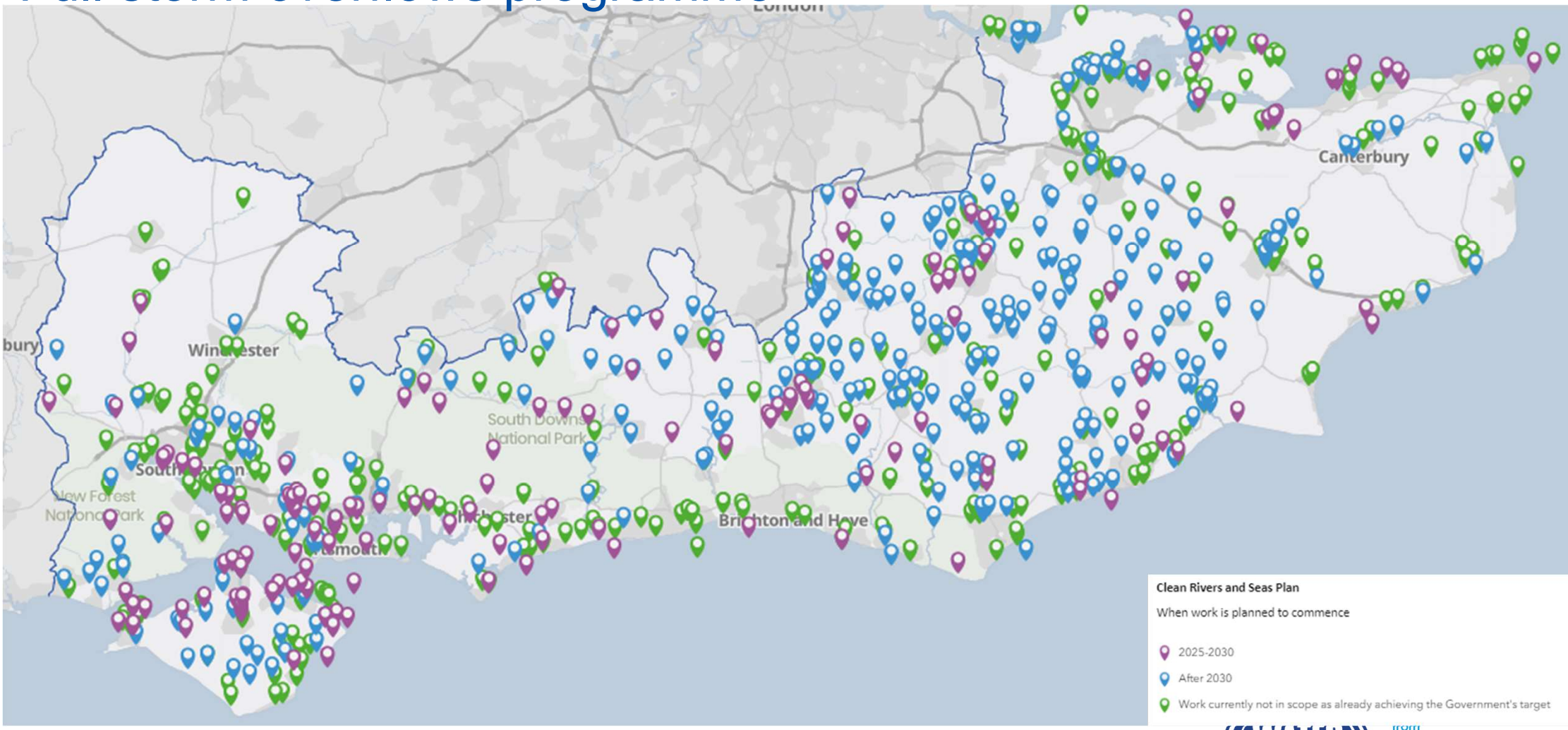
SuDS for Schools

- Year one project is now complete, with 43 schools receiving 5 free raingarden planters which were installed on site – Cat A schools
- 4 schools are having SuDS schemes designed and signed off next month, ready for work to commence over the summer – Cat C schools
- In total, 22 Kent schools participated in Cat A programme and 1 school in the Cat C
- We've started holding education sessions with the schools involved, including 6 schools in Kent. This part of the project will be ongoing until the summer
- Successful DfE bid to work with another 50 schools this financial year (April 2023 – March 2024). The list of schools is TBC but will predominately focus on the Pathfinder areas

from Southern Water

Regional Plan

Full storm overflows programme



WATER for LIFE from Southern Water

southernwater.co.uk/water-for-life/clean-rivers-and-seas-plan/map