

# Drainage and Wastewater Management Plans (DWMPs)

Investment Needs Workshop for the Rother River Basin  
Catchment



Tuesday 8 March 2022

from  
**Southern  
Water** 

The Southern Water logo features three stylized blue waves of varying lengths, positioned to the right of the text "Southern Water".

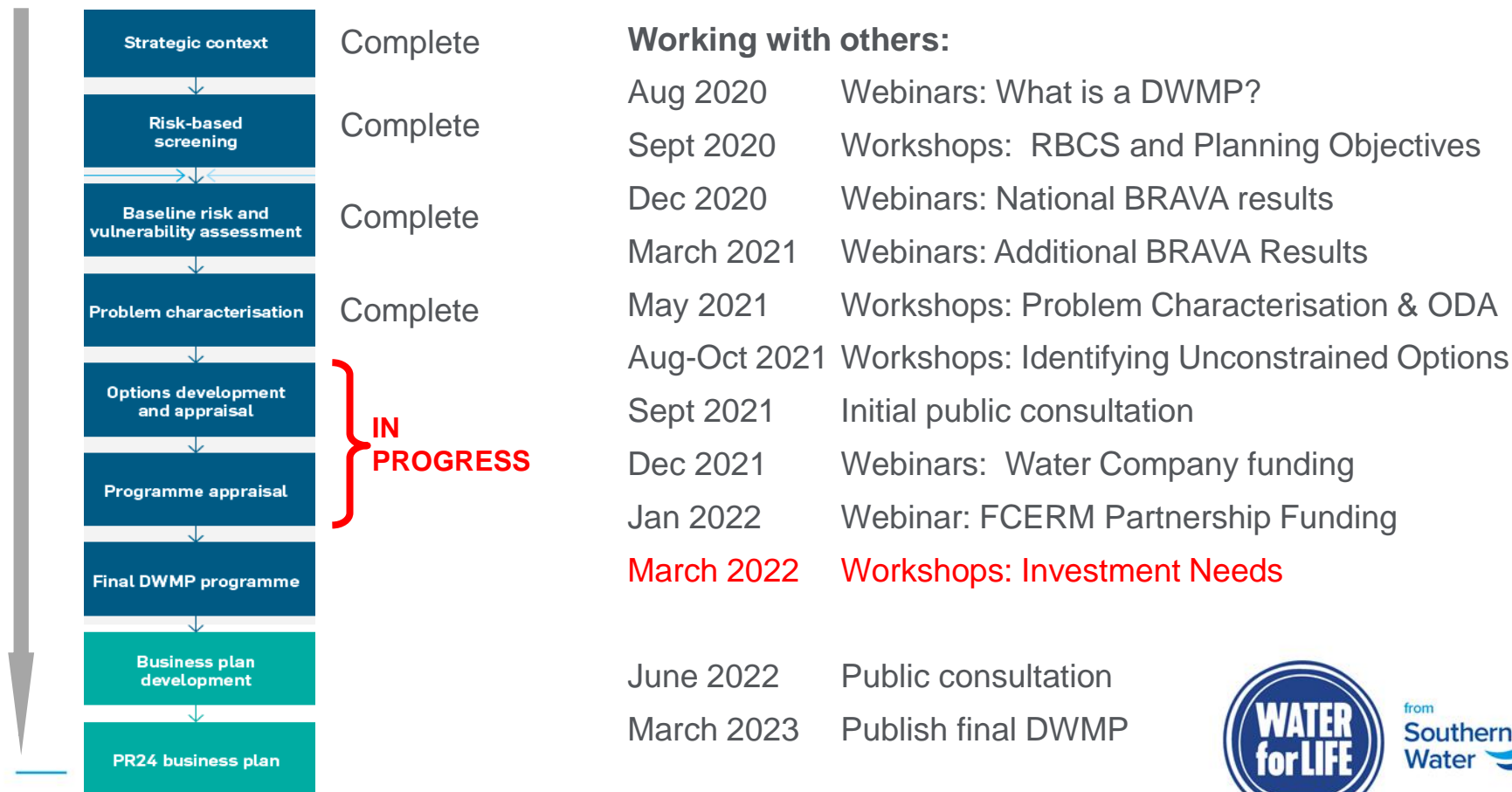
