

# Folkestone & Hythe District Council Overview and Scrutiny Committee

25 April 2023

Jon Yates, Programme Delivery Lead, Clean Rivers and Seas Task Force



from  
**Southern  
Water** 

# Clean Rivers and Seas Task Force

- We agree the use of overflows is no longer acceptable.
- The task force is responsible for delivering at least six pathfinder projects over the next two years. The task force will seek to establish strong partnerships to ensure their success.
- In parallel, we will build and deliver a regional plan to reduce storm releases between now and 2030.
- Weblink - [Storm Overflows \(southernwater.co.uk\)](https://southernwater.co.uk)



# 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)

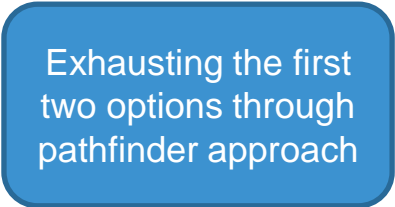
Rainwater harvesting, Permeable paving, Green roofs, Soakaways (includes tree pits), Rain garden (swales), Planters

## 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.)

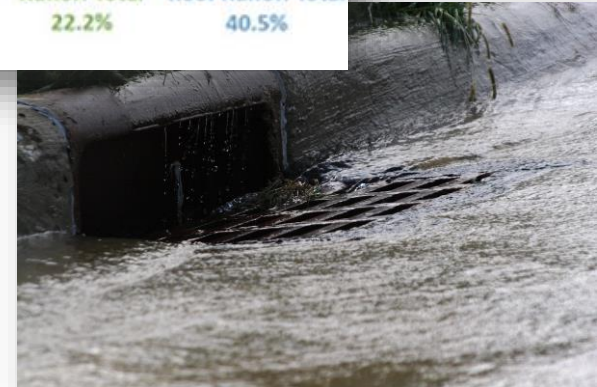
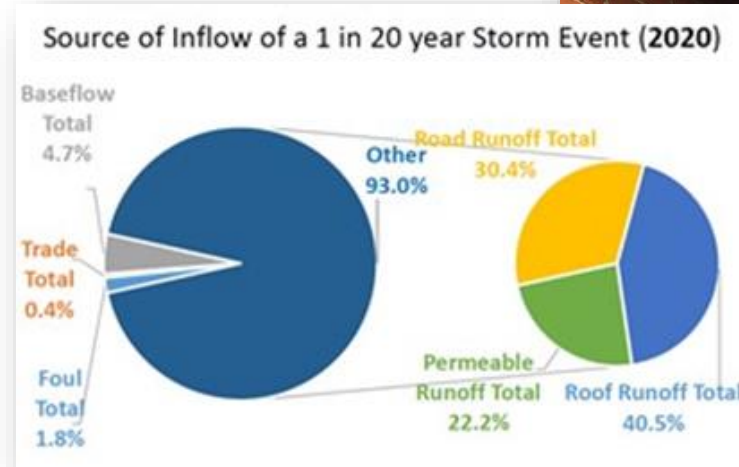
Wetlands treatment (Groundwater), Sewer lining/sealing (Groundwater), Larger sewers, Large storm tanks, Large treatment works



Exhausting the first two options through pathfinder approach

# Manage and slow the flow of water

- A storm release can be up to 95% rain water. The main sources are roof and road run off. We need to remove and/or attenuate this water.
- We must look to slow the flow of excess rain water into the system.



