

# Drainage and Wastewater Management Plans (DWMPs)

Investment Needs Workshop for the Stour River Basin  
Catchment

Tuesday 22 March 2022



from  
**Southern  
Water** 

The logo graphic for Southern Water, featuring three stylized blue waves of varying lengths, with the longest wave on the right.

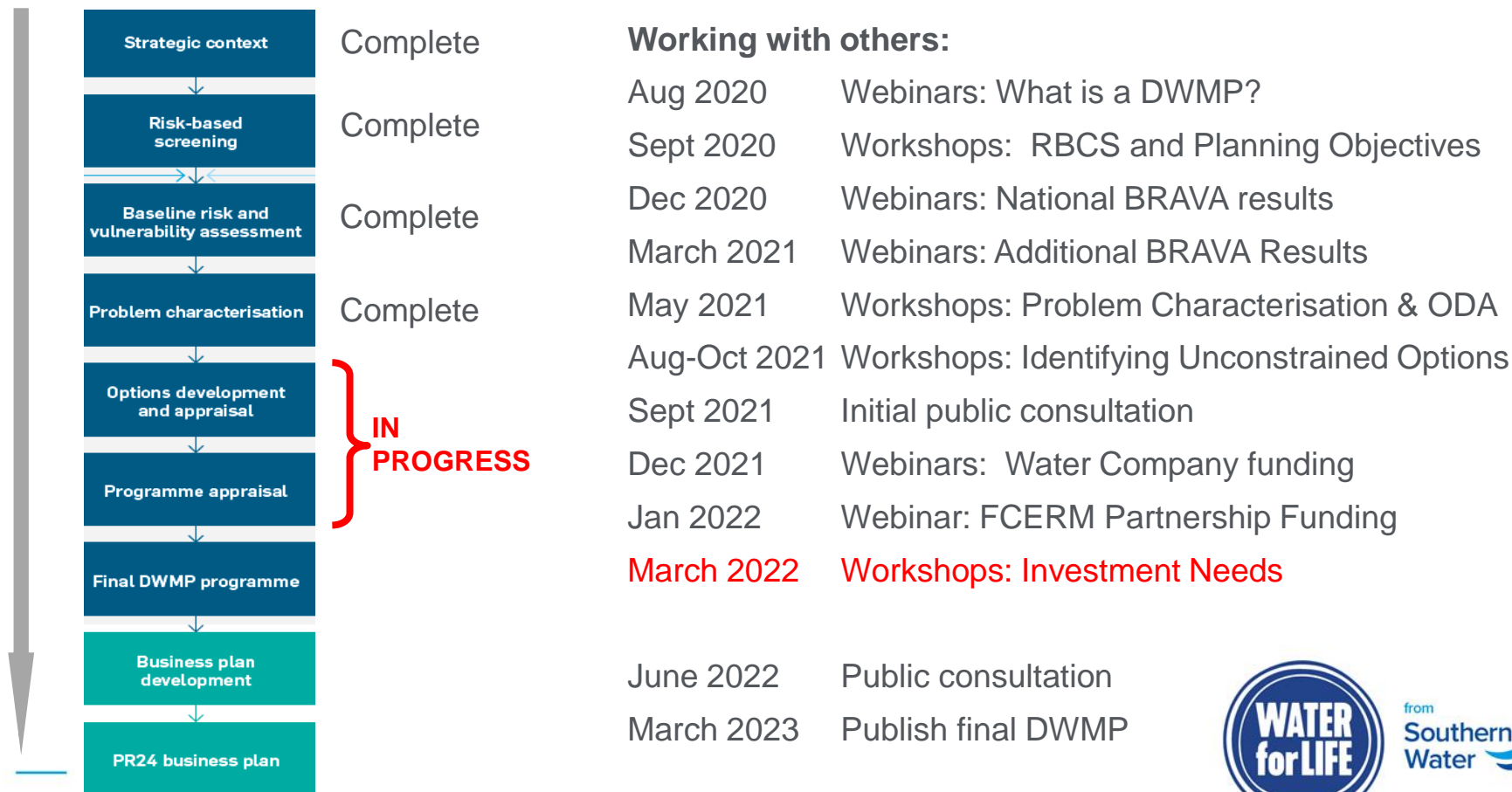
# Agenda

1. Welcome and Purpose
2. Presentation: Investment Planning Process
3. Review of Investment Needs
4. Programme Appraisal
5. Delivering the DWMP Investment Needs
6. Next steps

# Welcome and Purpose



# Our Journey So Far ...



# Purpose of Today's Workshop

Our aim today is to:

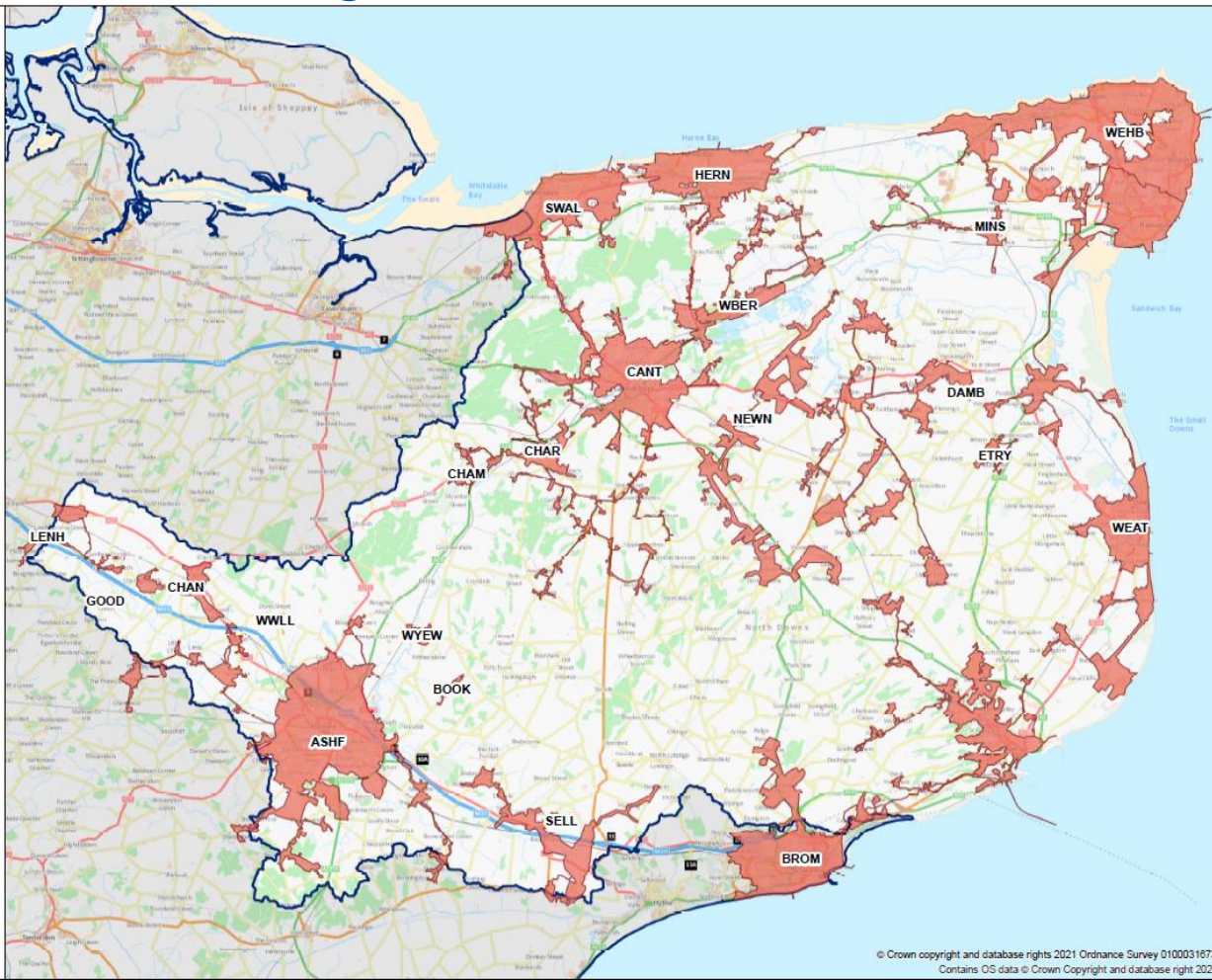
- Discuss and refine the investment needs identified in the draft DWMP
- Flag any missing investment needs
- Discuss prioritisation and timing for investment needs
- Review opportunities to co-create and co-deliver solutions
- Look at total investment needs across the river basin

# Presentation: Investment Planning



# Investment Strategies: Stour River Basin Catchment

## Catchment Strategy



- 21 wastewater catchments
- 392 WPS
- 5325km sewers
- 16% area
- 96% homes connected
- 591640 customers



# BRAVA Results: Stour River Basin Catchment

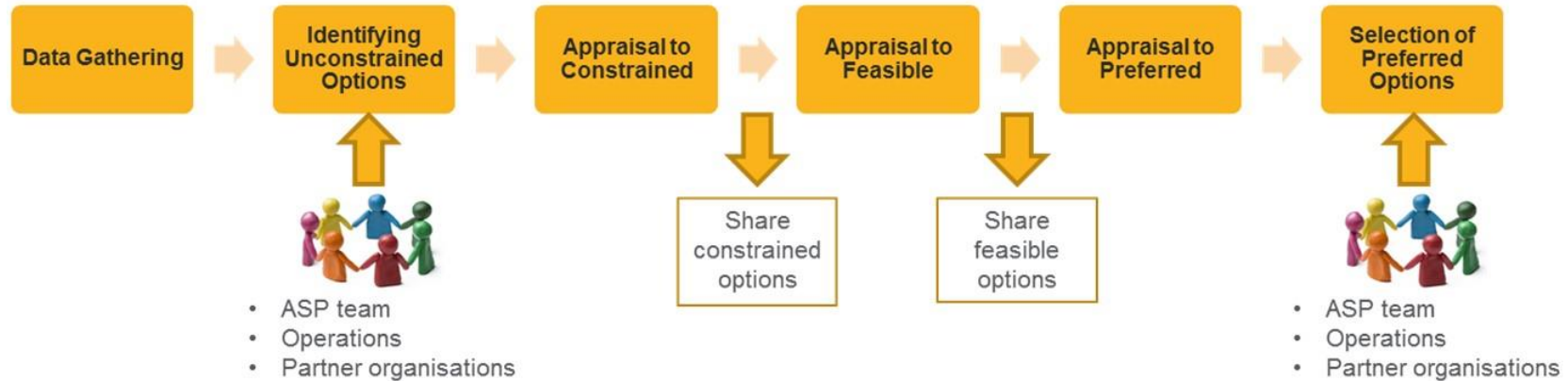
NF	Not Flagged *
NA	Not Applicable **
0	Not Significant
1	Moderately Significant
2	Very Significant

Catchment Reference	Wastewater Catchment Name	Population	BRAVA Results for 2020													
			Internal Sewer Flooding Risk	Pollution Risk	Sewer Collapse Risk	Risk of Sewer flooding in a 1 in 50 year storm	Storm Overflow performance	Risk of WTW Compliance Failure	Risk of flooding due to Hydraulic Overload	Dry Weather Flow Compliance	Good Ecologica Status / Potential	Surface Water Management	Nutrient Neutrality	Groundwater Pollution	Bathing Waters	Shellfish Waters
ASHF	ASHFORD	91,200	1	2	0	1	1	0	1	0	0	1	2	0	NA	NA
BOOK	NATS LANE BROOK	308	0	0	0	0	0	0	0	0	2	0	1	0	NA	NA
BROM	BROOMFIELD BANK	114,249	1	2	0	1	1	2	0	0	2	1	NA	2	0	NA
CANT	CANTERBURY	65,145	2	1	1	1	0	0	2	0	2	1	1	1	NA	NA
CHAM	CHILHAM	946	0	0	0	0	0	2	0	0	2	0	1	0	NA	NA
CHAN	CHARING	2,056	0	1	0	2	0	0	0	1	0	0	1	1	NA	NA
CHAR	CHARTHAM	6,940	0	2	2	1	0	0	2	0	2	0	2	0	NA	NA
DAMB	DAMBRIDGE WINGHAM	14,211	1	2	0	1	0	0	1	0	2	0	0	0	NA	NA
ETRY	EASTRY	2,465	0	0	0	2	NA	0	0	0	2	0	1	0	NA	NA
GOOD	GOOD INTENT COTTAGES EGERTON	15	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
HERN	MAY STREET HERNE BAY	43,011	1	2	0	1	2	0	1	1	2	1	1	0	1	2
LENH	LENHAM	3,169	2	0	0	1	0	0	0	0	1	0	1	0	NA	NA
MINS	MINSTER IOT	5,114	0	0	0	1	0	0	0	1	1	0	1	0	NA	NA
NEWN	NEWNHAM VALLEY PRESTON	7,332	0	0	0	0	NA	0	0	0	2	0	2	0	NA	NA
SELL	SELLINDGE	5,439	2	0	0	1	0	0	1	0	1	0	2	0	NA	NA
SWAL	SWALECLIFFE	37,104	1	2	1	2	2	0	2	1	2	2	1	0	1	2
WBER	WESTBERE	6,479	0	0	0	2	1	0	2	0	2	0	1	0	NA	NA
WEAT	WEATHERLEES HILL	91,319	2	1	2	2	0	0	0	0	2	2	1	2	2	NA
WEHB	MARGATE AND BROADSTAIRS	92,788	2	1	0	1	0	0	0	0	1	1	1	2	1	NA
WWLL	WESTWELL	216	0	0	0	0	NA	NA	0	0	0	0	1	0	NA	NA
WYEW	WYE	2,135	0	0	0	2	0	0	2	0	2	0	2	0	NA	NA

Results shown for 2020 only



# Options Development and Appraisal



## Stour River Basin :

Unconstrained Option Development meetings held on:

Broomfield Bank	24 September 2021
Canterbury	02 September 2021
Chartham	03 September 2021
Dambridge Wingham	14 September 2021
Margate & Broadstairs	06 September 2021

May Street Herne Bay	26 August 2021
Swalecliffe	28 September 2021
Weatherlees Hill	10 August 2021
Westbere	14 September 2021



# Options Development Process

## Unconstrained Options

Source  
Pathway  
Receptor

Location of Risk	Description of Risk	Unconstrained Option	Option Description	Option Referral	GO Out	L4 Area	Source of the UO
<b>Source Demand Measures</b>							
Control/Reduce surface water entering the sewers							
CHICHESTER WTW Overflow	<b>PO5 - Sewer Overflows</b> Bathing Water 2020 Spilling CSD (also above in-land river spilling threshold) Spill Volume - Xm3	Surface Water Separation	Surface Water Removal (40%) will reduce the total predicted flood volume by 77%.	CHIC.SC01 1	Yes	Chichester WTW and Catchment Wide	EDM data via BRAVA POS Hydraulic Model Data
<b>Pathway (Supply) Measures</b>							
Network Improvements							
CHIC FC01 Summersdale Road	PO4 and PO5 - Growth  Projected population for CHIC catchment by 2040: 35550 Development population for CHIC catchment by 2040: 2402 Number of houses to be completed by 2040 at CHIC catchment: 100	Upsizing	Growth solutions developed for the DAP have not been assessed for suitability. Potential erroneous data includes, but is not limited to, developments completed since DAP, change of connection location and development size.  The DAP model has a confidence score of 2 and was last verified in 2014 The key risks between DAP and DvMMP models are: model network used, rainfall, ground infiltration and levels files applied  Option solution: Upsize pipes	CHIC.Pw01 4	Yes		DAP Option Position statement: CHICGR001 Option 1 Plan 11
<b>Receptor Measures</b>							
Mitigate impacts on Water Quality							
CHICHESTER WTW	<b>PO11 - Nutrient Neutrality</b> Chichester and Langstone Harbours, Solent and Dorest Coast, Solent Maritime	River enhancement and mitigation	Reduce consented permit levels for nutrients and solids in the final effluent from treatment works. This would have to be undertaken in agreement with the Environment Agency.	CHIC.FC03 1	Yes	CHICHESTER WTW	
<b>Other</b>							
Study/ investigation to gather more data							
Chichester and Langstone Harbours, Solent and Dorest Coast, Solent Maritime	<b>PO11 - Nutrient Neutrality</b> Chichester and Langstone Harbours, Solent and Dorest Coast, Solent Maritime (Include reason for Banding)	Nutrient Budget for investigations.	Study/ investigation required to understand the impact of wastewater discharges and achieve or prevent deterioration from Natural England's revised Common Standards Monitoring Guidance (CSMG) targets Total Phosphorus (TP) and Total Nitrogen (TN) on the Chichester and Langstone Harbours, Solent and Dorest Coast and Solent Maritime.	CHIC.OT01 2	Yes	Catchment Wide	Natural England supplied 'Water Dependent Habitat Sites' Table via BRAVA PO11