# Agenda

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

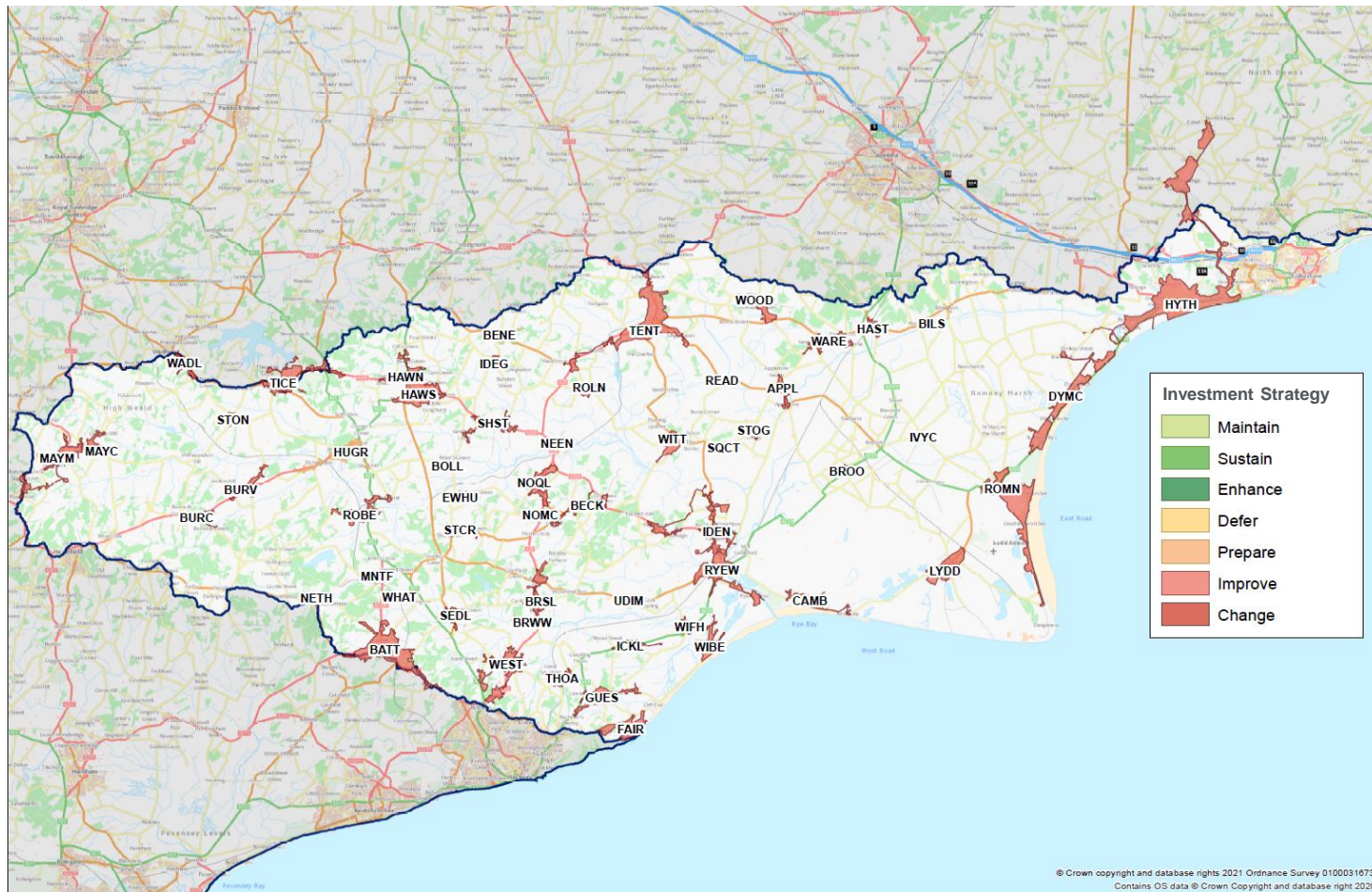
Our aim today is to:

- 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



# Wastewater Systems in the Rother Catchment



- 56 sewer catchments
- 54 WTWs
- 290 WPS
- 1349km sewers
- 7% area
- 89% homes connected