# What might the solutions look like?



## Working in partnership

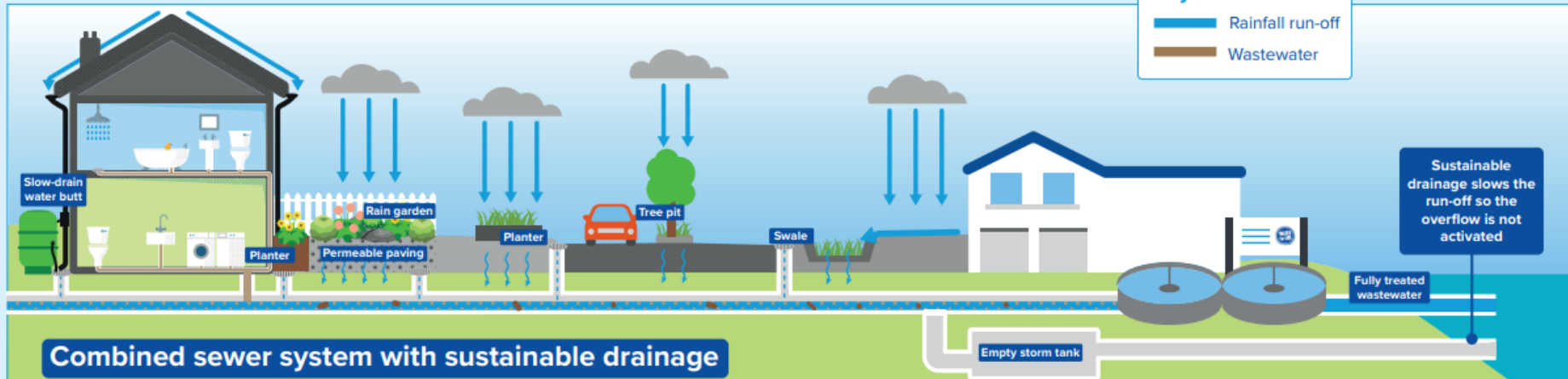
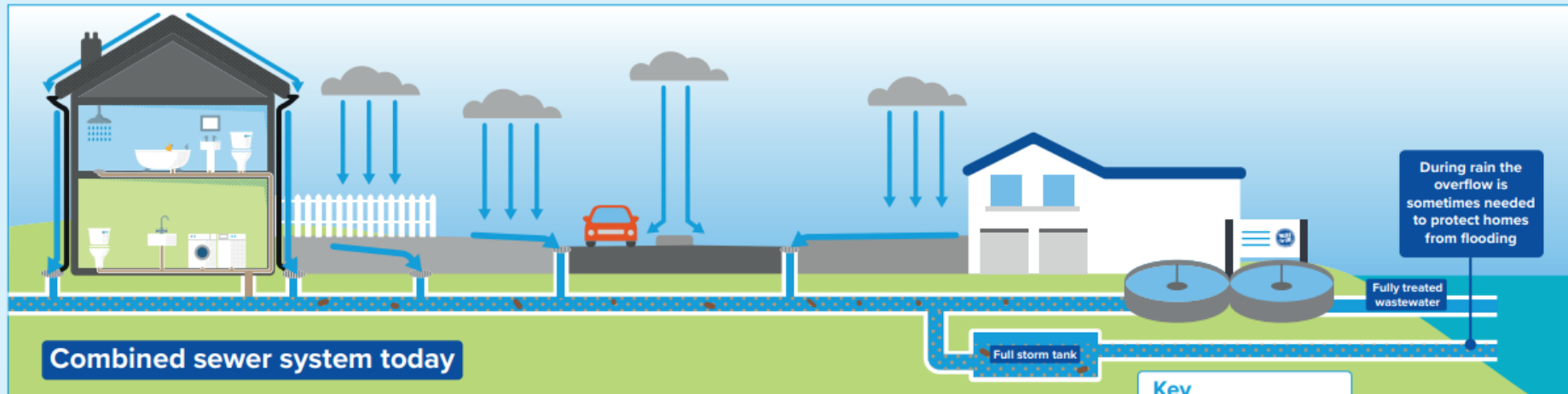
- We want to work in **collaboration** with a range of partners at all levels and across industries to achieve this.
- We also want to promote the simple actions that everyone can do to help such as installing water butts to recycle rain water or reducing the amount of pavement in gardens.



Identifying opportunities



# Reducing the use of storm overflows





# Pathfinder programme

# Accelerating our Pathfinder projects

April 2023

## Pathfinder update

Further investment to accelerate the reduction in the use of storm overflows across the South East



- To date, working on 6 Pathfinder projects (Deal, Margate and Whitstable in Kent, Sandown on the Isle of Wight, Pan Parishes near Andover Hampshire and Fairlight in East Sussex)
- Due to early success with trials and partnerships, we are stepping up our Pathfinder work
- Up to £50m funding to reduce storm overflows before 2025





# How we're tackling storm overflows

## 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.

£6m



## 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).

£9m

## 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).

# Optimisation

## Deal highways gullies



## What approach was taken

1. Southern Water complete technical report
2. KCC surveyed assets in Albert Road and surrounding area
3. Deal-Water Action Taskforce discuss interventions required in the area
4. KCC carried out works to increase the number of road drains and upsize pipes  
— into the surface water pipe in Albert Road

## Swalecliffe - Amend permit use control

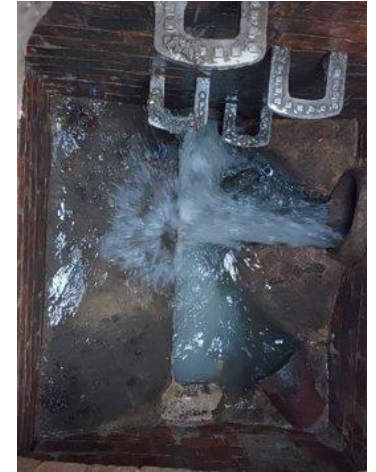


# Misconnections – surface water going into the foul



## Aim:

To investigate locations where surface water pipes connect into the combined system to identify opportunities for re-connection.