Options identified by:

Technical Team

Previous plans and modelling (e.g. Drainage Area Plans)

Our staff and partners

All options identify the BRAVA  
Planning Objective risk they address

(this is an extract of the table)



# Options Development Process

## Feasible Options to Preferred Options

### DWMP Data Tables

FEASIBLE OPTION 1	
Drainage Area/Catchment	CHIC - Chichester
Strategic Need	PO5 - Storm Overflow Performance, PO13 - Improve Bathing Water Quality, PO14 - Improve Shellfish Water Quality
DWMP Option Reference	Option Title
CHIC PW01.3	CHIC FC09 - CHICHESTER WTW - Storage
DAP Option Reference	
Scheme Builder Reference	
OPTION DESCRIPTION ( include location and main operational features)	
The option is located upstream of CHICHESTER WTW	
The main operational features are: Offline storage of 6539m3 required to achieve a 3 spill 2020 solution Offline storage of 2290m3 required to achieve a 3 spill 2050 solution Offline storage of 13836m3 required to achieve a 10 spill 2020 solution Offline storage of 10736m3 required to achieve a 10 spill 2050 solution Offline storage of 7873m3 required to achieve a 20 spill 2020 solution Offline storage of 4284m3 required to achieve a 20 spill 2050 solution	
SCHEMATIC	
OS map, sewer records (asset miner), general location of storage (Sophie)	
LINKS/ DEPENDENCIES TO OTHER OPTIONS	
No	
SOLUTION RISKS	
The model has a Low risk DAP confidence score of 2 and was last verified in 2014. For the DAP vs DWMP assessment there have been 4 modelling elements deemed to be of a higher risk. The key risks between the DAP and DWMP models are Models Used, FEH Rainfall Used, GI File Used, Levels Applied mAD.	
There is an acceptable confidence between spill frequency measured by EDM sensor and model data. Therefore, further investigation into data quality is recommended.	
SOLUTION BENEFITS	
The solution addresses all the planning objectives mentioned in the strategic need.	

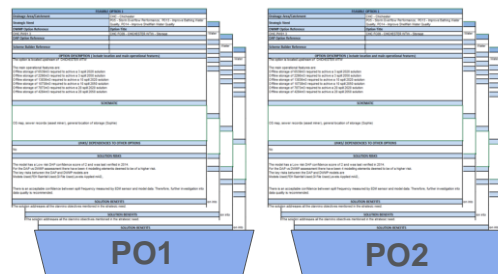
Each Wastewater System may have multiple feasible options.

Some Options may:

- address multiple BRAVA risks
- need to be combined to fully mitigate a BRAVA risk

“Preferred Options” are best value options

“Baskets of Measures” are created for the preferred option where more than one feasible option is required to reduce the risk for a planning objective to band 0



# Outputs from Options Development Stage

- Table of Investment Needs for the Wastewater Catchment
- Each Investment Need assessed in terms of risk band reduction

Location	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners

## Definitions:

- Location: Specific known location of the risk e.g. hotspot, high spilling CSO
- Issues: Description of the issue the option is tackling e.g. flooding
- Indicative Cost: Our initial estimate of the investment needed to deliver the option
- Indicative Timescale: Based upon when the risk occurs (now or in the future)
- Potential Partners: Opportunities to work with others





# Investment Needs – Swalecliffe (SWAL) 1 of 3

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Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
SWAL.SC03.1	High Street, West Cliff Whitstable, Marine Parade, Herne Bay Road, Lucerne Road	Internal Flooding and Pollution due to Blockages	Target customers with a campaign to reduce FOG (fats, oils & greases) and unflushables discharged into the sewer network.	£116k	Short to long term	Canterbury City Council
SWAL.OT01.5	Catchment Wide	Foul / Combined Sewer Flooding	Hydraulic Model improvements: Surveys and reverification to improve model confidence and accuracy of simulations.	£100k	Short term	-
SWAL.PW01.27	Whitebridge Farm Seasalter WPS	Pollution due to WPS faults	Enhanced maintenance to improve WPS resilience and reduce pollution incidents	£1.46M	Short term	-
SWAL.PW01.28	Station Road Whitstable WPS	Pollution due to WPS faults	Enhanced maintenance to improve WPS resilience and reduce pollution incidents	£1.46M	Short term	-
SWAL.PW01.29	Brook Road Swalecliffe New WPS	Pollution due to WPS faults	Enhanced maintenance to improve WPS resilience and reduce pollution incidents	£698k	Short term	-
SWAL.PW01.30	Station Road Whitstable WPS	Pollution due to WPS faults	Enhanced maintenance to improve WPS resilience and reduce pollution incidents	£698k	Short term	-
SWAL.PW01.31	Thanet Way Chestfield Whitstable & Radfall Corner Chestfield Whitstable	Pollution due to Blockages	Target customers with a campaign to reduce FOG (fats, oils & greases) and unflushables discharged into the sewer network.	£23k	Short to long term	Canterbury City Council
SWAL.PW02.1	Swalecliffe WTW Short Sea Outfall	Pollution due to WTW faults	Restore WTW Storm Sewage Discharge Capacity: Link to Southern Water's AMP7 funded Scheme (PRN 780401) to replace the structurally damaged short sea outfall and restore capacity to discharge storm flows to sea	£0	Short term	-
SWAL.PW01.32	Lucerne Drive WPS, Lucerne Road Seasalter WPS, Kingsdown Lane, Clifton Road, Harbour Street, Castle Road, Swansfield Road, Richmond Road	Sewer Collapse	Targeted CCTV or electroscan surveys and proactive sewer rehabilitation to reduce risk of sewer collapse	£3.22M	Short to medium term	-
SWAL.PW01.1	Herne Bay Rd, Burnan Rd, Chestfield Rd and Ham Shades Lane	Foul / Combined Sewer Flooding	Drainage Area Plan (DAP): Option - Sewer Upsize and Online Storage	£TBC	Short term	-
SWAL.PW01.2	Seasalter Lane and Lurcene Drive	Foul / Combined Sewer Flooding	Drainage Area Plan (DAP): Option - Sewer Upsize and Offline Storage	£TBC	Short term	-

# Investment Needs – Swalecliffe (SWAL) 2 of 3

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Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
SWAL.PW01.3	Joy Lane, Essex Street and Belmont Road	Foul / Combined Sewer Flooding	Drainage Area Plan (DAP): Option - Sewer Upsize and Online Storage	£TBC	Short term	-
SWAL.PW01.13	Ham Shades Lane	Foul / Combined Sewer Flooding	Flood Storage (990m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.18M	Short term	Kent CC, Catchment Partnership, Kent Wildlife Trust
SWAL.PW01.14	Borstal Hill	Foul / Combined Sewer Flooding	Flood Storage (1760m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.72M	Short term	Kent CC, Catchment Partnership, Kent Wildlife Trust
SWAL.PW01.15	Seasalter Lane	Foul / Combined Sewer Flooding	Flood Storage (4890m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£3.93M	Short term	Kent CC, Catchment Partnership, Kent Wildlife Trust
SWAL.PW01.16	Lurcene Drive	Foul / Combined Sewer Flooding	Flood Storage (970m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.16M	Short term	Kent CC, Catchment Partnership, Kent Wildlife Trust
SWAL.PW01.17	Millstrood Road	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Construct new sewers and upsize sections of existing ones	£1.46M	Short to medium term	-
SWAL.PW01.18	Maydowns Road	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of existing local sewers	£1.46M	Short to medium term	-
SWAL.PW01.19	Area upstream of Whitebridge Farm WPS	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of existing local sewers	£1.46M	Short to medium term	-
SWAL.PW01.20	Golden Hill	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of existing local sewers	£1.46M	Short to medium term	-
SWAL.PW01.21	Area upstram of Golden Hill WPS	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of existing local sewers	£1.46M	Short to medium term	-
SWAL.PW01.22	Grasmere Road	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of existing local sewers	£1.46M	Short to medium term	-
SWAL.PW01.23	Clapham Hill	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of existing local sewers	£1.46M	Short to medium term	-

# Investment Needs – Swalecliffe (SWAL) 3 of 3

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Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
SWAL.PW01.24	Thanet Way	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Construct new storage manhole, 107m of new 1800mm dia sewer and upsize sections of local sewers	£1.46M	Short to medium term	-
SWAL.PW01.25	Diamond Road	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of existing local sewers	£1.46M	Short to medium term	-
SWAL.PW01.26	Church Lane	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of existing local sewers	£1.46M	Short to medium term	-
SWAL.OT01.2	Northwood Road Whitstable No.1 CSO	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Surveys and model reverification to develop storage solution at CSO	£100k	Short term	-
SWAL.OT01.5	Catchment Wide	Foul / Combined Sewer Flooding	Hydraulic Model improvements: Surveys and reverification to improve model confidence and accuracy of simulations.	£100k	Short term	-
SWAL.PW01.6	Diamond Road Whitstable CEO	CSO Spills	Construct 1522m3 storage tank to reduce spill frequency to Bathing and Shellfish Waters	£1.55M	Short to medium term	Environment Agency
SWAL.OT01.3	Tankerton Circus CSO	CSO Spills	Improve model and develop solution to construct storage tank to reduce spill frequency to Bathing and Shellfish Waters	~£1.0M	Short to medium term	Environment Agency
SWAL.OT01.4	Swalecliffe WTW	CSO Spills	Improve model and develop solution to construct storage tank to reduce spill frequency to Bathing and Shellfish Waters	~£1.0M	Short to medium term	Environment Agency
SWAL.PW02.2	Swalecliffe WTW	WTW Dry Weather Flow Compliance	Review DWF permit for the WTW with the EA, and increase capacity of Primary and Secondary Settlement Tanks	£1.98M	Short term	Environment Agency
SWAL.OT01.6	Catchment wide	Ecological Status of Waterbodies	Study & Investigations to understand the impact of wastewater discharges and identify measures required to achieve good ecological status in the Sarre Penn and River Wantsum	£697k	Short term	Environment Agency
SWAL.OT01.1	Catchment wide	Nutrient Balance in Habitat Sites	Study & Investigations to understand the impact of wastewater discharges and identify measures required to secure Nutrient Neutrality in The Swale, Medway Estuary & Marshes	£76k	Short term	Environment Agency, Natural England
SWAL.OT01.7	Catchment wide	Bathing Waters Quality	Link to ongoing Bathing Waters studies within business and use recommended measures to develop solutions in next DWMP cycle	£0	Short term	Environment Agency
SWAL.OT01.8	Catchment wide	Shellfish Waters Quality	Link to ongoing Shellfish Waters studies within business and use recommended measures to develop solutions in next DWMP cycle	£0	Short term	Environment Agency

# Other Issues from the DWMP Feedback / Input Log

- [Pathfinder Programme](#) - is already underway investigating sustainable solutions to the overflows in Deal, Swalecliffe, Margate and Herne Bay
- Investigation of whether the discharges to ditches in the marshes need an EA permit
- Misconnections of foul sewers into surface water network
- Short term flood mitigation devices for properties at risk of flooding
- Facilitating new connections to prevent groundwater pollution
- Mapping surface water networks to identify responsibilities
- Repair / refurbish Gorrell Storage Tank



# Questions



# Review of Investment Needs

# Risks in the Stour Catchment

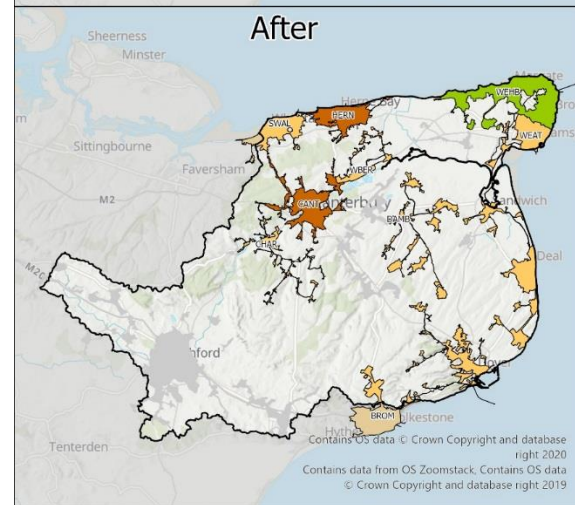
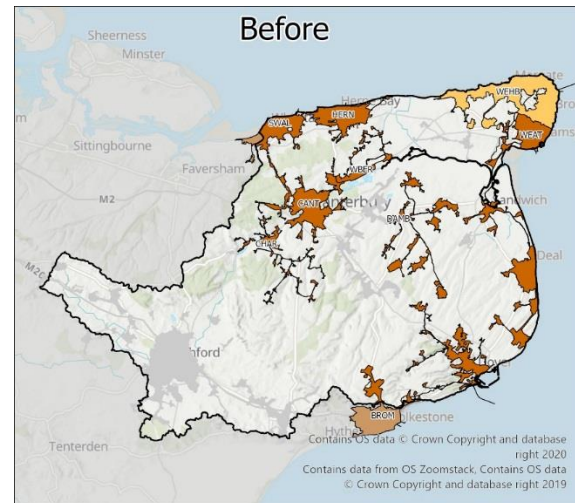
BRAVA Results indicated the main risks in this river basin catchment are for the following Planning Objectives (PO):

- Good Ecological Status / Potential (PO9)
- Nutrients (PO11)
- Flooding (PO7)
- Pollution (PO2)