# BRAVA Results: Rother River Basin Catchment

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

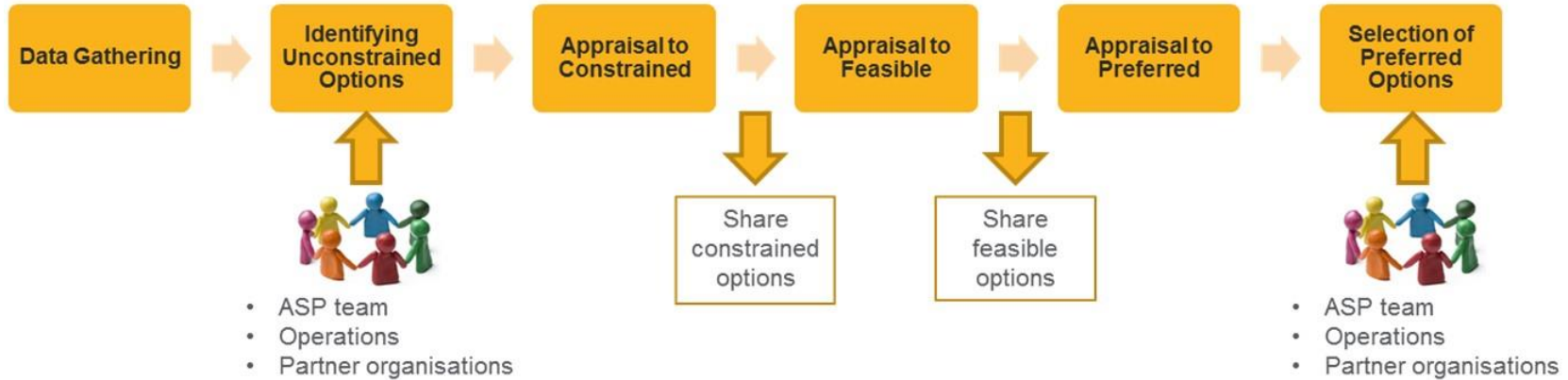
Wastewater Catchment Reference	Wastewater Catchment Reference	Population Equivalent	Sewer Length (KM)	Planning Objective																	
				Internal Sewer Flooding Risk	Pollution Risk	Sewer Collapse Risk	Risk of Sewer Flooding in a 1 in 50 year storm	Storm Overflow Performance	Risk of WTW Compliance Failure	Risk of flooding due to Hydraulic Overload	Dry Weather Flow Compliance	Good Ecological Status / Potential	Surface Water Management	Nutrient Neutrality	Groundwater Pollution	Bathing Waters	Shellfish Waters				
				2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020				
HYTH	HYTHE	19,984	214,367	0	2	0	0	2	0	1	0	0	0	0	0	0	0	NA	0	0	NA
ROMN	NEW ROMNEY	11,036	107,676	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	2	NA	
TENT	TENTERDEN	8,542	134,479	0	0	0	2	1	0	0	2	0	1	0	0	2	0	0	NA	NA	
DYMC	DYMCHURCH	7,039	96,814	0	0	2	0	0	0	0	0	0	0	0	0	2	0	2	NA	NA	
BATT	BATTLE	6,194	89,895	0	2	0	1	0	0	1	0	1	0	0	1	0	0	NA	NA	NA	
RYEW	RYE	5,556	61,844	2	1	2	2	2	0	1	0	0	0	0	0	2	0	0	0	NA	
LYDD	LYDD	4,027	24,525	0	0	0	1	NA	0	1	0	1	0	0	2	0	0	NA	NA	NA	
TICE	TICEHURST	2,849	34,678	2	2	0	1	1	0	1	0	2	0	0	2	0	0	NA	NA	NA	
CAMB	CAMBER	2,624	17,350	2	0	0	2	0	0	2	0	0	0	0	2	0	0	0	NA	NA	
ROBE	ROBERTSBRIDGE	2,529	28,779	0	2	0	1	2	0	2	0	0	0	0	2	0	0	NA	NA	NA	
HAWN	HAWKHURST NORTH	2,263	16,377	0	1	0	1	2	1	0	0	0	0	0	2	0	0	NA	NA	NA	
WEST	WESTFIELD	2,233	52,115	0	0	0	1	1	1	0	0	0	0	0	2	0	0	NA	NA	NA	
HAWS	HAWKHURST SOUTH	2,010	21,327	0	2	0	1	1	0	1	0	0	0	0	2	0	0	NA	NA	NA	
HUGR	HURST GREEN	1,895	30,905	0	0	0	0	0	0	0	0	0	0	0	2	0	0	NA	NA	NA	
IDEN	IDEN	1,883	47,913	0	2	0	0	2	0	0	0	0	0	0	2	0	0	NA	NA	NA	
NOQL	QUICKBOURNE LANE NORTHIAM	1,861	22,438	0	0	2	0	2	2	0	0	0	0	0	2	0	0	NA	NA	NA	
MAYM	MERES FARM MAYFIELD	1,843	23,890	0	0	0	0	0	0	0	0	1	0	0	NA	0	0	NA	NA	NA	
HAST	HAMSTREET	1,608	16,915	0	0	0	0	1	0	2	0	0	0	0	2	0	0	NA	NA	NA	
FAIR	FAIRLIGHT	1,595	25,809	0	2	0	2	2	0	2	0	0	0	0	2	0	0	NA	NA	NA	
WIBE	WINCHELSEA BEACH	1,494	11,309	0	0	0	0	NA	0	0	0	2	0	0	2	0	0	1	NA	NA	
BURV	BURWASH VILLAGE	1,369	14,199	0	0	0	0	0	0	1	0	2	0	0	2	0	0	NA	NA	NA	
BRSL	STUBBS LANE BREDE	1,369	20,181	0	1	0	0	1	0	1	0	1	0	0	2	0	0	NA	NA	NA	
WOOD	WOODCHURCH	1,329	13,333	0	0	0	2	0	0	2	1	0	0	0	1	0	0	NA	NA	NA	
GUES	GUESTLING GREEN	1,247	23,209	0	0	0	0	2	2	0	0	0	0	0	2	0	0	NA	NA	NA	
SHST	SANDHURST	1,114	15,479	2	2	0	0	0	0	0	1	0	0	0	1	0	0	NA	NA	NA	
SEDL	SEDLSCOMBE	1,024	11,465	0	2	0	0	0	0	2	0	2	0	0	2	0	0	NA	NA	NA	
ICKL	ICKLESHAM	911	12,221	0	0	0	0	0	0	0	0	2	0	0	0	0	0	NA	NA	NA	
WITT	WITTERSHAM	900	11,510	0	0	0	2	1	2	0	0	0	0	0	1	0	0	NA	NA	NA	
MAYC	CROUCH FARM MAYFIELD	819	12,668	0	0	0	0	0	0	1	1	0	0	0	1	0	0	NA	NA	NA	
WADL	WASHWELL LANE WADHURST	784	13,254	0	0	0	0	0	1	1	0	0	0	0	0	0	0	NA	NA	NA	
BECK	BECKLEY	732	18,371	0	2	0	0	0	2	0	0	0	0	0	1	0	0	NA	NA	NA	
STCR	STAPLECROSS	730	7,676	0	0	0	0	1	0	0	0	0	0	0	1	0	0	NA	NA	NA	
BENE	BENENDEN	684	6,724	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	
APPL	APPLEDORE	665	6,121	0	0	0	0	NA	2	0	0	0	0	0	0	0	0	NA	NA	NA	
WIFH	FERRY HILL WINCHELSEA	634	8,061	0	0	0	0	0	0	0	0	2	0	0	1	0	0	NA	NA	NA	
BURC	BURWASH COMMON	585	7,920	0	0	0	0	2	0	1	0	0	0	0	1	0	0	NA	NA	NA	
WARE	WAREHORNE	450	10,960	0	0	0	0	NA	1	0	0	0	0	0	1	0	0	NA	NA	NA	
ROLN	ROLVENDEN LAYNE	396	4,429	0	0	0	0	0	0	1	0	2	0	0	1	1	0	NA	NA	NA	
BROO	BROOKLAND	382	5,164	0	0	0	0	NA	0	1	0	0	0	0	1	0	0	NA	NA	NA	