## Next Steps:

- Confirm impermeable area contribution
- Arrange for further surveys where required
- Further investigation into possible re-connection points (e.g. rivers, surface water pipes, water butts)
- Refine prioritised list of opportunities based on outputs from analysis above

# Keeping groundwater and rainwater out

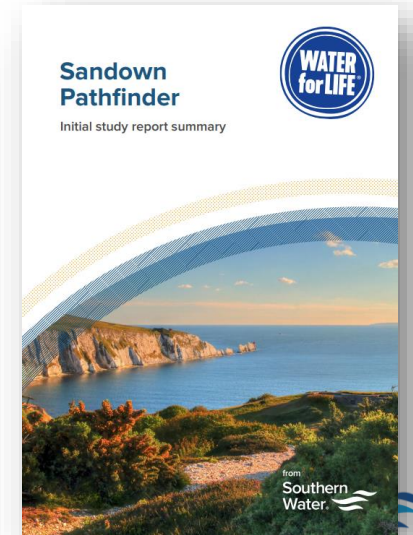
## Pan Parishes

Groundwater infiltration and Tubogel  
– sealing private laterals



## Havenstreet (Isle of Wight)

Surface water management –  
installing slow-drain water butts



# Slow-drain water butts

1

Rain flows from the roof,  
down the drain pipe

It's redirected into the water butt

2

Traditional water butts fill to  
capacity, leaving no space  
for the next time it rains

3

In a slow-drain water butt a  
drain is installed half-way up  
which allows the top half to  
slowly drain into the network  
over five hours, leaving  
100 litres empty for the  
next time it rains

4

5

The bottom half can be  
used for watering plants



70 'Slow the Flow' products installed  
51 properties installing device(s) –  
43% property install rate

Devices installed across the 4 pilot streets:

- 15 SuDS Planters (at 15 properties)
- 8 Passive Water Butts (at 7 properties)
- 47 Smart Water Butts (at 34 properties)



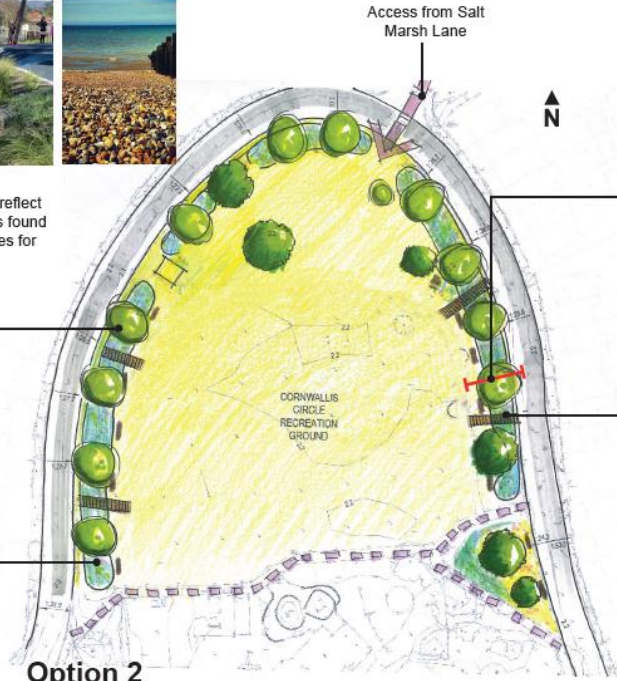
# Whitstable community scheme

## Cornwallis Circle Recreation Ground



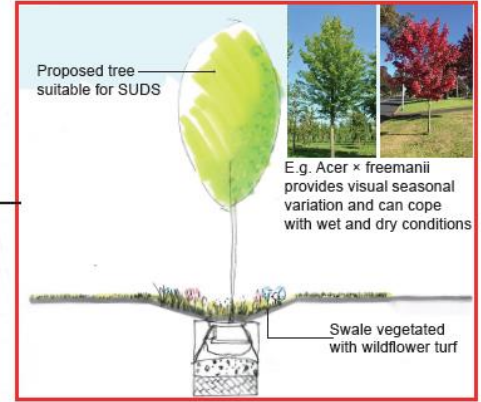
**Ornamental planting with gravel / boulder base:**  
Boulders and gravel to line the base of the swale, to reflect the coastal location and mirror materials and textures found on the nearby beach. Planted with ornamental grasses for year-round structure and visual interest

**Design for ecology**  
Use of flowering perennials within swales will attract pollinating insects with further opportunity to provide 'bug hotel' shelters areas using logs and other organic materials.