# PO9 – Good Ecological Status

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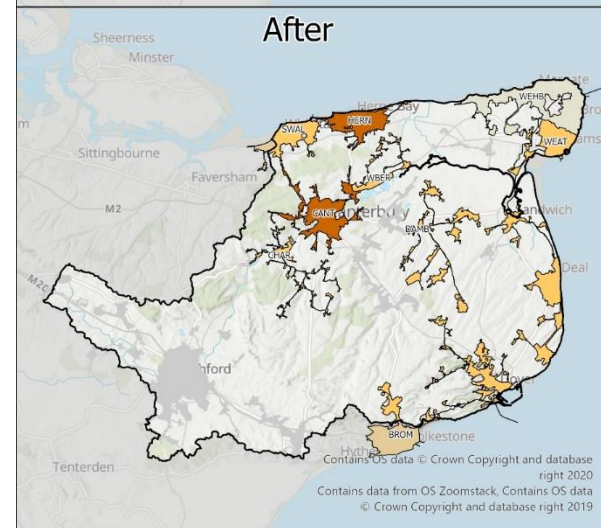
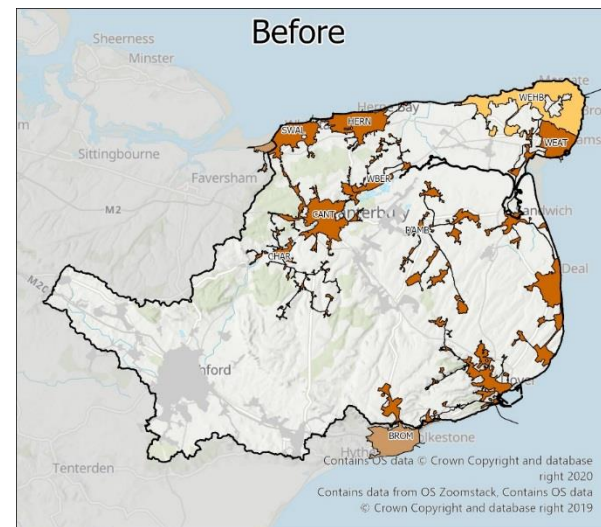
Stour	PO9	BRAVA	
Option Type	Est Cost(£)	Before	After
<b>Broomfield Bank</b>			
BROM.PW01.6 - Pipe Rehabilitation Programme	£70495 K		
BROM.OT01.2 - Study and Investigations to Achieve Good Ecological Status	£697 K	2	1
<b>Canterbury</b>			
CANT.OT01.4 - Study and Investigation: Phosphate	£175 K	2	2
<b>Chartham</b>			
CHAR.PW01.5 - Pipe Rehabilitation Programme	£9182 K		
CHAR.OT01.2 - Study and Investigations to Achieve Good Ecological Status	£697 K	2	1
<b>Dambridge Wingham</b>			
DAMB.PW02.0 - Pipe Rehabilitation Programme	£864 K		
DAMB.OT01.3 - Study and Investigations to Achieve Good Ecological Status	£697 K	2	1
<b>Margate And Broadstairs</b>			
WEHB.PW01.8 - Storage Tank	£1000 K		
WEHB.OT02.2 - Upsize and online storage - Study and Investigations to Achieve Good Ecological Status	£697 K	1	0



# PO9 – Good Ecological Status

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Stour	PO9	BRAVA	
Option Type	Est Cost (£)	Before	After
<b>May Street Herne Bay</b>			
HERN.OT01.1 - Identify misconconnections	£100 K		
HERN.OT01.3 - Discharges to Shellfish Waters	£100 K	2	2
HERN.PW01.9 – Pipe Rehabilitation	£390 K		
<b>Swalecliffe</b>			
SWAL.PW01.6 - Additional Storage Capacity	£1523 K		
SWAL.OT01.3 - Survey, Modelling investigation and Spill Attenuation	£1000 K	2	1
SWAL.OT01.4 - Further investigation/modelling and Spill Attenuation	£1000 K		
<b>Weatherlees Hill</b>			
WEAT.PW01.23 - Storage ( (DEAL) FC012 - LOOP STREET SANDWICH WPS)	£594 K		
WEAT.OT01.2 - Study Macrophytes and Phytobenthos combined Phosphate	£100 K		
WEAT.OT01.6 - Storage ( (DEAL) FC013 - THE BULWARK SANDWICH WPS)	£1000 K	2	1
WEAT.OT01.7 - Storage ( (DEAL) FC014 - GOLF ROAD DEAL CSO (ICM link: Golf Rd_Storm WPS.2))	£1000 K		
<b>Westbere</b>			
WBER.PW02.2 - Storage Tank	£2323 K		
WBER.OT01.1 - Study and Investigations to Achieve Good Ecological Status	£697 K	2	1

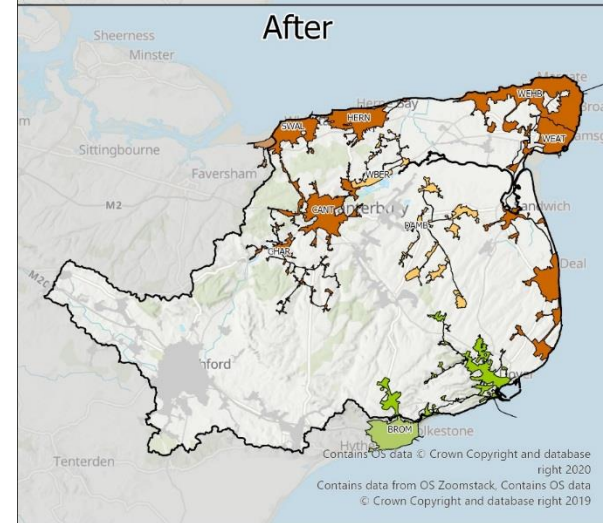
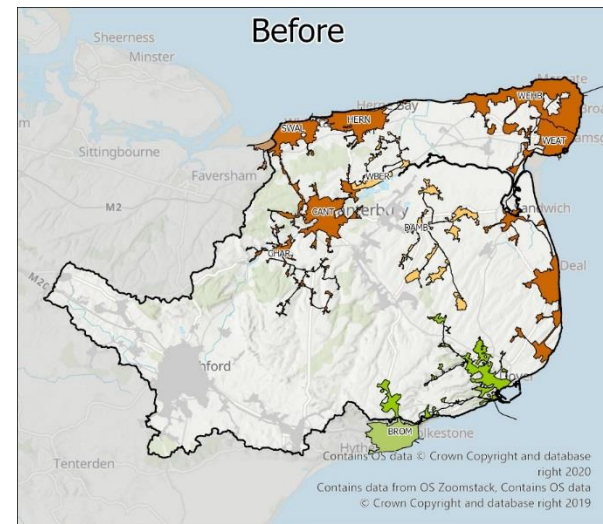




# PO11 – Nutrient Neutrality

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Stour	PO11	BRAVA (2050)	
Option Type	Est Cost(£)	Before	After
<b>Broomfield Bank</b>		0	0
<b>Canterbury</b>			
CANT.OT01.5 - Nutrient Budget	£76 K	2	2
<b>Chartham</b>			
CHAR.OT01.3 - Study and Investigations to identify Measures to Secure Nutrient Neutrality	£76 K	2	2
<b>Dambridge Wingham</b>			
DAMB.OT01.2 - Study and Investigations to identify Measures to Secure Nutrient Neutrality	£0	1	1
<b>Margate And Broadstairs</b>		0	0
<b>May Street Herne Bay</b>			
HERN.OT01.2 - Nutrient Budget	£76 K	2	2
HERN.OT01.4 - Modelling investigation			
<b>Swalecliffe</b>			
SWAL.OT01.1 - Study and Investigations to identify Measures to Secure Nutrient Neutrality	£76 K	2	2
<b>Weatherlees Hill</b>			
WEAT.OT01.3 - Nutrient Budget	£76 K	2	2
<b>Westbere</b>			
WBEB.OT01.2 - Nutrient Budget	£76 K	1	1

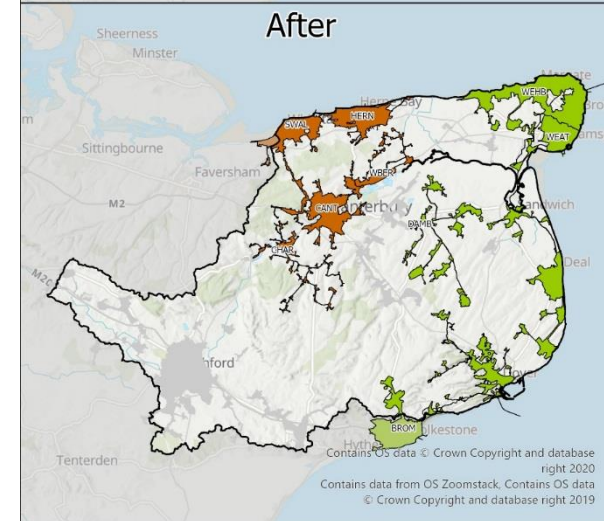
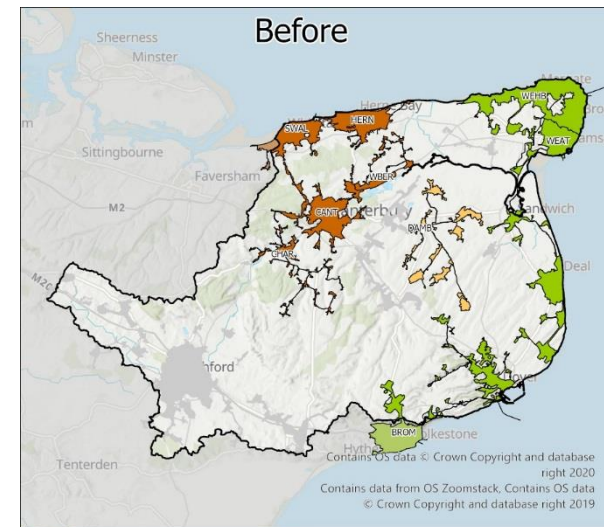




# PO7 – Hydraulic Overload

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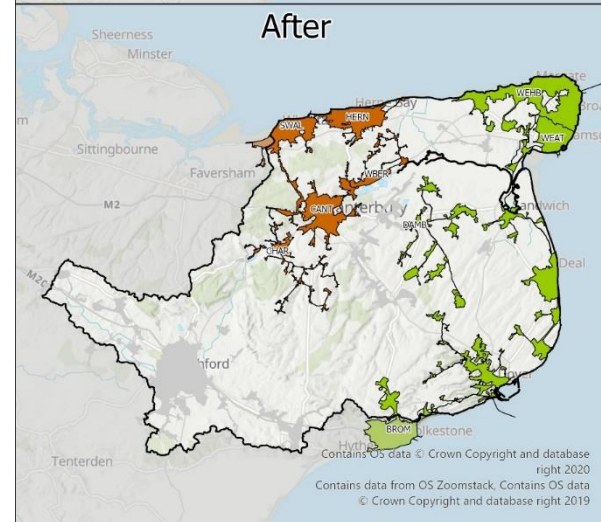
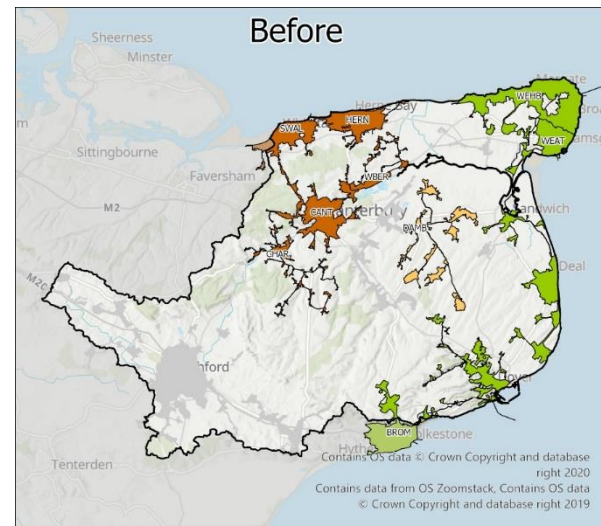
Stour		PO7	BRAVA (2050)	
Option Type		Est Cost(£)	Before	After
<b>Broomfield Bank</b>				
	BROM.PW01.8 - Jetting Programme			
	BROM.PW01.9 - Storage Tank	£1106 K		
	BROM.PW01.10 - Storage Tank	£811 K		
	BROM.PW01.11 - Storage Tank	£709 K		
	BROM.PW01.12 - Storage Tank	£2477 K	0	0
	BROM.PW01.13 - Storage Tank	£722 K		
	BROM.PW01.14 - Storage Tank	£1075 K		
<b>Canterbury</b>				
	CANT.OT01.6 - Improve Hydraulic Model	£175 K		
	CANT.OT01.7 - Study/model investigation	£175 K	2	2
	CANT.OT01.8 - Study/model investigation	£175 K		
<b>Chartham</b>				
	CHAR.OT01.4 - Model Build	£70 K	2	2
<b>Dambridge Wingham</b>				
	DAMB.SCO1.1 - Surface Water Separation	£620 K		
	DAMB.SCO1.2 - Surface Water Separation	£1165 K	1	0
	DAMB.SCO1.3 - Surface Water Separation	£972 K		
	DAMB.SCO1.4 - Surface Water Separation	£960 K		
<b>Margate And Broadstairs</b>				
	WEHB.PW01.10 - New sewer and flow diversion	£569 K		
	WEHB.PW01.11 - Upsize	£569 K		
	WEHB.PW01.12 - Upsize	£569 K		
	WEHB.PW01.13 - Upsize	£569 K		
	WEHB.PW01.14 - Upsize	£569 K		
	WEHB.PW01.15 - Upsize, offline storage and flow control device	£569 K	0	0
	WEHB.PW01.16 - Upsize, online storage and flow control device	£569 K		
	WEHB.PW01.17 - Upsize, online storage and flow control device	£569 K		
	WEHB.PW01.18 - Upsize and online storage	£569 K		
	WEHB.PW01.19 - New sewer	£569 K		



# PO7 – Hydraulic Overload

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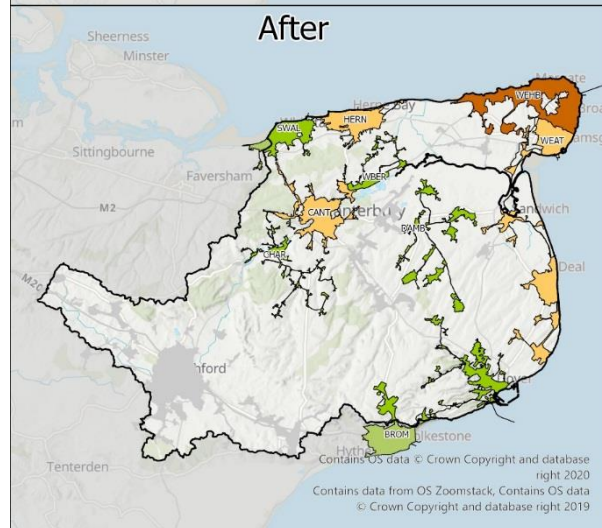
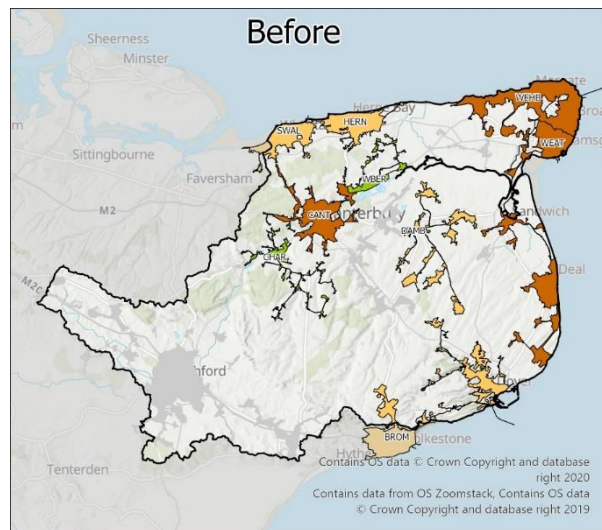
Stour	PO7	BRAVA (2050)	
Option Type	Est Cost(£)	Before	After
<b>May Street Herne Bay</b>			
HERN.PW01.1 - Sewer upsizing	£6054 K	2	2
HERN.PW01.2 - New sewer	£18162 K		
HERN.PW01.3 - Storage	£6054 K		
HERN.PW01.4 - New sewer	£18162 K		
HERN.PW01.5 - New sewer	£18162 K		
<b>Swalecliffe</b>			
SWAL.PW01.1 - SWAL010 DAP Position Statement Option - Sewer Upsize and Online Storage		2	2
SWAL.PW01.2 - SWAL011 DAP Position Statement Option - Sewer Upsize and Offline Storage			
SWAL.PW01.3 - SWAL012 DAP Position Statement Option - Sewer Upsize and Online Storage			
SWAL.PW01.11 - Storage Tank	£1245 K		
SWAL.PW01.12 - Storage Tank	£767 K		
SWAL.PW01.13 - Storage Tank	£1177 K		
SWAL.PW01.14 - Storage Tank	£1719 K		
SWAL.PW01.15 - Storage Tank	£3927 K		
SWAL.PW01.16 - Storage Tank	£1162 K		
SWAL.PW01.17 - Upsizing and new pipework	£1455 K		
SWAL.PW01.18 - Upsizing	£1455 K		
SWAL.PW01.19 - Upsizing	£1455 K		
SWAL.PW01.20 - Upsizing	£1455 K		
SWAL.PW01.21 - Upsizing	£1455 K		
SWAL.PW01.22 - Upsizing	£1455 K		
SWAL.PW01.23 - Upsizing	£1455 K		
SWAL.PW01.24 - Upsizing , new pipework and offline storage	£1455 K		
SWAL.PW01.25 - Upsizing	£1455 K		
SWAL.PW01.26 - Upsizing	£1455 K		
SWAL.OT01.2 - Survey and modelling investigation	£70 K		
SWAL.OT01.3 - Survey, Modelling investigation and Spill Attenuation	£70 K		
SWAL.OT01.5 - Improve Hydraulic Model	£100K		
<b>Weatherlees Hill</b>			
		0	0
<b>Westbere</b>			
WBEB.OT01.3 - Improve Hydraulic Model	£232 K	2	2