Results shown for 2020 only





# Decision making and option development



Unconstrained Option Development meetings held on:

- Rye 17 August 2021
- Fairlight 2 September 2021

(Note: Ticehurst, Robertsbridge and New Romney postponed)



# 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.	

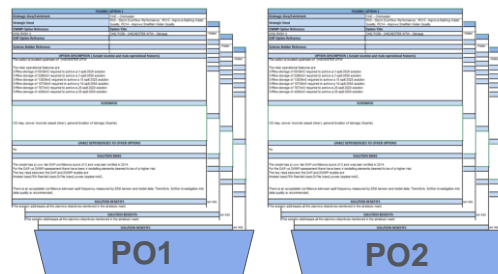
Each Wastewater System may have multiple feasible options.

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 – Rye (RYEW)

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Location	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
Old Town	Sewer Collapse / Rising Main Bursts	Pipe rehabilitation programme: CCTV surveys, sewer integrity checks and re-lining to reduce infiltration and blockages	£331k	Short - Medium	
St Margarets Terrace CSO	Flooding & Storm Overflows	Storm tank operation and enlargement to reduce risks of spills as a result of storms (Surface water removal options to be investigated as an alternative to this option)	£1,000k £TBC	Short - Medium	
Jempson's Yard	Flooding & Drainage	Upsizing the sewers and increasing the pump capacity	£TBC	Short	
Catchment wide	Flooding & Drainage	Study: Model improvements, including flow surveys for storm and dry weather flow, and model calibration.	£125k	Short	
Rye WTW	Growth – DWF & WTW Capacity	Review permit for the WTW with the EA, and deliver associated works to increase capacity of the works	£1,272k	Medium	
Dungeness, Romney Marsh and Rye Bay	Nutrients	Nutrient budget to understand the risks and sources impacting Habitat sites ( <i>include a Hydrological Assessment for SS and BOD contribution</i> )	£76k	Short	Rother DC Natural England
Catchment wide	Internal Flooding-Blockages	Enhanced maintenance: Customer education	£116k	Short	
Catchment wide	Internal Flooding-Blockages	Enhanced maintenance: Proactive jetting	£114k	Short	
Wish Street Rye WPS	Pollution Risk-Operational	Enhanced maintenance: Wastewater Pumping Station	£232k	Short	
Rye Primary School, Rye College & Car Parks	Flooding & drainage Natural Solutions	Identify and implement attenuation measures in schools by retrofitting and redirecting roof drainage to rain gardens and soakaways. Car parks to be converted to permeable areas.	£TBC	Medium	South East Rivers Trust Rother DC East Sussex CC