### Option 2

- Perimeter swales with tree planting
- Rain garden / wild wet meadow
- Open space retained with connecting board walks / bridges



### Amenity use

Timber board bridges span the swales linking to the central open space to improve permeability and access to the park from the east and west. These would create new permanent connections and would affect existing balustrade fencing

# Key updates/progress

- [Pathfinder update](#)
- [Task Force 6 monthly update](#) and Pathfinder progress
- [Bathing water season report](#)
- [Secretary of State letter](#)
- [Infiltration Reduction Plan](#)
- Deal, Margate, Swalecliffe, Sandown and Fairlight Technical and Summary reports [published](#)
- Early interventions in delivery
- [SuDS in schools](#) partnership with the Department for Education; £1.6m project
- Insight programme underway to ensure we're listening to our customers
- Further partnerships being explored
- [Jargon busting](#) to make educational materials accessible to all, such as our [FAQ document](#) and [animation](#).



# Additional slides



# 1 Improving our sites and networks

- ✓ **Making improvements** to pumping stations and equipment controls and storage.
- ✓ **Asking for permission** to change regulatory permits, where these limit capacity. By doing this, we are going beyond compliance – what we 'have to do'.
- ✓ **Using existing infrastructure** to speed up the process and limit the need for new construction.
- ✓ **Working with partners** to improve their infrastructure, such as highway gullies.

## Swalecliffe, Kent

### The problem

Swalecliffe's storm tanks were not being used to full capacity because of the permits in place. As a result, the site is using its long sea outfall around 100 times a year.

### Action

We worked with the Environment Agency to change the way the site works to use around 1,800m<sup>3</sup> of storage.

New chambers and pipework are being installed at a cost of £750,000 which enable us to redirect 450 litres of storm water per second during heavy rainfall.

### The benefit

We estimate the work will reduce the spills by over 30% (12% of spills avoided altogether and 20% will be reduced in duration). This work will be finished by May 2023.



CASE STUDY

## Appley and Fairlee, Isle of Wight

### The problem

During a heavy storm, more than 650 litres per second can enter Appley pumping station on the Isle of Wight. The pumping station is permitted to pump 122 litres per second. The site released 136 times in 2020 and 108 times in 2021.

Fairlee released 89 times in 2020 and 73 times in 2021. The site spills into the River Medina which is a SSSI and a popular water sports venue.

### Action

Working with the Environment Agency we think the Appley pumping station could deal with 300 litres per second. More than 2.5 times the current flow.

By building a small pumping station at Fairlee, we can pump into existing storage areas on site (currently not in use) in excess of 14,000m<sup>3</sup>.

### The benefit

We expect to reduce releases at Appley to around 30. By using existing storage at Fairlee, we expect to see a 95% reduction in annual releases.

CASE STUDY



## 2 Misconnections

- ✓ We are finding misconnections in local communities. This is typically where clean, already separated surface water, has been connected back into the combined sewer.
- ✓ Where we find them, we can divert this rainwater back into the environment.



### Lower Church Road, Isle of Wight

CASE  
STUDY

#### The problem

A development of about 50 properties covering 3.1 hectares connected stormwater from roads and roofs into the combined sewer.

As a result, the pumping station at Woodvale released 79 times in 2020 and 91 times in 2021 into a bathing water.

#### Action

We have submitted a flood risk assessment to the Environment Agency to redirect the flow and install a flow restriction device to reduce the likelihood of flooding in the area.

#### The benefit

We estimate the work will reduce the spills by over 30% (12% of spills avoided altogether and 20% will be reduced in duration). This work will be finished by late summer 2023 assuming all goes well.

“We are finding misconnections in local communities... Where we find them, we can divert this rainwater back into the environment.”



### 3 Businesses and community buildings

- ✓ **'Slow the flow'** sustainable drainage measures to manage rainwater run-off from large roof areas (above 200m<sup>2</sup>) and other hardstanding areas on non-household or commercial properties.

"A unique educational opportunity for pupils to engage in the importance of saving and protecting water, and the impact of doing so, as we all work to do more for the environment."

A Department for Education spokesperson

### Schools

#### The problem

Rainwater running off school roofs, playgrounds and hard surfaces can overwhelm the combined sewer system, causing localised flooding and storm overflows.

#### Action

We partnered with the Department of Education to work with 47 schools to install raingarden planters, free of charge, on school roof downpipes to remove or slow the flow of rainwater.

With four schools in south, we've also designed large sustainable drainage solutions to completely separate surface water from their site.