# PO1 – Internal Flooding

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Stour	PO1	Internal Flood Incidents (Nr in 3yrs)			BRAVA	
Option Type	Est Cost(£)	Solution Reduction	Total	Reduction Req'd for Band 0	Before	After
<b>Broomfield Bank</b>						
BROM.SC03.1 - Customer Education Programme	£116 K	9	39	15	1	0
BROM.PW01.7 - Jetting Programme	£389 K	9				
BROM.OT01.3 - Improve Hydraulic Model	£70 K	0				
<b>Canterbury</b>						
CANT.SC03.1 - Customer Education Programme	£116 K	12	57	45	2	1
CANT.PW01.1 - Maintenance Programme WPS	£233 K	2				
CANT.PW01.2 - Additional Storage	£1000 K	4				
CANT.PW01.9 - Jetting Programme	£526 K	12				
CANT.RC04.1 - Property Flood Mitigation / Resistance	£80 K	1				
<b>Chartham</b>						
<b>Dambridge Wingham</b>						
DAMB.SC03.1 - Customer Education Programme	£116 K	1	3	1	1	0
DAMB.PW01.8 - Pipe Rehabilitation Programme	-	-				
DAMB.PW01.9 - Jetting Programme	£23 K	1				
<b>Margate And Broadstairs</b>						
WEHB.SC03.1 - Customer Education Programme	£116 K	20	80	78	2	2
WEHB.PW01.1 - Smart Network and Improved Sewer Jetting	£880 K	20				
<b>May Street Herne Bay</b>						
HERN.SC03.1 - Customer Education Programme	£116 K	4	17	8	1	1
<b>Swalecliffe</b>						
SWAL.SC03.1 - Customer Education Programme	£116 K	2	9	1	1	0
SWAL.OT01.5 - Improve Hydraulic Model	£70 K	0				
<b>Weatherlees Hill</b>						
WEAT.SC03.1 - Customer Education Programme	£116 K	12	61	40	2	1
WEAT.PW01.9 - Jetting Programme	£514 K	12				
WEAT.OT01.1 - Investigation into causes	£232 K	0				
WEAT.OT01.8 - Improve Hydraulic Model	£70 K	0				
<b>Westbere</b>						
					0	0

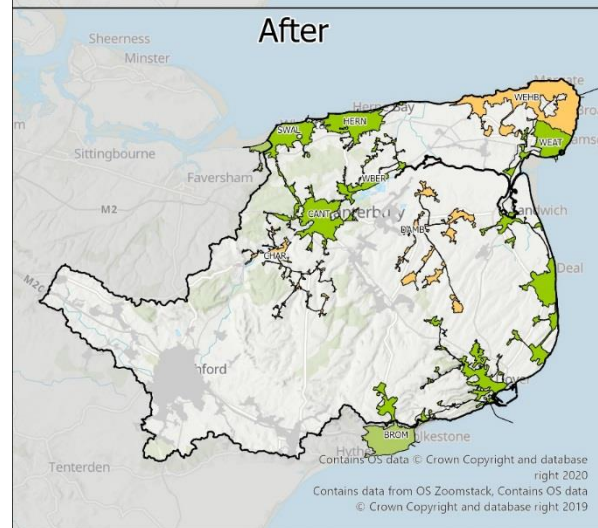
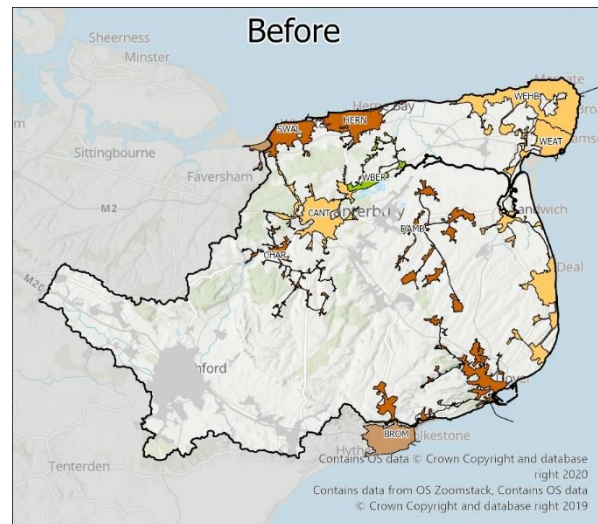




# PO2 – Pollution Risk

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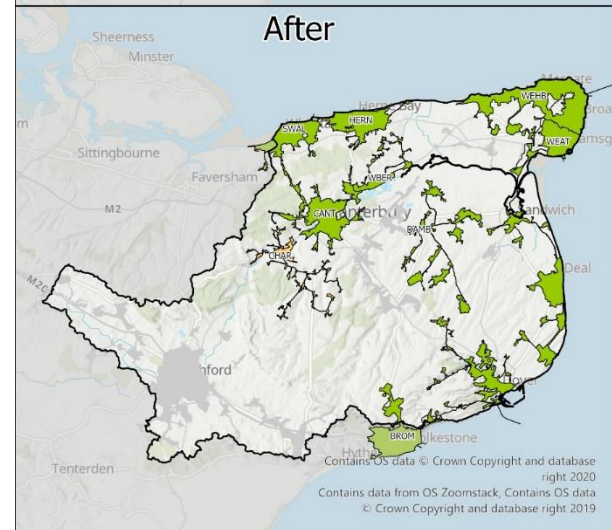
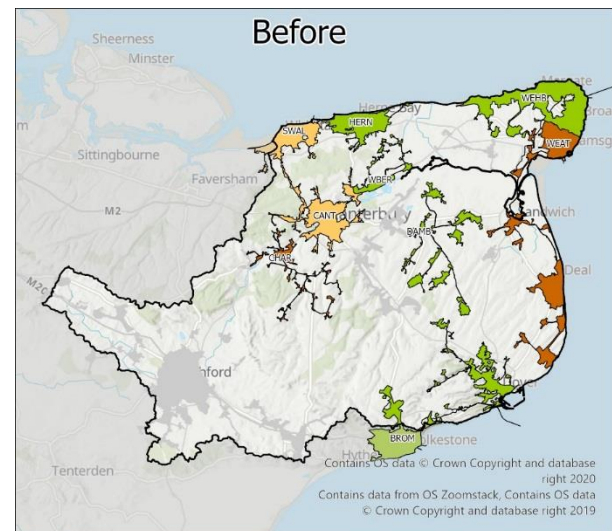
Stour	Option Type	PO2	Pollution Incidents (Nr in 3yrs)			BRAVA	
			Est Cost(£)	Solution Reduction	Total	Reduction Req'd for Band 0	Before
<b>Broomfield Bank</b>	BROM.SC03.2 - Customer Education Programme	£116 K	2	14	8	2	0
	BROM.PW01.3 - Maintenance Programme WPS	£466 K	2				
	BROM.PW01.4 - Maintenance Programme WPS	£466 K	2				
	BROM.PW01.8 - Jetting Programme	£57 K	2				
	BROM.PW02.1 - Maintenance Programme WTW	£6970 K	6				
<b>Canterbury</b>	CANT.SC03.2 - Customer Education Programme	£116 K	1	8	4	1	0
	CANT.PW01.3 - Maintenance Programme WPS	£466 K	2				
	CANT.PW01.8 - Pipe Rehabilitation Programme	£23453 K	2				
	CANT.PW01.9 - Jetting Programme	£526 K	1				
<b>Chartham</b>	CHAR.PW01.1 - Maintenance Programme WPS	£233 K	1	3	3	2	1
	CHAR.PW01.2 - Pipe Rehabilitation Programme	£845 K	1				
<b>Dambridge Wingham</b>	DAMB.SC03.1 - Customer Education Programme	£116 K	1	4	3	2	1
	DAMB.PW01.5 - Maintenance Programme WPS	£233 K	1				
	DAMB.PW01.6 - Jetting Programme	£11 K	1				
	DAMB.PW01.8 - Pipe Rehabilitation Programme	£422 K	1				
<b>Margate And Broadstairs</b>	WEHB.SC03.2 - Customer Education Programme	£116 K	1	7	6	1	1
	WEHB.PW01.1 - Smart Network and Improved Sewer Jetting	£880 K	1				
	WEHB.PW01.2 - Maintenance Programme WPS	£233 K	1				
<b>May Street Herne Bay</b>	HERN.SC03.2 - Customer Education Programme	£116 K	1	9	6	2	0
	HERN.PW01.7 - Maintenance Programme WPS	£466 K	3				
	HERN.PW01.10 - Jetting Programme	£23 K	1				
	HERN.PW02.2 - Maintenance Programme WTW	£1000 K	3				
<b>Swalecliffe</b>	SWAL.SC03.1 - Customer Education Programme	£116 K	1	21	19	2	0
	SWAL.PW01.27 - Maintenance Programme WPS	£1455 K	1				
	SWAL.PW01.28 - Maintenance Programme WPS	£1455 K	1				
	SWAL.PW01.29 - Maintenance Programme WPS	£698 K	1				
	SWAL.PW01.30 - Maintenance Programme WPS	£698 K	1				
	SWAL.PW01.31 - Jetting Programme	£23 K	1				
	SWAL.PW02.3 - Maintenance Programme WTW	£6970 K	14				
<b>Weatherlees Hill</b>	WEAT.PW01.8 - Pipe Rehabilitation Programme	£2535 K	3	7	3	1	0
<b>Westbere</b>						0	0



# PO3 – Sewer Collapse

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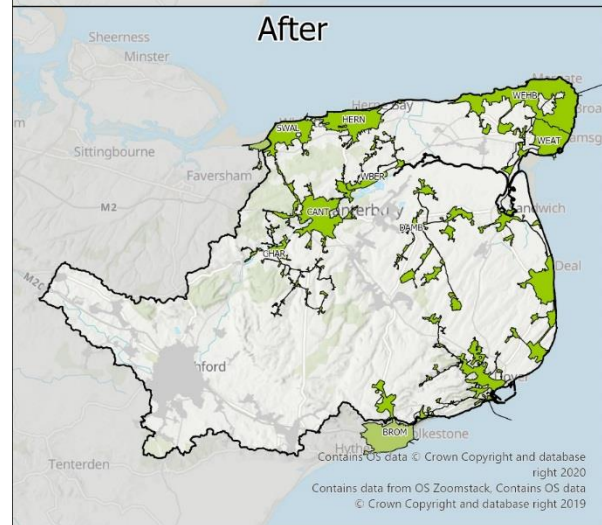
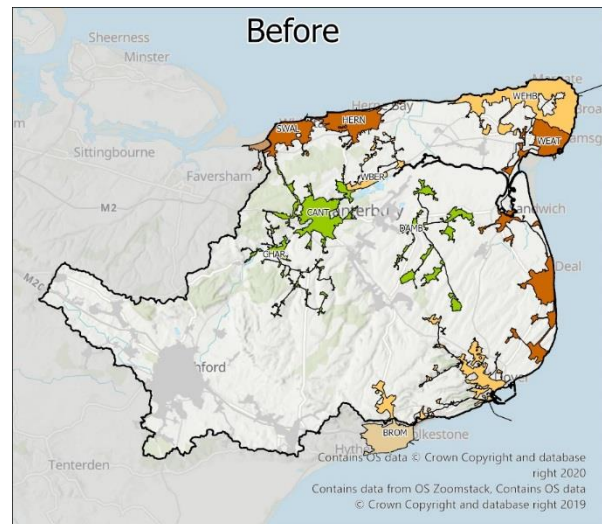
Stour	PO3	Collapses and Bursts (Nr)			BRAVA	
Option Type	Est Cost(£)	Solution Reduction	Total	Reduction Req'd for Band 0	Before	After
<b>Broomfield Bank</b>					0	0
<b>Canterbury</b>						
CANT.PW01.4 - Pipe Rehabilitation Programme	£8070 K	7	13	3	1	0
<b>Chartham</b>						
CHAR.PW01.3 - Pipe Rehabilitation Programme	£3144 K	3	5	3	2	1
<b>Dambridge Wingham</b>					0	0
<b>Margate And Broadstairs</b>					0	0
<b>May Street Herne Bay</b>					0	0
<b>Swalecliffe</b>						
SWAL.PW01.32 - Pipe Rehabilitation Programme	£3215 K	4	7	1	1	0
<b>Weatherlees Hill</b>						
WEAT.PW01.5 - Pipe Rehabilitation Programme	£12224 K	11	21	10	2	0
<b>Westbere</b>					0	0



# PO5 – Storm Overflow

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Stour		PO5	BRAVA (2050)	
Option Type		Est Cost (£)	Before	After
<b>Broomfield Bank</b>				
	BROM.PW01.17 - Storage Tank	£1000 K	1	0
	BROM.PW01.18 - Storage Tank	£1000 K		
	BROM.PW01.19 - Storage Tank	£1000 K		
	BROM.OT01.3 - Improve Hydraulic Model	£70 K		
<b>Canterbury</b>			0	0
<b>Chartham</b>			0	0
<b>Dambridge Wingham</b>			0	0
<b>Margate And Broadstairs</b>				
	WEHB.PW01.8 - Storage Tank	£2323 K	1	0
<b>May Street Herne Bay</b>				
	HERN.OT01.4 - Modelling investigation	£1000 K	2	0
	HERN.OT01.5 - Modelling investigation	£1512 K		
<b>Swalecliffe</b>				
	SWAL.PW01.6 - Additional Storage Capacity	£1523 K	2	0
	SWAL.OT01.3 - Survey, Modelling investigation and Spill Attenuation	£1000 K		
	SWAL.OT01.4 - Further investigation/modelling and Spill Attenuation	£1000 K		
<b>Weatherlees Hill</b>				
	WEAT.PW01.23 - Storage ( (DEAL) FC012 - LOOP STREET SANDWICH WPS)	£594 K	2	0
	WEAT.OT01.6 - Storage ( (DEAL) FC013 - THE BULWARK SANDWICH WPS)	£1000 K		
	WEAT.OT01.7 - Storage ( (DEAL) FC014 - GOLF ROAD DEAL CSO (ICM link: Golf Rd_Storm WPS.2))	£1000 K		
<b>Westbere</b>				
	WBER.PW02.2 - Storage Tank	£2323 K	1	0
	WBER.OT01.3 - Improve Hydraulic Model	£232 K	1	0