# Investment Needs – Fairlight (FAIR)

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Location	Issues	Option	Indicative Cost	Indicative Timescale	Potential Partners
Fairlight WTW	Flooding & Drainage-	Storm tank operation and enlargement to reduce risks of spills as a result of storms. Potential construction of settlement reed bed to treat effluent from CSO	£1,000k	Short -	
	Overflows	(Surface water removal options to be investigated as an alternative to this option)	£TBC	Medium	
Catchment Wide	Flooding & Drainage	Study: Model improvements, including flow surveys for storm and dry weather flow, and model calibration.	£125k	Short	
Dungeness, Romney Marsh and Rye Bay	Nutrients	Surface water removal across catchment to enhance the efficacy of the existing tertiary treatment at the works and reducing storm spills.	£TBC	Medium - Long	Rother DC East Sussex CC
		Develop a nutrient budget to understand the risks and sources impacting Habitat sites.	£76k	Short	Rother DC Natural England
Catchment Wide	Internal Flooding Blockages	Enhanced maintenance: Customer Education	£116k	Short	Borough Council
Catchment Wide	Internal Flooding Blockages	Enhanced maintenance: Proactive Jetting	£34k	Short	
Lower Waites Lane	Asset Integrity	Sewer CCTV surveys, integrity checks and re-lining. <i>(No collapses in assessment period, sewer conditions were noted to be poor around the risk location)</i>	£BAU	-	
Channel Way, Fairlight	Coastal Stability / Erosion	Improve surface water management in this area through a catchment wide scheme to collect and remove surface water from the cliff face and divert it from the sewer to north of Lower Waites Lane (i.e. away from the cliff face).	£50k (Study) £TBC	Medium	Rother DC East Sussex CC

# Questions





# Review of Investment Needs

# Risks in the Rother Catchment

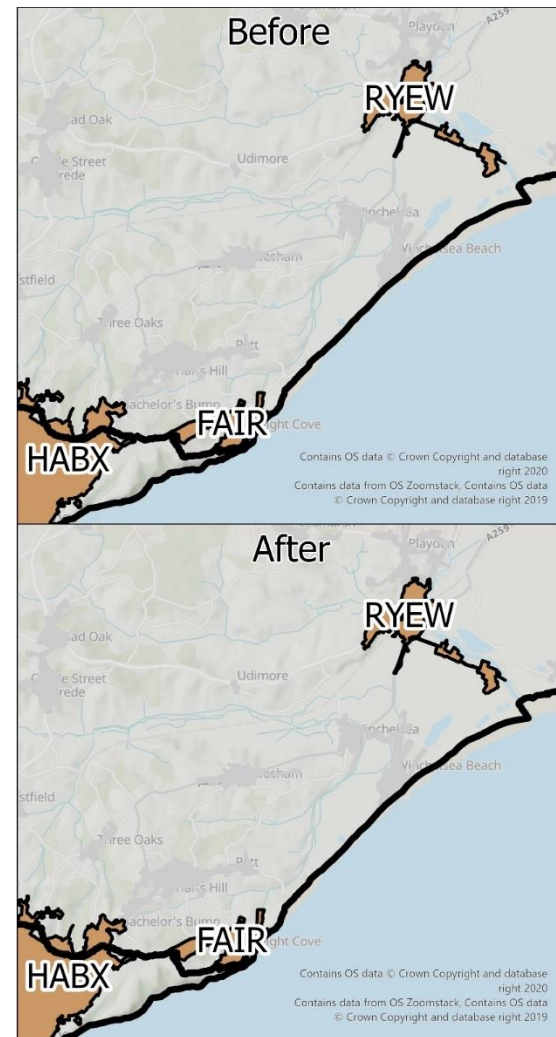
BRAVA Results indicated the main risks in this river basin catchment are for the following Planning Objectives (PO):

- Nutrients (PO11)
- Pollution (PO2)
- Storm Overflows (PO5)
- Flooding (PO7)



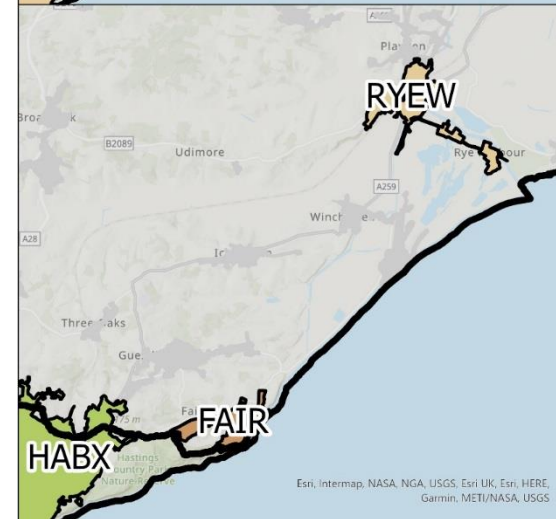
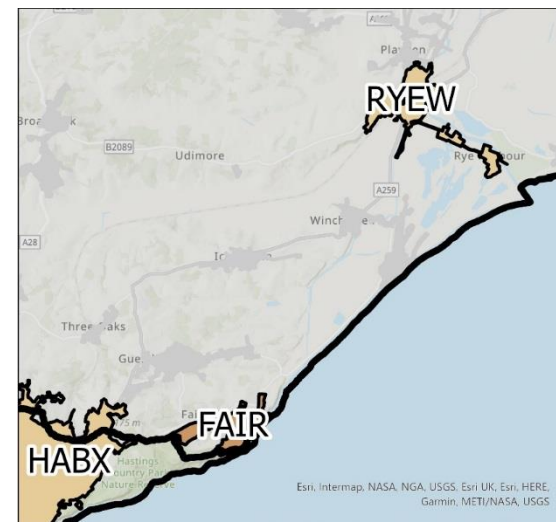
# PO11 – Nutrient Neutrality