This £1.7 million project includes working with schools that experience flooding, as well as areas where the network experiences pressure from excess water.

We have agreed to work with another 50 schools between April 2023 and March 2024 (an additional £1.2m project).

#### The benefit

We are currently monitoring the exact levels of water the project has removed and we'll be producing a report in 2023 to outline our findings and lessons learnt from the first year.

CASE STUDY



from  
Southern  
Water

## 4 Homes

- ✔ **Slow the flow'** sustainable drainage measures to manage rainwater run-off from household or domestic roof areas. Typically, we use slow drain water butts and encourage customers not to pave over gardens.

"This work is bringing fresh thinking and investment to our area that makes us a national leader in the issue of tackling storm overflows and sewage discharge prevention."  
**Natalie Elphicke MP**

### Deal, Kent

#### The problem

In Deal, Kent, residents have suffered from internal flooding for many years. This is in part due to the way water flows in the town and we're exploring solutions to slow the flow of water in the area.

#### Action

Working closely with Deal Water Action Taskforce, we offered smart water butts, planters and slow-drain water butts to residents of Claremont Road, Grange Road, Cowper Road, and The Grove. We've already installed 50 smart water butts.

We also completed an upgrade to a surface water pipe which will redirect flows away from Albert Road to Matthews Close Dyke during heavy rain.

#### The benefit

Reduced flooding for residents in Deal.



CASE STUDY

### Havenstreet, Isle of Wight

#### The problem

Havenstreet pumping station released 17 times in 2020 and 28 times in 2021. It discharges into a SSSI and a brook that is failing according to the Water Framework Directive.

#### Action

We offered every property in Havenstreet a free, slow-drain water butt. A total 142 properties accepted (72%). We also managed the stormwater of large roofs such as the community centre and care home with planters.

#### The benefit

70% reduction in spills from the nearby storm overflow site, by controlling the amount of surface water reaching the ground at any one time.



CASE STUDY

## 5 Roads

- ✓ **Sustainable drainage** features like rain gardens, swales (channels) and tree pits to redirect and slow the flow of rainwater run-off from roads entering the sewer.

"Additional funding will allow more island residents and visitors to experience necessary improvements in reducing storm overflows."

**James Brewer,**  
Planning Team Leader,  
Isle of Wight Council

### Cornwallis Circle, Kent

CASE STUDY

#### The problem

Whitstable contains 74 hectares of non-permeable area.

#### Action

Working with Canterbury City Council and Kent County Council we're developing a scheme that could manage over 1 hectare of non-permeable area. Designs are being prepared for public consultation and we hope to implement the scheme later in 2023. This will be one of many across the town.

#### The benefit

One hectare of non-permeable area is 10,000m<sup>2</sup> or a 100m x 100m square. A 10mm rainfall event will produce 100 tonnes of water or 100,000 litres.

### Newport and Ryde, Isle of Wight

CASE STUDY

#### The problem

The town centres are problematic drainage areas with large impermeable areas such as car parks, roads and buildings.

#### Action

We're working in partnership on two Local Authority projects to improve the town centres and install green designs. We will co-design, co-fund and co-deliver tree pits, rain gardens, permeable paving and other sustainable drainage features.

#### The benefit

Not only will the town centres look more green, and attractive, they will also reduce storm overflows by holding back and slowly releasing stormwater.



# Our task force is exploring ways to reduce storm overflows via our pathfinder projects

The Clean Rivers and Seas Task Force is a dedicated team that is working to significantly reduce the use of storm overflows by 2030. **It is delivering six pathfinder projects over the next two years.**

## Pan Parishes

- Sealing private pipework with an innovative chemical called Tubogel, as well as sealing the public sewer network to reduce groundwater infiltration.
- Exploring the creation of a local wetland.



## Swalecliffe

- Working to reduce Swalecliffe's 74 hectares of hard surfaces.
- Separating the surface water and sewer network.
- Hotspot mapping shows us where to target solutions.



## Margate

- Finding opportunities to increase surface water drainage with local councils. For example, reducing the amount of hard surfaces across Margate.
- Looking at opportunities to separate the surface water and sewer network and improve drainage.



## Deal

- Installing smart or passive water butts or rain planters.
- Working with the local councils and highways to introduce roadside verges, parks and gardens and more green spaces.
- Engaging with schools.
- Surveying surface water connections.
- Introducing rainfall monitors and tracking the flow of surface water.
- Improving our Golf Road pumping station.
- Increasing our storm tank capacity.



## Sandown

- Enhancing wastewater pumping station control, surface water removal and storage solutions.
- Trialling slow-drain water butts in Havenstreet.