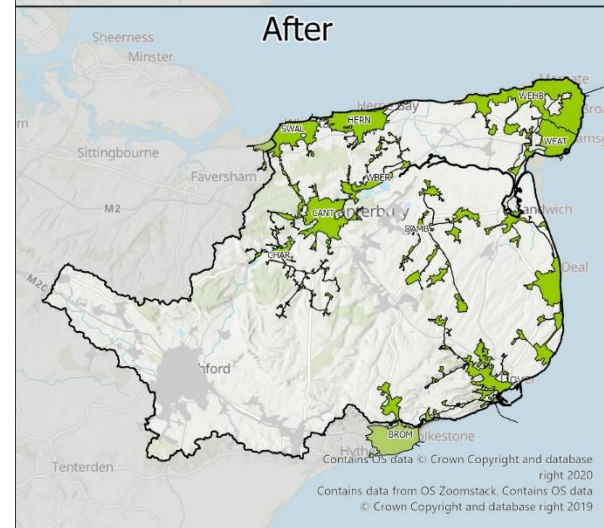
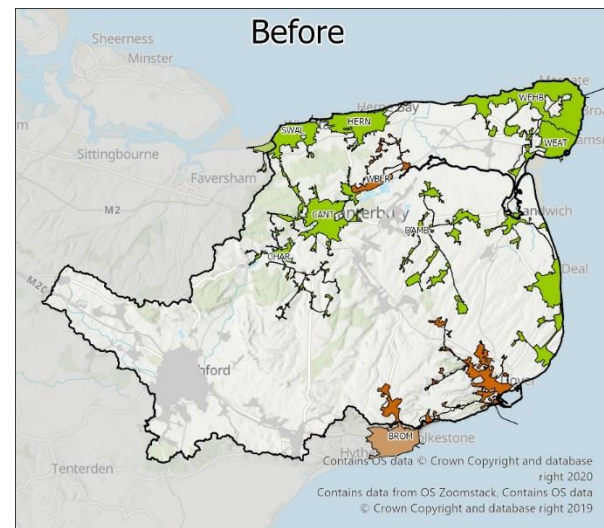




# PO6 – WTW Compliance Failure

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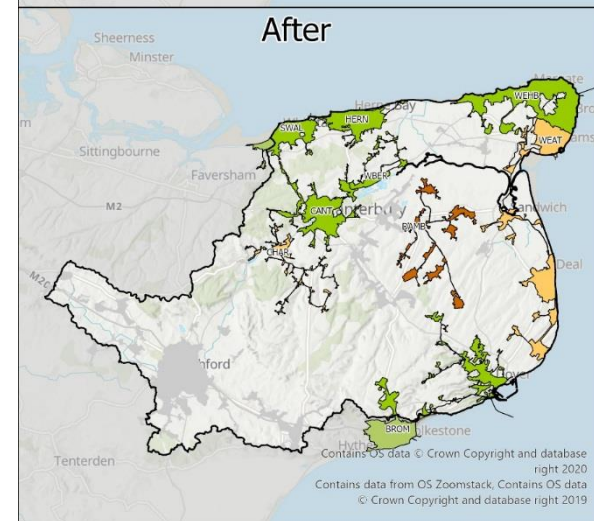
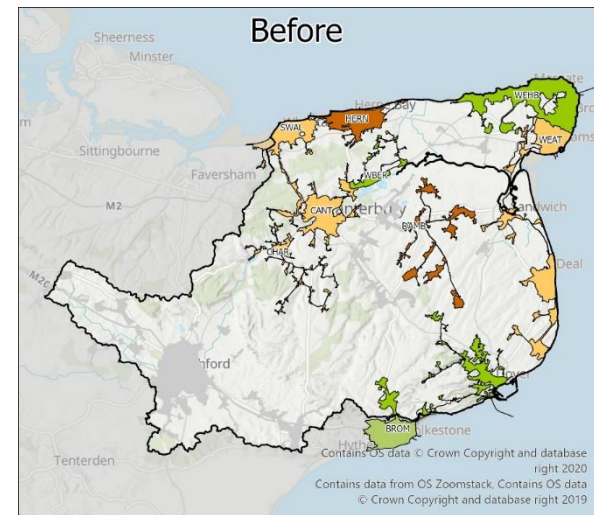
Stour	PO6	BRAVA (2050)	
Option Type	Est Cost(£)	Before	After
Broomfield Bank		2	0
Canterbury		0	0
Chartham		0	0
Dambridge Wingham		0	0
Margate And Broadstairs		0	0
May Street Herne Bay		0	0
Swalecliffe		0	0
Weatherlees Hill		0	0
Westbere		2	0



# PO8 – DWF Compliance

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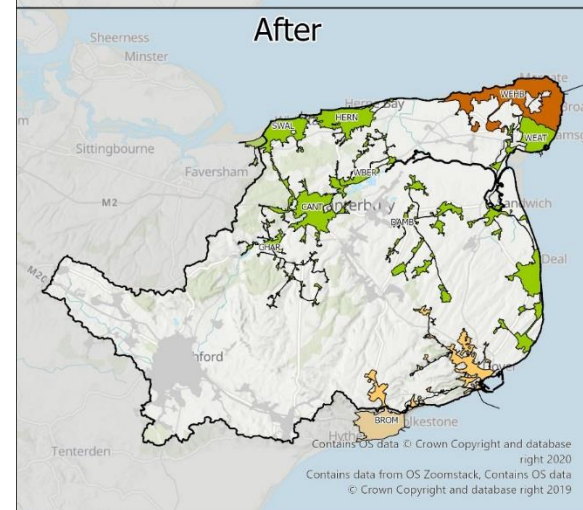
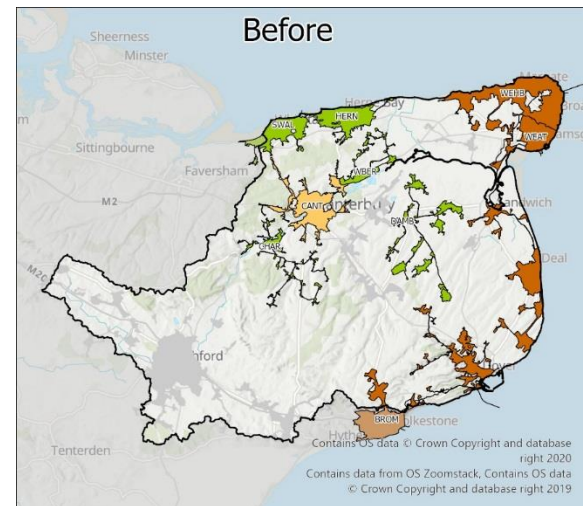
Stour	PO8	BRAVA (2050)	
Option Type	Est Cost(£)	Before	After
<b>Broomfield Bank</b>		0	0
<b>Canterbury</b>			
CANT.PW02.2 - Increase Capacity	£2066 K	1	0
CANT.OT01.2 - Infiltration Reduction Plan	£175 K		
<b>Chartham</b>			
CHAR.PW01.5 - Pipe Rehabilitation Programme		1	1
<b>Dambridge Wingham</b>			
DAMB.PW01.9 - Jetting Programme		2	2
0 - DWF Permit Increase			
<b>Margate And Broadstairs</b>		0	0
<b>May Street Herne Bay</b>			
HERN.PW02.3 - Increase DWF Capacity	£2109 K	2	0
<b>Swalecliffe</b>			
SWAL.PW02.2 - Increase DWF Capacity	£1982 K	1	0
<b>Weatherlees Hill</b>			
WEAT.PW02.1 - Increase DWF Capacity	£2746 K	1	1
<b>Westbere</b>		0	0



# PO12 – Groundwater Pollution Risk

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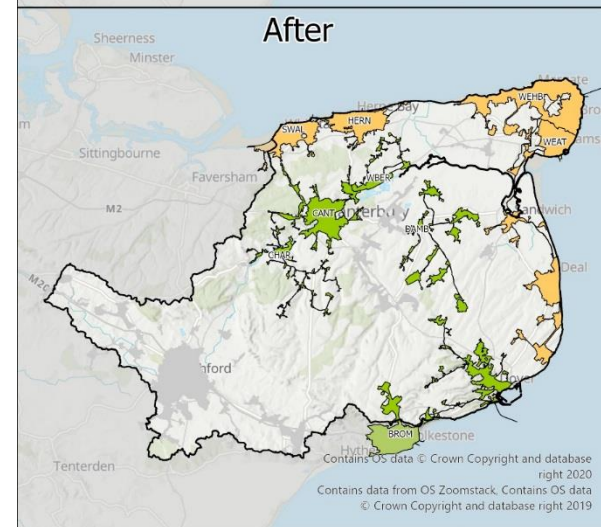
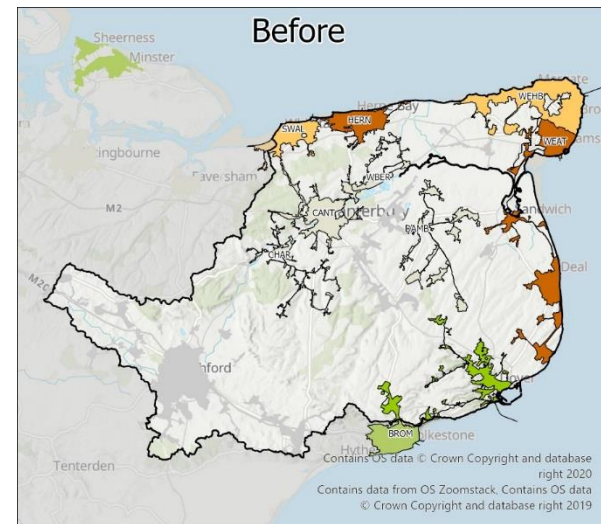
Stour	PO12	BRAVA	
Option Type	Est Cost (£)	Before	After
<b>Broomfield Bank</b>			
BROM.PW01.6 - Pipe Rehabilitation Programme	£70495 K	2	1
<b>Canterbury</b>		0	0
<b>Chartham</b>		0	0
<b>Dambridge Wingham</b>		0	0
<b>Margate And Broadstairs</b>			
WEHB.PW01.9 - Pipe Rehabilitation Programme	£6970 K		
WEHB.PW01.15 - Upsize, offline storage and flow control device			
WEHB.PW01.16 - Upsize, online storage and flow control device		2	2
WEHB.PW01.17 - Upsize, online storage and flow control device			
WEHB.PW01.18 - Upsize and online storage			
<b>May Street Herne Bay</b>		0	0
<b>Swalecliffe</b>		0	0
<b>Weatherlees Hill</b>			
WEAT.PW01.7 - Pipe Rehabilitation Programme	£46518 K	2	0
<b>Westbere</b>		0	0



# PO13 – Bathing Water

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Stour	PO13	BRAVA	
Option Type	Est Cost(£)	Before	After
<b>Broomfield Bank</b>		0	0
<b>Canterbury</b>		0	0
<b>Chartham</b>		0	0
<b>Dambridge Wingham</b>		0	0
<b>Margate And Broadstairs</b>			
	WEHB.PW01.8 - Storage Tank	£2323 K	
	WEHB.OT01.1 - Improve Hydraulic Model	1	1
<b>May Street Herne Bay</b>			
	HERN.OT01.4 - Modelling investigation	£1000 K	2
<b>Swalecliffe</b>			
	SWAL.PW01.6 - Additional Storage Capacity	£1523 K	
	SWAL.OT01.3 - Survey, Modelling investigation and Spill Attenuation	£1000 K	1
	SWAL.OT01.4 - Further investigation/modelling and Spill Attenuation	£1000 K	
<b>Weatherlees Hill</b>			
	WEAT.PW01.23 - Storage ( (DEAL) FC012 - LOOP STREET SANDWICH WPS)	£594 K	
	WEAT.OT01.6 - Storage ( (DEAL) FC013 - THE BULWARK SANDWICH WPS)	£1000 K	2
	WEAT.OT01.7 - Storage ( (DEAL) FC014 - GOLF ROAD DEAL CSO (ICM link: Golf Rd_Storm WPS.2))	£1000 K	1
<b>Westbere</b>		0	0

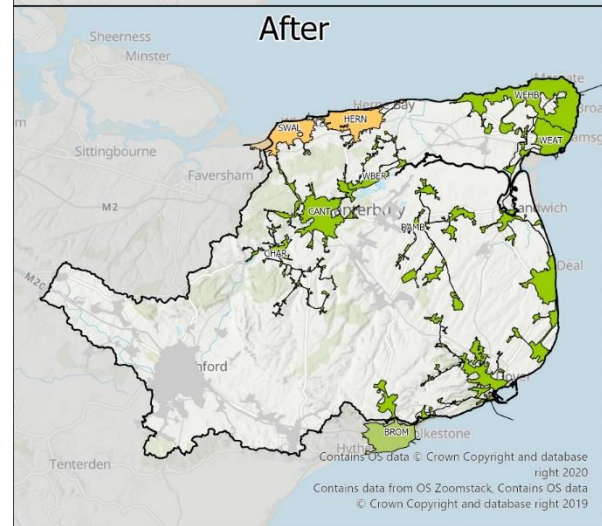
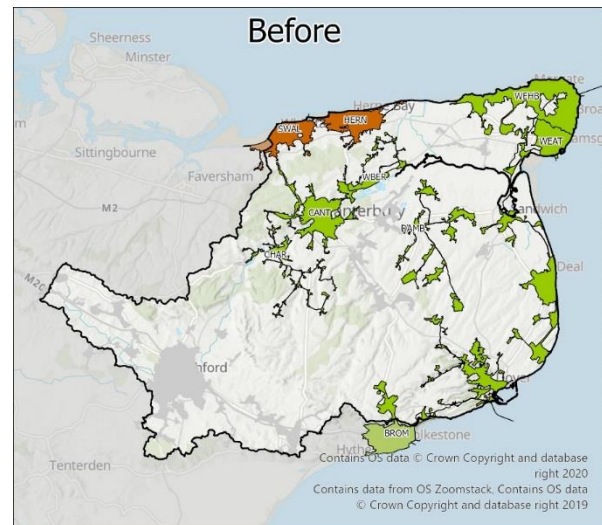




# PO14 – Shellfish Water

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Stour	PO14	BRAVA	
Option Type	Est Cost(£)	Before	After
<b>Broomfield Bank</b>		0	0
<b>Canterbury</b>		0	0
<b>Chartham</b>		0	0
<b>Dambridge Wingham</b>		0	0
<b>Margate And Broadstairs</b>		0	0
<b>May Street Herne Bay</b>			
	HERN.OT01.1 - Identify misconnections	£100 K	
	HERN.OT01.3 - Discharges to Shellfish Waters	£100 K	2
	HERN.OT01.4 - Modelling investigation	£1000 K	1
<b>Swalecliffe</b>			
	SWAL.PW01.6 - Additional Storage Capacity	£1523 K	
	SWAL.OT01.3 - Survey, Modelling investigation and Spill Attenuation	£1000 K	2
	SWAL.OT01.4 - Further investigation/modelling and Spill Attenuation	£1000 K	1
<b>Weatherlees Hill</b>		0	0
<b>Westbere</b>		0	0