Rother	PO11	BRAVA (2050)	
Option Type	Est Cost (£)	Before	After
<b>Fairlight</b>			
FAIR.OT01.1 - Nutrient Budget	£76 K	2	2
<b>Rye</b>			
RYEW.OT01.4 - Nutrient Budget	£76 K	2	2



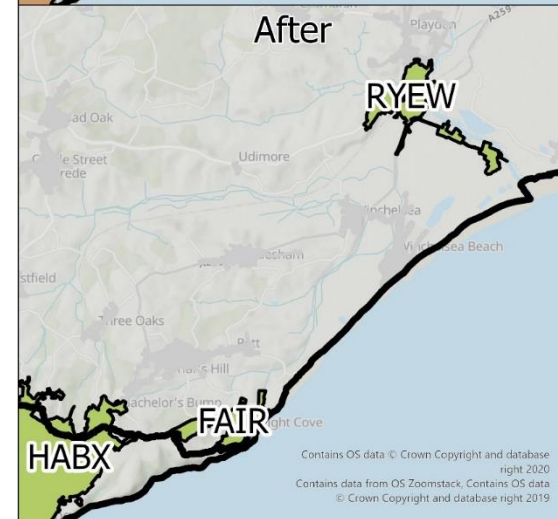
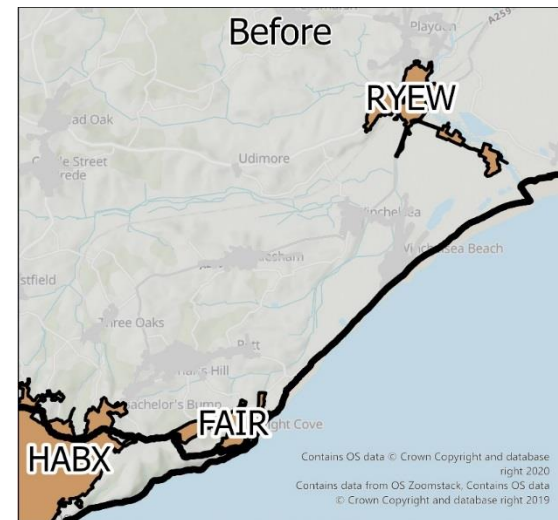
# PO2 – Pollution Risk

Rother	PO2	Pollution Incidents (Nr in 3yrs)			BRAVA		
		Option Type	Est Cost(£)	Solution Reduction	No. of incidents	Band 0 Reduction Target	Before
<b>Fairlight</b>							
FAIR.SC03.1 - Customer Education Programme	£116 K	1	4	4	2	2	
FAIR.PW01.2 - Jetting Programme	£34 K	1					
<b>Rye</b>							
RYEW.PW01.1 - Maintenance Programme WPS	£233 K	1	2	2	1	1	
RYEW.PW01.4 - Pipe Rehabilitation Programme	£63 K	1					



# PO5 – Storm Overflow

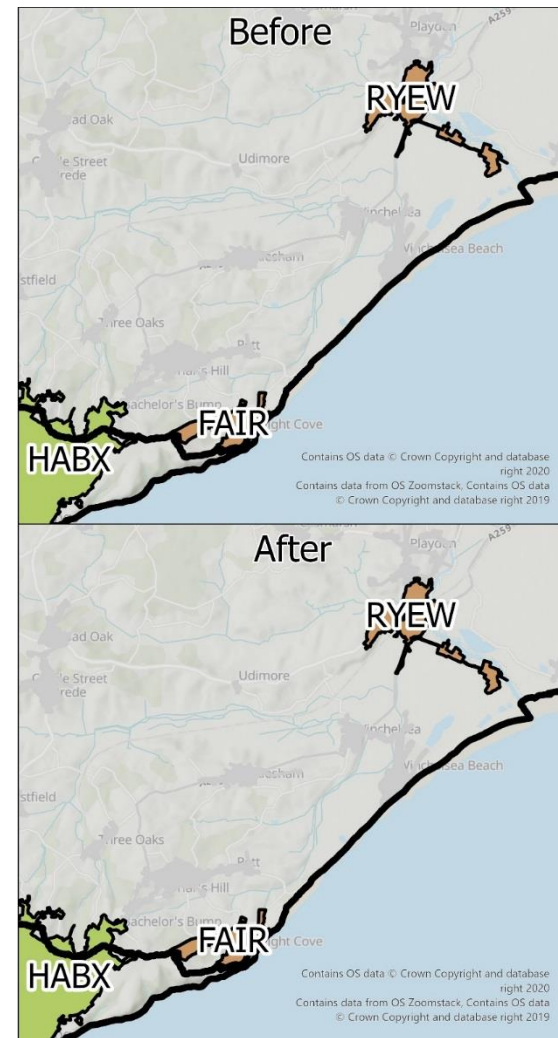
Rother	PO5	Nr failing CSOs (Residual Risk to properties)			BRAVA (2050)		
		Est Cost (£)	Solution Reduction	Total Nr of High Spillers (2050)	Band 0 Reduction Target	Before	After
<b>Fairlight</b>							
	FAIR.PW01.3 - Storage ( FC01 - FAIRLIGHT WTW)	£1000 K	1	1		2	0
<b>Rye</b>							
	RYEW.OT01.6 – Storage (St Margarets Terrace Rye)	£1000 K	1	1		2	0