# Programme Appraisal

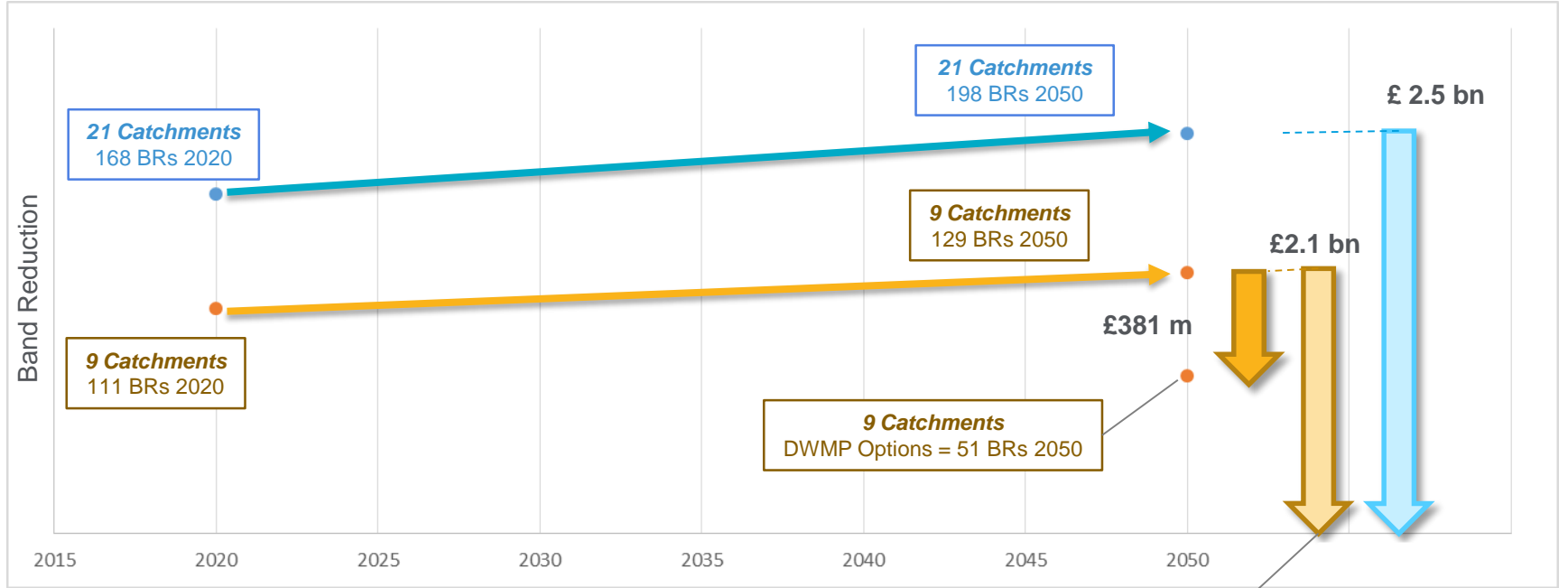


# Programme Appraisal

- Purpose: to develop an optimised 'best value' plan of measures to achieve the planning objectives
- Process: Collated all the investment needs from the 61 wastewater catchments, with information on costs and risk band reductions (across all 14 planning objectives)
- Extrapolated investment needs to other wastewater catchments in the river basin based on average cost per band reduction for each planning objective
- Optimise and prioritise investment needs for the final DWMP consultation



# Stour : DWMP Cost & Risk Band Reduction



9 Catchments  
0 BRs Band 2050

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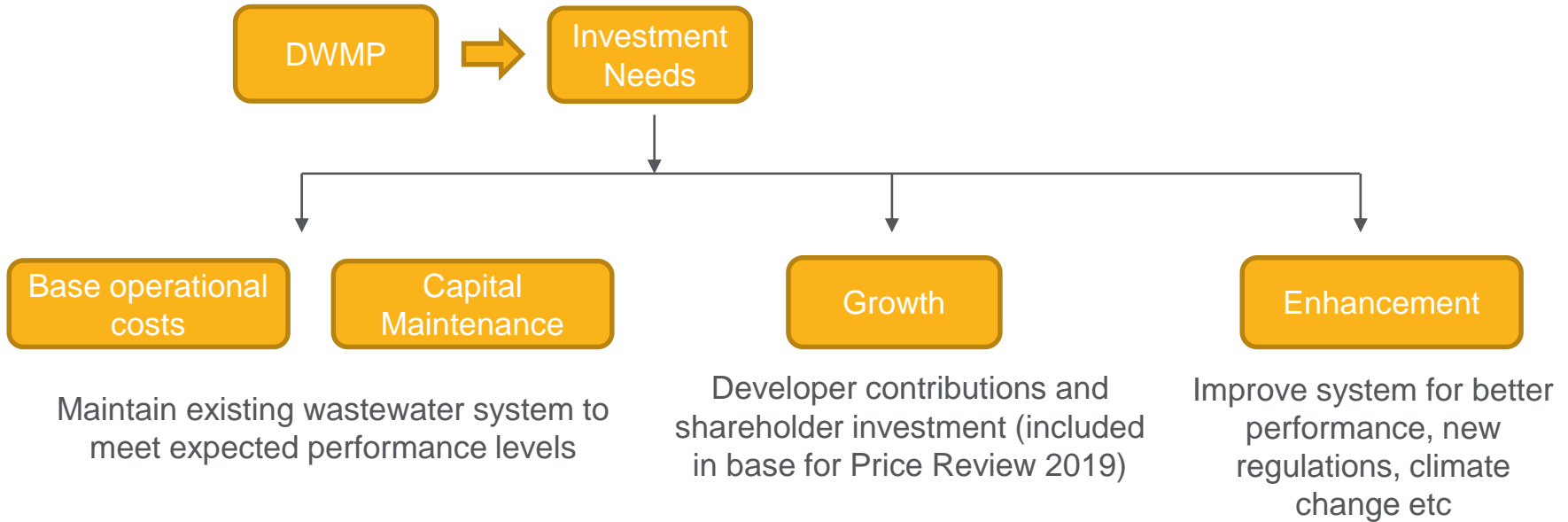
9 catchments: Population = 471,000  
21 catchments: Population = 592,000



# Questions

# Delivering the DWMP Investment Needs

# Funding the DWMP Investment Needs in PR24



# Examples of Enhancement Spend

- New environmental requirements
- New or emerging water quality risks or tightening of regulations
- Other new statutory or regulatory requirements
- Customer supported improvements – special cost cases
- Level of service improvement beyond upper quartile performance – special cost cases supported by customers





# How to Fund Enhancements?

WINEP

Water Industry National Environment Programme: Owned by the EA  
Potential for funding through this route if investment needs meet specific drivers set by the EA

Or

Special Cases

To meet customer needs

Special cases have a high evidence threshold, and must have:

- ✓ A clear need
- ✓ Clear efficient cost of delivery
- ✓ Customer support – Including a clear willingness to pay extra for it
- ✓ Clear cost benefit + proven environmental & social value
- ✓ Customer protection from non-delivery or significant underspend



# Catchment and nature-based solutions

Key findings from our DWMP:

- Significant percentage of rainfall in sewers
- Need to tackle sewer flooding and storm overflows at source – surface water separation / attenuation
- Potentially huge benefits to people & the environment

Pathfinder projects in AMP7 – pioneering solutions in AMP7 to support our business cases for next Business Plan (PR24)

Catchment portfolios have been developed in our Water Resources Management Plan (WRMP), which include solutions such as:

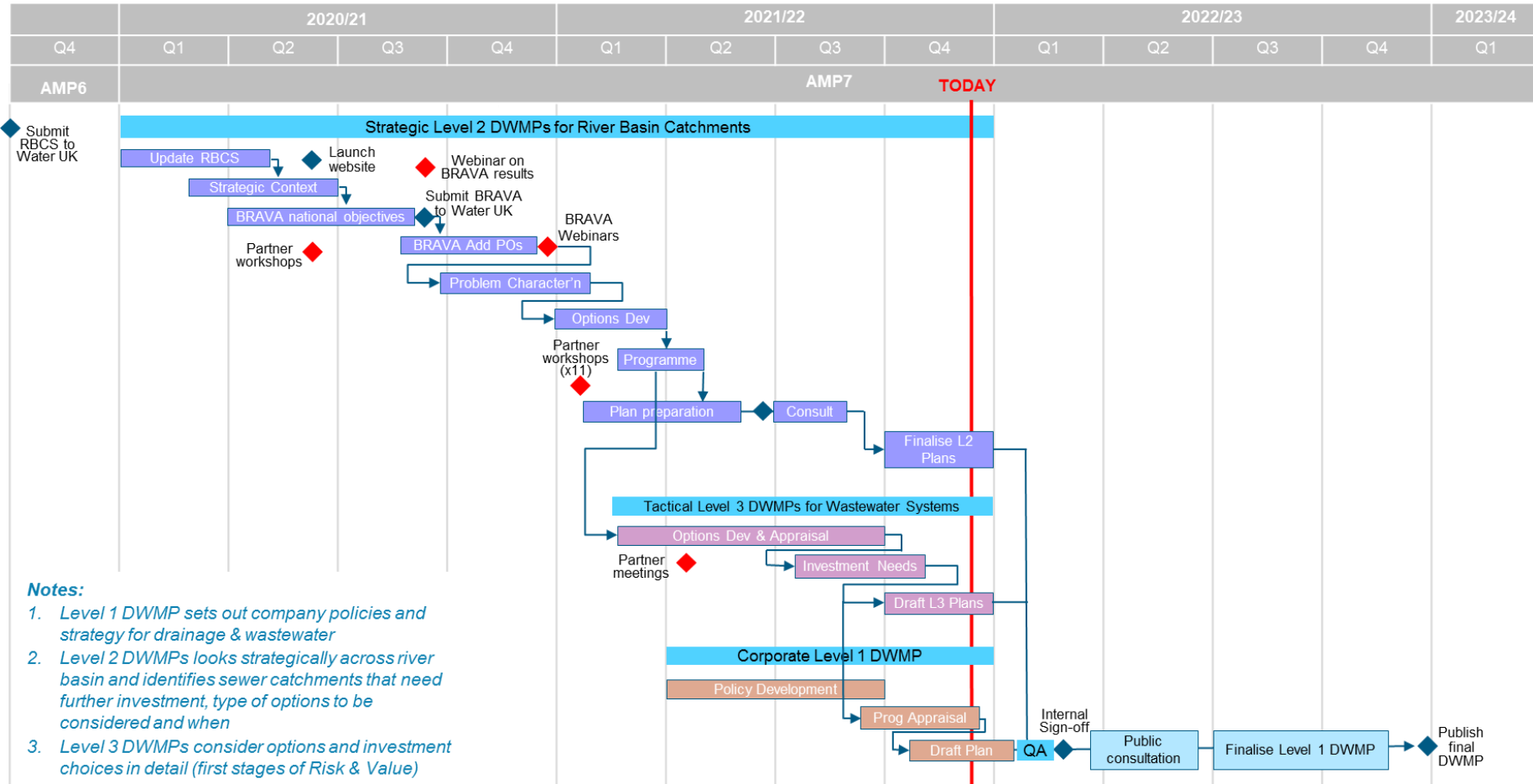
- River restoration
- Nutrient and sediment reduction
- Working with farmers to improve land management practices
- Sustainable drainage systems (SuDS)



# Next Steps



# Our DWMP Delivery Programme



# Questions



# Summary





# Summary of Workshop

Our aim today was to:

- Discuss and refine the investment needs identified in the draft DWMP
- Flag any missing investment needs
- Discuss prioritisation and timing for investment needs
- Review opportunities to co-create and co-deliver solutions
- Look at total investment needs across the river basin

# Poll



# Thank you for participating today

Website: [www.southernwater.co.uk/dwmp](http://www.southernwater.co.uk/dwmp)

Contact us: [DWMP@southernwater.co.uk](mailto:DWMP@southernwater.co.uk)



from  
**Southern  
Water** 

The Southern Water logo consists of three stylized, wavy blue lines of varying lengths, positioned to the right of the text "Southern Water".

# Investment Needs for other wastewater catchments

# Investment Needs – Broomfield Bank (BROM) 1 of 3

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
BROM.SC03.1	St. James Lane, The Bayle, Castle Street, London Street, Bench Street, Norman Street, Sandgate Road, Oswald Road, Snargate Street, Cheriton High Street, Vale View Road, London Road, Wallace Mews, Ross Way, Cannon Street, Godwyne Road, Guildhall Street, Tontine Street, Canterbury Road, Sandgate High Street, Biggin Street, Clifton Crescent, Valley Road	Internal Flooding due to Blockages	Target customers with a campaign to reduce FOG (fats, oils & greases) and unflushables discharged into the sewer network.	£116k	Short to long term	Folkestone and Hythe District Council, Dover District Council
BROM.PW01.7	St. James Lane, The Bayle, Castle Street, London Street, Bench Street, Norman Street, Sandgate Road, Oswald Road, Snargate Street, Cheriton High Street, Vale View Road, London Road, Wallace Mews, Ross Way, Cannon Street, Godwyne Road, Guildhall Street, Tontine Street, Canterbury Road, Sandgate High Street, Biggin Street, Clifton Crescent, Valley Road	Internal Flooding due to Blockages	Improve frequency of sewer jetting to reduce FOG and unflushables discharged into the sewer network.	£389k	Short to long term	-
BROM.SC03.2	Catchment Wide	Pollution due to Blockages	Target customers with a campaign to reduce FOG (fats, oils & greases) and unflushables discharged into the sewer network.	£116k	Short to long term	Folkestone and Hythe District Council, Dover District Council



# Investment Needs – Broomfield Bank (BROM) 2 of 3

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
BROM.PW01.8	BUCKLAND AVENUE DOVER, SHORT LANE ALKHAM, DARLINGHURST ROAD FOLKESTONE, ALKHAM ROAD TEMPLE EWELL	Pollution due to Blockages	Improve frequency of sewer jetting to reduce FOG and unflushables discharged into the sewer network.	£57k	Short to long term	-
BROM.PW01.4	Elizabeth Street Dover WPS	Pollution due to WPS faults	Enhanced maintenance to improve WPS resilience and reduce pollution incidents	£466k	Short term	-
BROM.PW02.1	BROOMFIELD BANK WTW	Pollution due to WTW faults	Enhanced maintenance to improve WTW resilience and reduce pollution incidents	£6.97M	Short term	-
BROM.PW01.9	Boston Close - Dover	Foul / Combined Sewer Flooding	Flood Storage (889m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.11M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
BROM.PW01.10	Crabble area - Dover	Foul / Combined Sewer Flooding	Flood Storage (472m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£811k	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
BROM.PW01.11	Canterbury Road - Folkstone	Foul / Combined Sewer Flooding	Flood Storage (328m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£710k	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
BROM.PW01.12	Wear Bay Road - Folkestone	Foul / Combined Sewer Flooding	Flood Storage (2832m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£2.48M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
BROM.PW01.13	The Leas, Westbourne Gardens - Folkestone	Foul / Combined Sewer Flooding	Flood Storage (347m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£722k	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust

# Investment Needs – Broomfield Bank (BROM) <sub>3 of 3</sub>

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
BROM.PW01.14	High Street, The Esplanade - Sandgate	Foul / Combined Sewer Flooding	Flood Storage (846m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.08M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
BROM.PW01.15	Morehall, Coolinge - Folkestone	Foul / Combined Sewer Flooding	Flood Storage (2030m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.91M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
BROM.PW01.16	Hawkinge town	Foul / Combined Sewer Flooding	Flood Storage (128m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£568k	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
BROM.OT01.3	Catchment Wide	Foul / Combined Sewer Flooding	Hydraulic Model improvements: Surveys and reverification to improve model confidence and accuracy of simulations.	£250k	Short term	-
BROM.PW01.17	ELIZABETH STREET DOVER WPS	CSO Spills	Improve model and develop solution to construct storage tank to reduce spill frequency to Bathing Waters (English Channel)	~£1.0M	Short term	-
BROM.PW01.18	FOLKESTONE JUNCTION WPS	CSO Spills	Improve model and develop solution to construct storage tank to reduce spill frequency to Bathing Waters (English Channel)	~£1.0M	Short term	-
BROM.PW01.19	THE STADE FOLKESTONE WPS	CSO Spills	Improve model and develop solution to construct storage tank to reduce spill frequency to Bathing Waters (English Channel)	~£1.0M	Short term	-
BROM.PW02.2	BROOMFIELD BANK WTW	WTW Quality Compliance	WTW Assessment indicates there is sufficient or surplus treatment capacity in 2050	£0	-	-
BROM.OT01.2	Catchment Wide	Ecological Status of Waterbodies	Study & Investigations to understand the impact of wastewater discharges and identify measures required to achieve good ecological status in the Sarre Penn and River Wantsum	£697k	Short term	Environment Agency
BROM.PW01.6	Flemings, Martin Mill, Woodensborough, Sutton, Martins Gorse and Ringwoud within East Kent Chalk aquifer	Ecological Status of Waterbodies and Groundwater Pollution	Targeted CCTV or electroscan surveys and proactive sewer rehabilitation to reduce risk of contaminating aquifer (East Kent Chalk)	£70.49M	Short to medium term	Environment Agency

# Investment Needs – May Street Herne Bay (HERN)

DRAFT

1 of 2

Location of Risk	Issues	Option Description	Option Reference	Indicative cost	Indicative Timescale	Potential partners
West Brook estuary	Tidal infiltration	West Brook joins the sea as a large surface water sewer west of Hampton. There is a reasonable amount of open space to accommodate SuDS.	HERN.SC01.1	TBC	Short to Medium term	Stour CC EA
Clarendon Street, William Street, Mortimer Street, Central Parade, High Street, Bank Street, St. Georges Avenue, Hogarth Close	Blockages Internal flooding	Enhanced and targeted customer education campaign to reduce FOG and un-flushable items in the sewer network	HERN.SC03.1	£116 k	Short term	—
Park Place and Sea Street	Pollution	Enhanced and targeted customer education campaign to reduce FOG and unflushable items in the sewer network	HERN.SC03.2	£116 k	Short term	—
Parsonage Road	Growth & Flooding	Growth Drainage Area Plan (DAP) Option: Sewer upsizing; Reduce the upstream invert level	HERN.PW01.1	£6 M	Medium to Long term	—
Eddington Lane	Growth & Flooding	Growth DAP Option: Eddington Lane WPS - Construction of new sewer line	HERN.PW01.2	£18 M	Medium to Long term	—
Sweechbridge Road	Growth & Flooding	Growth DAP Option: Parallel storage off Sweechbridge Road; hydraulic control device to control return flows into the existing sewer network	HERN.PW01.3	£6 M	Medium to Long term	—
Lower Herne Road	Growth & Flooding	Growth DAP Option: Gravity sewer off Lower Herne Road; new diversion manhole; hydraulic control device to control return flows into the existing sewer network	HERN.PW01.4	£18 M	Medium to Long term	—
Land at Bullockstone Road, Herne Bay development	Growth & Flooding	Growth DAP Option: New sewer from the Land at Bullockstone Road	HERN.PW01.5	£18 M	Medium to Long term	—
Kings Hall Herne Bay WPS and Eddington Lane Herne Bay WPS	Pollution	Enhanced WPS maintenance programme to eliminate the risk of pollution incidents due to operational failures	HERN.PW01.7	£466 k	Short to Medium term	—
Hampton, The Broadway, B2205 road	Leaking utility sewers	Pipe rehabilitation programme: CCTV surveys, sewer integrity checks, re-lining and renewal of assets	HERN.PW01.9	£380 k	Short to Medium term	Stour CC Natural England
Kings Hall Herne Bay WPS and Eddington Lane Herne Bay WPS areas	Pollution	Enhanced maintenance: proactive jetting	HERN.PW01.10	£23 k	Short term	—



# Investment Needs – May Street Herne Bay (HERN) <sup>2 of 2</sup>

DRAFT

Location of Risk	Issues	Option Description	Option Reference	Indicative cost	Indicative Timescale	Potential partners
New Thanet Way (A299)	Surface water pollution	Partnership opportunity: Work with local councils to mitigate runoff from A299, that could be captured, attenuated and treated in reed beds (or similar) along the side of the motorway as a more sustainable solution, before being treated at the Works	HERN.PW02.1	TBC	Short to Medium term	Stour CC Natural England
MAY STREET HERNE BAY WTW	Pollution	Enhanced WTW maintenance programme to eliminate the risk of pollution incidents due to operational failures	HERN.PW02.2	£1 M	Short term	—
MAY STREET HERNE BAY WTW	Dry Weather Flow	Increase capacity at the Treatment Works and review Dry Weather Flow permit to reduce risk of DWF compliance	HERN.PW02.3	£2.1 M	Short to Medium term	—
Hogwell Sewer	Groundwater pollution	WTW discharge to Reed bed	HERN.RC03.1	TBC	Medium term	EA Stour CC Natural England
Catchment wide	Identify misconnections	Identify areas to remove misconnections and reduce impermeable area contribution	HERN.OT01.1	£100 k	Short to Medium term	Stour CC
Thanet Coast & Sandwich Bay	Nutrients	Study/investigation required to understand the impact of wastewater discharges and achieve or prevent deterioration from Natural England's revised Common Standards Monitoring Guidance (rCSMG) targets Phosphorus and Nitrogen	HERN.OT01.2	£76 k	Short to Medium term	EA Stour CC Natural England
Swale East	Shellfish Waters	Study / Investigation required to understand the impact of wastewater discharges, and achieve or prevent deterioration of shellfish waters Linking with 'Asset Strategy and Planning Team'	HERN.OT01.3	£100 k	Short to Medium term	EA Stour CC Natural England
KINGS HALL HERNE BAY WPS	Storm Overflow	Provide offline storage (volume TBC by modelling) or separate rainfall runoff at source to reduce spills from KINGS HALL HERNE BAY WPS discharging into Bathing Waters and Shellfish Waters	HERN.OT01.4	£1 M	Short term	—
MAY STREET HERNE BAY WTW	Storm Overflow	Provide offline storage of approximately 571m <sup>3</sup> or separate rainfall runoff at source to reduce spills from the SSO at the Treatment Works discharging into Bathing Waters and Shellfish Waters; storage volume needs to be confirmed due to discrepancies between DAP and model data	HERN.OT01.5	£1.5 M	Short term	—

# Investment Needs – Weatherlees Hill (WEAT) 1 of 4

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
WEAT.SC03.1	St. Andrews Road, Cattle Market, High Street, York Street, Harbour Parade, Queen Street, Broad Street, Sandown Lees, The Old Vicarage, The Street, Hereson Road, Denmark Road, Albion Road, Pysons Road, The Strand, Victoria Road, Campbell Road, Beach Street, Channel Lea, Richmond Road, The Fairway, West Cliff Road	Internal Flooding due to Blockages	Target customers with a campaign to reduce FOG (fats, oils & greases) and unflushables discharged into the sewer network.	£116k	Short to long term	Thanet District Council
WEAT.PW01.9	St. Andrews Road, Cattle Market, High Street, York Street, Harbour Parade, Queen Street, Broad Street, Sandown Lees, The Old Vicarage, The Street, Hereson Road, Denmark Road, Albion Road, Pysons Road, The Strand, Victoria Road, Campbell Road, Beach Street, Channel Lea, Richmond Road, The Fairway, West Cliff Road	Internal Flooding due to Blockages	Improve frequency of sewer jetting to reduce FOG and unflushables discharged into the sewer network.	£514k	Short to long term	-
WEAT.PW01.8	KING STREET, ALLENBY ROAD, TELHAM AVENUE, CANTERBURY ROAD WEST, FLORA ROAD & THE STRAND	Pollution due to Sewer Collapse	Targeted CCTV or electroscan surveys and proactive sewer rehabilitation to reduce risk of pollution due to poor pipe condition	£2.53M	Short term	-
WEAT.PW01.5	Catchment Wide	Sewer Collapse	Targeted CCTV or electroscan surveys and proactive sewer rehabilitation to reduce risk of sewer collapse:	£12.22M	Short to medium term	-



# Investment Needs – Weatherlees Hill (WEAT) 2 of 4

DRAFT

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
WEAT.PW01.25	High Street, Harbour Parade - Ramsgate	Foul / Combined Sewer Flooding	Flood Storage: Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.11M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEAT.PW01.26	Grange Road - Ramsgate	Foul / Combined Sewer Flooding	Flood Storage: Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£2.06M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEAT.PW01.27	Albert Road - Deal	Foul / Combined Sewer Flooding	Flood Storage: Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.15M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEAT.PW01.28	Middle Deal Road - Deal	Foul / Combined Sewer Flooding	Flood Storage: Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£2.24M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEAT.PW01.29	Manor Road, Gilham Grove - Deal	Foul / Combined Sewer Flooding	Flood Storage: Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£621k	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEAT.PW01.30	Walmer - Deal	Foul / Combined Sewer Flooding	Flood Storage: Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.64M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEAT.PW01.31	Granville Road - Deal	Foul / Combined Sewer Flooding	Flood Storage: Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£2.73M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust

# Investment Needs – Weatherlees Hill (WEAT) <sup>3 of 4</sup>

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
WEAT.PW01.32	Church Street - Deal	Foul / Combined Sewer Flooding	Flood Storage: Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£880k	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEAT.PW01.33	Undercliffe Road - Deal	Foul / Combined Sewer Flooding	Flood Storage: Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.38M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEAT.PW01.10	College Road - Ramsgate	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Construct new storage tank on sewer network	~£1.23M	Short to medium term	-
WEAT.PW01.11	Harbour Parade - Ramsgate	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Construct new storage tank and manholes on sewer network	~£1.23M	Short to medium term	-
WEAT.PW01.12	Woodensborough Road - Sandwich	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of local sewers	~£1.23M	Short to medium term	-
WEAT.PW01.13	Woodensborough Road - Sandwich	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Increase pumping capacity at the Bulwark Sandwich WPS from 38l/s to 73l/s	~£1.23M	Short to medium term	-
WEAT.PW01.14	Deal, Golf Road WPS - Deal	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Increase pumping capacity at Golf Road WPS	~£1.23M	Short to medium term	-
WEAT.PW01.15	Sholden Fields eastern bend of The Street - Deal	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of local sewers to 300mm and 450mm diameter	~£1.23M	Short to medium term	-
WEAT.PW01.16	Dola Avenue & William Pitt Avenue - Deal	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Construct new storage tank in sewer network	~£1.23M	Short to medium term	-
WEAT.PW01.17	Church Lane - Deal	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of local sewers to 600mm diameter	~£1.23M	Short to medium term	-
WEAT.PW01.18	Middle Deal Road - Deal	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of local sewers to 600mm diameter	~£1.23M	Short to medium term	-
WEAT.PW01.19	Granville Road - Deal	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of local sewers on Granville Rd and increase pumping capacity of Mongham Road Deal WPS	~£1.23M	Short to medium term	-
WEAT.PW01.20	Mongham Road Deal WPS - Deal	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Increase pumping capacity of Mongham Road Deal WPS	~£1.23M	Short to medium term	-

# Investment Needs – Weatherlees Hill (WEAT) 4 of 4

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
WEAT.PW01.21	Walmer, Station Rd - Deal	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP): Upsize sections of local sewers	~£1.23M	Short to medium term	-
WEAT.OT01.8	Catchment Wide	Foul / Combined Sewer Flooding	Hydraulic Model improvements: Surveys and reverification to improve model confidence and accuracy of simulations.	£200k	Short term	-
WEAT.OT01.10	Ramsgate	Foul / Combined Sewer Flooding	Study and Investigation: Investigate the condition of existing 40,000 m3 storage tanks under Ramsgate town and remobilise to full storage capacity.	£0	Short term	-
WEAT.OT01.11	Deal	Foul / Combined Sewer Flooding	Study and Investigation: Investigate the condition of existing storage tanks in town centre and remobilise to full storage capacity.	£0	Short term	-
WEAT.PW01.23	LOOP STREET SANDWICH WPS	CSO Spills	Construct 165m3 storage tank to reduce spill frequency to Bathing Waters, aquifers (Thanet Chalk) and Monkton & Minster Marshes	£534k	Short term	-
WEAT.OT01.6	THE BULWARK SANDWICH WPS	CSO Spills	Improve model and develop solution to construct storage tank to reduce spill frequency to Bathing Waters, aquifers (Thanet Chalk) and Monkton & Minster Marshes	~£1.0M	Short term	-
WEAT.OT01.7	GOLF ROAD DEAL CSO	CSO Spills	Improve model and develop solution to construct storage tank to reduce spill frequency to Bathing Waters, aquifers (Thanet Chalk) and Monkton & Minster Marshes	~£1.0M	Short term	-
WEAT.PW02.1	WEATHERLEES HILL A WTW	WTW Dry Weather Flow Compliance	Review DWF permit for the WTW with the EA, and increase capacity of Primary and Secondary Settlement Tanks	£2.76M	Medium to long term	-
WEAT.OT01.2	Catchment Wide	Ecological Status of Waterbodies	Study & Investigations to understand the impact of wastewater discharges and identify measures required to achieve good ecological status in the Sarre Penn and River Wantsum	£697k	Short term	Environment Agency
WEAT.OT01.3	Catchment wide	Nutrient Balance in Habitat Sites	Study & Investigations to understand the impact of wastewater discharges and identify measures required to secure Nutrient Neutrality in The Swale, Medway Estuary & Marshes	£76k	Short term	Environment Agency, Natural England
WEAT.PW01.7	Groundwater Capture Zone & Source Protection Zones including hotspots Lord of the Manor, Martin Mill, Ringwoud and Minster B	Groundwater Pollution	Targeted CCTV or electroscan surveys and proactive sewer rehabilitation to reduce risk of groundwater contamination	£9.30M	Short to medium term	Environment Agency
WEAT.OT01.9	Catchment wide	Bathing Waters Quality	Link to ongoing Bathing Waters studies within business and use recommended measures to develop solutions in next DWMP cycle	£0	Short term	Environment Agency

# Investment Needs – Margate & Broadstairs (WEHB) <sup>DRAFT</sup> 1 of 3

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
WEHB.SC03.1	Old Town and Margate Beach	Internal Flooding due to Blockages	Target customers with a campaign to reduce FOG (fats, oils & greases) and unflushables discharged into the sewer network.	£116k	Short to long term	Thanet District Council
WEHB.PW01.1	Old Town and Margate Beach	Internal Flooding and Pollution due to Blockages	Improve frequency of sewer jetting to reduce FOG and unflushables discharged into the sewer network.	£880k	Short to long term	-
WEHB.SC03.2	Harbour Street Broadstairs	Pollution due to Blockages	Target customers with a campaign to reduce FOG (fats, oils & greases) and unflushables discharged into the sewer network.	£116k	Short to long term	Thanet District Council
WEHB.PW01.2	Margate WPS	Pollution due to WPS faults	Enhanced maintenance to improve WPS resilience and reduce pollution incidents	£233k	Short term	-
WEHB.PW02.1	Weatherlees Hill B WTW	Pollution due to WTW faults	Enhanced maintenance to improve WTW resilience and reduce pollution incidents	£6.97M	Short term	-
WEHB.PW01.4	Fort Paragon - Margate	Foul / Combined Sewer Flooding	Flood Storage (35m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£502k	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEHB.PW01.5	Northdown Road, Holly Lane - Margate	Foul / Combined Sewer Flooding	Flood Storage (1280m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.38M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEHB.PW01.6	All Saints Avenue, Arlington Square - Margate	Foul / Combined Sewer Flooding	Flood Storage (2064m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£1.94M	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEHB.PW01.7	A254 Ramsgate Road - Broadstairs	Foul / Combined Sewer Flooding	Flood Storage (201m3): Attenuate excess flows in sewer network using storage tanks to reduce risk of flooding. Option priced based on storage tanks but surface water separation is the preferred approach and will be developed as part of the solution with our partners.	£620k	Short to medium term	Kent CC, Catchment Partnership, Kent Wildlife Trust
WEHB.PW01.10	Former British Gas Site - Broadstairs	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Construct new 225mm diameter sewer in Albion Road and 150mm diameter sewer in Victoria Road	~£569k	Short to medium term	-