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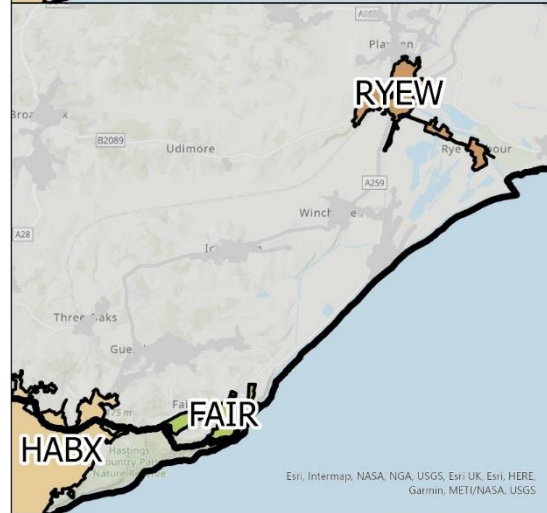
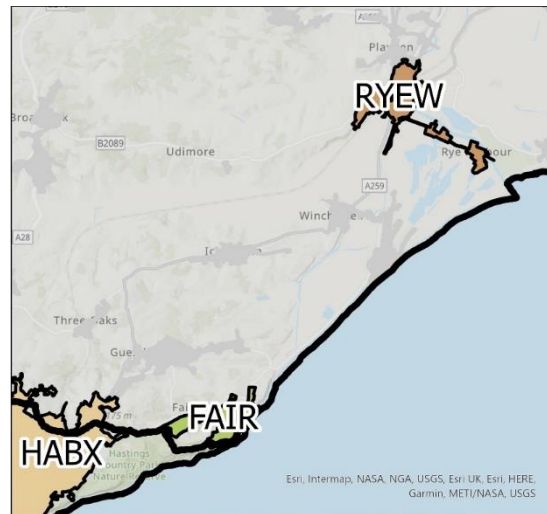
# PO7 – Hydraulic Overload

Rother	PO7	BRAVA (2050)	
Option Type	Est Cost (£)	Before	After
<b>Fairlight</b>			
FAIR.OT01.2 - Improve Hydraulic Model	£125 K	2	2
<b>Rye</b>			
RYEW.OT01.6 - Improve Hydraulic Model	£125 K	2	2



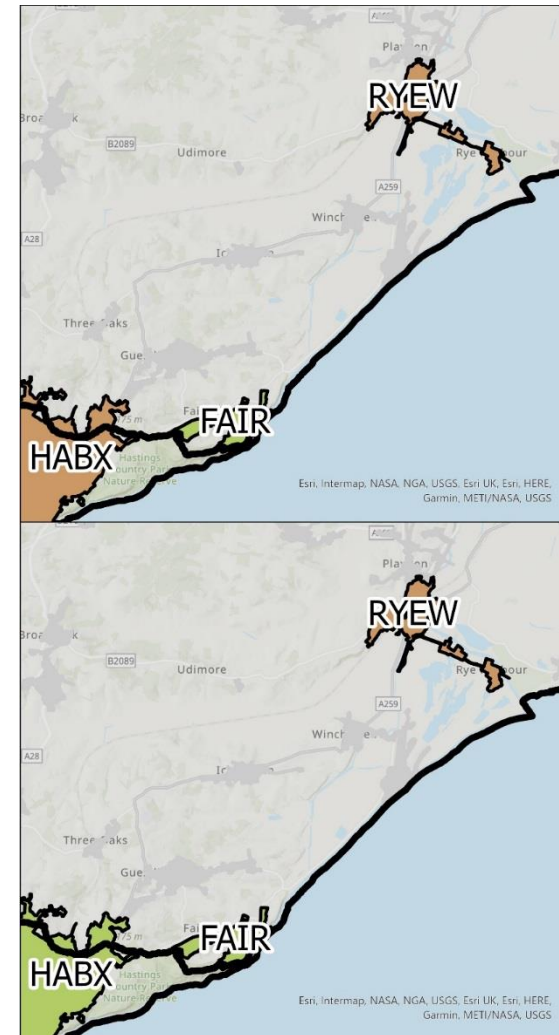
# PO1 – Internal Flooding

Rother	PO1	Internal Flood Incidents (Nr in 3 yrs)			BRAVA		
		Est Cost(£)	Solution Reduction	No. of incidents	Reduction Req'd for Band 0	Before	After
<b>Fairlight</b>						0	0
<b>Rye</b>							
RYEW.SC03.1 - Customer Education Programme	£116 K	3	12	11	2	2	
RYEW.PW01.5 - Jetting Programme	£114 K	3					