# Investment Needs – Margate and Broadstairs (WEHB) 2 of

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
WEHB.PW01.11	Castle Keep Hotel - Broadstairs	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Upsize sewer in Joss Gap Road from 375mm to 600mm diameter	~£569k	Short to medium term	-
WEHB.PW01.12	Kinsdown Dev Site - Broadstairs	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Upsize sewers in Bridleway Garden from 150mm to 300mm diameter, Pyson's Road / Bridleway Garden from 150mm to 375mm diameter and Fairfield Road from 300mm to 450mm diameter	~£569k	Short to medium term	-
WEHB.PW01.13	Land west of Northdown Hill - Broadstairs	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Upsize sewers in Northdown Hill from 225mm to 900mm diameter and Westover Road from 225mm to 300mm diameter	~£569k	Short to medium term	-
WEHB.PW01.14	Alexandra Road Dev site - Broadstairs	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Upsize sewer in Westover Road from 225mm to 750mm diameter	~£569k	Short to medium term	-
WEHB.PW01.15	Land at Nash Road and Ramsgate Road - Margate	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Upsize sections of 225mm and 300mm sewers and construct an 850m3 capacity storage tank	~£569k	Short to medium term	-
WEHB.PW01.16	Manston Road Site - Margate	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Upsize sections of local sewers and construct storage tanks on Shottendane Road and Manston Road	~£569k	Short to medium term	-
WEHB.PW01.17	The Lido development site - Margate	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Upsize sections of sewers on Ethelbert Crescent and Edgar Road to provide additional storage capacity	~£569k	Short to medium term	-
WEHB.PW01.18	Westgate - Margate	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Upsize sections of sewers on Richborough Road, Reculbers Road, Victoria Avenue and Linden Road to provide additional storage capacity	~£569k	Short to medium term	-
WEHB.PW01.19	Manston Airport - Margate	Foul / Combined Sewer Flooding	Growth Drainage Area Plan (DAP) Option: Construct new gravity sewers in Land in west side of A299 and west side of Cottington Lane and Richborough Way	~£569k	Short to medium term	-
WEHB.OT01.1	Catchment Wide	Foul / Combined Sewer Flooding	Hydraulic Model improvements: Surveys and reverification to improve model confidence and accuracy of simulations.	£250k	Short term	-
WEHB.OT01.5	Margate WPS	CSO Spills	Improve model and develop solution to construct storage tank to reduce spill frequency to Bathing Waters	£2.32M	Medium term	-



# Investment Needs – Margate & Broadstairs (WEHB) 3 of 3

DRAFT

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
WEHB.OT01.9	Kent Isle of Thanet Chalk	Ecological Status of Waterbodies and Groundwater Pollution	Link to AMP7 WINEP scheme within the business to to implement Phase 3 of sewer rehabilitation and storage replacement for Thanet Groundwater Water Protection zone implementation plan	£0	Short term	-
WEHB.OT02.2	Catchment Wide	Ecological Status of Waterbodies	Study & Investigations to understand the impact of wastewater discharges and identify measures required to achieve good ecological status in the Sarre Penn and River Wantsum	£697k	Short term	Environment Agency
WEHB.OT02.0	Catchment wide	Nutrient Balance in Habitat Sites	Study & Investigations to understand the impact of wastewater discharges and identify measures required to secure Nutrient Neutrality in The Swale, Medway Estuary & Marshes	£76k	Short term	Environment Agency, Natural England
WEHB.PW01.9	Groundwater Capture Zone & Source Protection Zones including hotspots Lord of the Manor and Bromstone Road	Groundwater Pollution	Targeted CCTV or electroscan surveys and proactive sewer rehabilitation to reduce risk of groundwater contamination	£6.97M	Short to medium term	Environment Agency
WEHB.OT02.1	Viking Bay Broadstairs, Walpole Bay Margate, Botany Bay Broadstairs, Joss Bay Broadstairs, Margate The Bay, Margate Fulsam Rock, West Bay Westgate, St Mildred's Bay Westgate, Westbrook Bay Margate, Stone Bay Broadstairs	Bathing Waters Quality	Link to ongoing Bathing Waters studies within business and use recommended measures to develop solutions in next DWMP cycle	£0	Short term	Environment Agency



# Investment Needs – Chartham (CHAR)

DRAFT

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
CHAR.PW01.1	Chartham Green WPS	Pollution due to WPS faults	Enhanced maintenance to improve WPS resilience and reduce pollution incidents	£233k	Short term	-
CHAR.PW01.2	Horton Crossing WPS & Shalmsford Street Chartham WPS Rising Mains	Pollution due to Rising Main Bursts	Proactive rehabilitation of rising mains to improve WPS resilience	£845k	Short term	-
CHAR.PW01.3	Shalmsford Street Chartham WPS and Bossingham sewer network	Sewer Collapse	Targeted CCTV / electroscan surveys and proactive rehabilitation of gravity sewers and rising main	£3.14M	Short term	-
CHAR.OT01.4	Catchment wide	Foul / Combined Sewer Flooding and CSO Spills	Build Hydraulic Model: Network surveys, flow monitoring and model verification	£325k	Short term	-
CHAR.PW01.5	Catchment Wide	Leaking Sewers on Ecological Status of Waterbodies	Targeted CCTV / electroscan surveys and proactive sewer rehabilitation to reduce risk of contaminating aquifers (East Kent Chalk)	£9.18M	Short to medium term	-
CHAR.OT01.2	Catchment wide	Ecological Status of Waterbodies	Study & Investigations to understand the impact of wastewater discharges and identify measures required to achieve good ecological status in the Sarre Penn and River Wantsum	£697k	Short term	Environment Agency
CHAR.OT01.3	Catchment wide	Nutrient Balance in Habitat Sites	Study & Investigations: Link to EA-commissioned CSMG Study (revised common standards for monitoring guidance) to achieve targets for total N (1.5 mg/l) and total P (49 ug/l)	£0	Short term	Environment Agency, Natural England

# Investment Needs – Dambridge Wingham (DAMB) <sup>1 of 2</sup>

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Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
DAMB.SC03.1	Catchment wide	Internal Flooding and Pollution due to Blockages	Target customers with a campaign to reduce FOG and unflushables discharged into the sewer network.	£116k	Short to long term	-
DAMB.PW01.9	Larch Road, Hyde Place	Internal Flooding due to Blockages	Improve frequency of sewer jetting to reduce FOG and unflushables discharged into the sewer network.	£23k	Short to long term	-
DAMB.PW01.5	Grove Road Preston WPS	Pollution due to WPS faults	Enhanced maintenance to improve WPS resilience and reduce pollution incidents	£233k	Short term	-
DAMB.PW01.6	Network upstream of Grove Road Preston WPS	Pollution due to Blockages	Improve frequency of sewer jetting to reduce FOG and unflushables discharged into the sewer network.	£11k	Short to long term	-
DAMB.PW01.8	Grove Road Preston WPS	Pollution due to Rising Main Burst	Proactive sewer rehabilitation to reduce risk of rising main bursts	£422k	Short term	-
DAMB.SC01.1	The Forstal, Preston and areas upstream	Foul / Combined Sewer Flooding	Surface Water Separation (0.14 Ha) and sustainable drainage systems (SuDS) to attenuate storm runoff (126 m3)	£620k	Short to long term	Kent CC, Catchment Partnership, Kent Wildlife Trust
DAMB.SC01.2	Pudding Lane, Ash and areas upstream	Foul / Combined Sewer Flooding	Surface Water Separation (0.48 Ha) and sustainable drainage systems (SuDS) to attenuate storm runoff (721 m3)	£1.17M	Short to long term	Kent CC, Catchment Partnership, Kent Wildlife Trust
DAMB.SC01.3	High Street, Wingham and areas upstream	Foul / Combined Sewer Flooding	Surface Water Separation (0.31 Ha) and sustainable drainage systems (SuDS) to attenuate storm runoff (538 m3)	£972k	Short to long term	Kent CC, Catchment Partnership, Kent Wildlife Trust
DAMB.SC01.4	Burgess Road, Ayselsham and areas upstream	Foul / Combined Sewer Flooding	Surface Water Separation (1.23 Ha) and sustainable drainage systems (SuDS) to attenuate storm runoff (44 m3)	£960k	Short to long term	Kent CC, Catchment Partnership, Kent Wildlife Trust

# Investment Needs – Westbere (WBER) 2 of 2

Option Ref	Location of Risk	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
DAMB.OT01.5	Catchment Wide	Foul / Combined Sewer Flooding	Hydraulic Model improvements: Surveys and reverification to improve model confidence and accuracy of simulations.	£200k	Short term	-
DAMB.PW02.1	Dambridge Wingham WTW	WTW Dry Weather Flow Compliance	Review DWF permit for the WTW with the EA, and increase capacity of Primary and Final Settlement Tanks	£1.54M	Short to medium term	Environment Agency
DAMB.PW02.0	Catchment wide	Ecological Status of Waterbodies	Targeted CCTV or electroscan surveys and proactive sewer rehabilitation to reduce risk of leaking sewersv contaminating aquifers (East Kent Chalk)	£864k	Short term	Environment Agency
DAMB.OT01.4	Catchment wide	Ecological Status of Waterbodies	Study & Investigations to understand the impact of wastewater discharges and identify measures required to achieve good ecological status in the Sarre Penn and River Wantsum	£697k	Short term	Environment Agency
DAMB.OT01.3	Catchment wide	Nutrient Balance in Habitat Sites	Study & Investigations: Link to EA-commissioned CSMG Study (revised common standards for monitoring guidance) to achieve targets for total N (1.5 mg/l) and total P (49 ug/l)	£0	Short term	Environment Agency, Natural England

# Investment Needs – Canterbury (CANT) 1 of 2

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Option Ref	Location of Risk	Issues	Option Description	Indicative cost	Indicative Timescale	Potential partners
CANT.SC03.1	Ethelbert Road, Downs Road, North Lane, Castle Street, St. Peters Street, Reed Avenue, Palace Street, Cockering Road, Cherry Garden Road, Tyler Hill Road, Mill Road, Orchard Street, Northgate, Dover Street, St. Georges Street, Park Farm Close, Knight Avenue	Blockages Internal flooding	Target customers with a campaign to reduce FOG and unflushables discharged into the sewer network.	£116 k	Short term	—
CANT.SC03.2	TBC	Pollution	Target customers with a campaign to reduce FOG and unflushables discharged into the sewer network.	£116 k	Short term	—
CANT.PW01.1	The Stade Folkstone WPS	Internal flooding	Enhanced WPS maintenance programme to eliminate the risk of pollution incidents due to operational failures	£232 k	Short to Medium term	—
CANT.PW01.2	South Canterbury Road, Tyler Hill Road, and School Lane	Internal flooding	Provide offline storage (volume TBC by modelling) or separate rainfall runoff at source to reduce internal flooding events	£1 M	Short to Medium term	Stour CC
CANT.PW01.3	Tile Kiln Hill Blean WPS and North Honey Hill WPS	Pollution	Enhanced WPS maintenance programme to eliminate the risk of pollution incidents due to operational failures	£466 k	Short to Medium term	—
CANT.PW01.4	Catchment wide	Sewer Collapses Rising Main Bursts	Pipe rehabilitation programme: CCTV surveys, sewer integrity checks, re-lining and renewal of rising mains	£8 M	Short to Medium term	—
CANT.PW01.7	East Kent Chalk - Stour	Leaking utility sewers	Pipe rehabilitation programme: CCTV surveys, sewer integrity checks, re-lining and renewal of assets	TBC	Short to Long term	Stour CC Natural England
CANT.PW01.8	Catchment wide	Pollution Groundwater pollution	Pipe rehabilitation programme: CCTV surveys, sewer integrity checks, re-lining and renewal of assets	£6 M	Short to Long term	—
CANT.PW01.9	Ethelbert Road, Downs Road, North Lane, Castle Street, St. Peters Street, Reed Avenue, Palace Street, Cockering Road, Cherry Garden Road, Tyler Hill Road, Mill Road, Orchard Street, Northgate, Dover Street, St. Georges Street, Knight Avenue	Internal flooding Pollution	Enhanced maintenance: proactive jetting	£526 k	Short term	—
CANT.PW01.10	LONGPORT ROAD	Growth & Flooding	Growth Drainage Area Plan (DAP) Option: Construct a new manhole; Upsize existing sewers; Construct a throttle pipe	TBC	Medium to Long term	—
CANT.PW01.11	CHAUCER CLOSE TO CANTERBURY WTW	Growth & Flooding	Growth DAP Option: Construct new pumping station; provide new rising main; Re-assign new development to the new wet well; New ring sewers	TBC	Medium to Long term	—
CANT.PW01.12	Shalloak Road	Growth & Flooding	Growth DAP Option: Construct new pumping station; Provide new rising main; Re-assign new development to the new wet well	TBC	Medium to Long term	—



# Investment Needs – Canterbury (CANT) 2 of 2

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Option Ref	Location of Risk	Issues	Option Description	Indicative cost	Indicative Timescale	Potential partners
CANT.PW01.13	Kingsmead Road	Growth & Flooding	Growth DAP Option: additional storage at Kingsmead Road Canterbury CSO	TBC	Medium to Long term	—
CANT.PW02.2	CANTERBURY WTW	Dry Weather Flow	Increase capacity at the Works and review Dry Weather Flow permit to reduce risk to DWF compliance	£2 M	Medium to Long term	EA
CANT.OT01.2	Catchment Wide	Dry Weather Flow	Study/investigation required to identify areas of high infiltration	£175 k	Short term	EA
CANT.OT01.4	Great Stour between A2 and West Stourmouth	GE Status / Potential	Study and Investigation: Phosphate	£175 k	Short term	Natural England
CANT.OT01.5	Stodmarsh	Nutrients	Study/investigation required to understand the impact of wastewater discharges and achieve or prevent deterioration from Natural England's revised Common Standards Monitoring Guidance (rCSMG) targets Total Phosphorus and Total Nitrogen	£76 k	Short to Medium term	EA Stour CC Natural England
CANT.OT01.6	Catchment Wide / Overflow Locations	Flooding & Drainage	Study Model improvements: 3 month flow survey to catch both storm and dry data and calibrate these against the model should be conducted	£175 k	Short term	Stour CC
CANT.OT01.7	CANT FC05 Tyler Hill	Foul / Combined Sewer Flooding	Provide offline storage of approximately 51m3 or separate rainfall runoff at source to reduce spills from the EMO at Tyler Hill; storage volume needs to be confirmed due to discrepancies between DAP and model data	£175 k	Short term	—
CANT.OT01.8	CANT FC6 Canterbury WTW	Foul / Combined Sewer Flooding	Provide offline storage of approximately 331m3 or separate rainfall runoff at source to reduce spills from the SSO at Canterbury WTW; storage volume needs to be confirmed due to discrepancies between DAP and model data	£175 k	Short term	—



# Investment Needs – Broomfield Bank (BROM)

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