# PO3 – Sewer Collapse

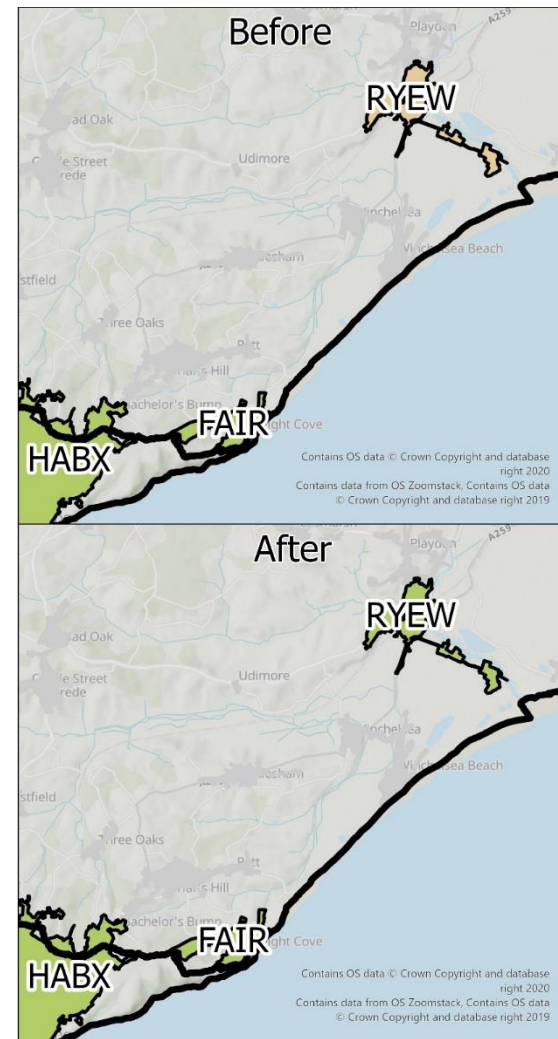
Rother	PO3	Collapses and Bursts (Nr)			BRAVA	
Option Type	Est Cost (£)	Solution Reduction	Total	Band 0 Reduction Target	Before	After
<b>Fairlight</b>					0	0
<b>Rye</b>						
RYEW.PW01.2 - Pipe Rehabilitation Programme	£331 K	2	4	3	2	2





# PO6 – WTW Compliance Failure

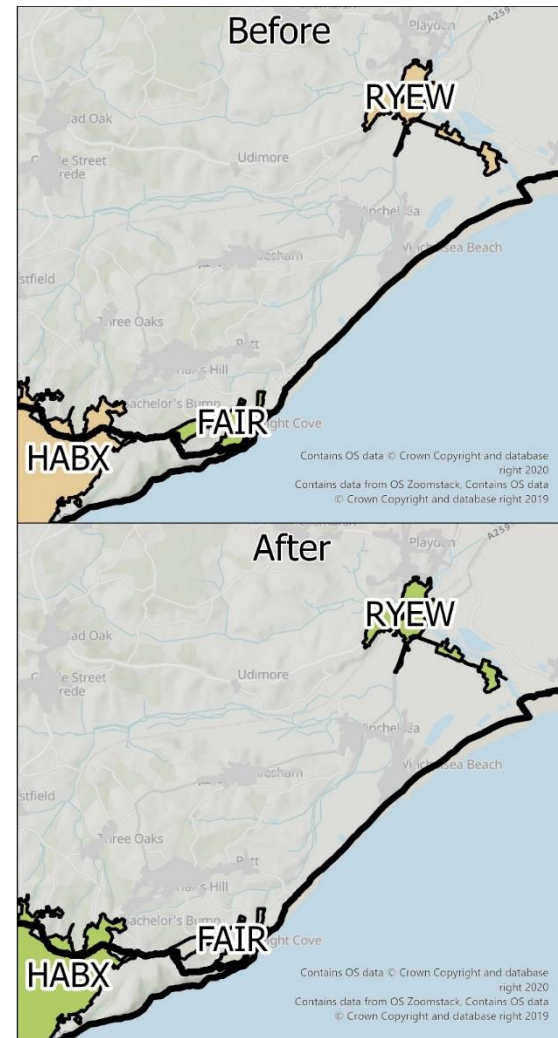
Rother	PO6	BRAVA (2050)		
Option Type	Est Cost (£)	Before	After	
<b>Fairlight</b>		0	0	
<b>Rye</b>				
	RYEW.PW02.1 - Increase Capacity	£805 K	1	0



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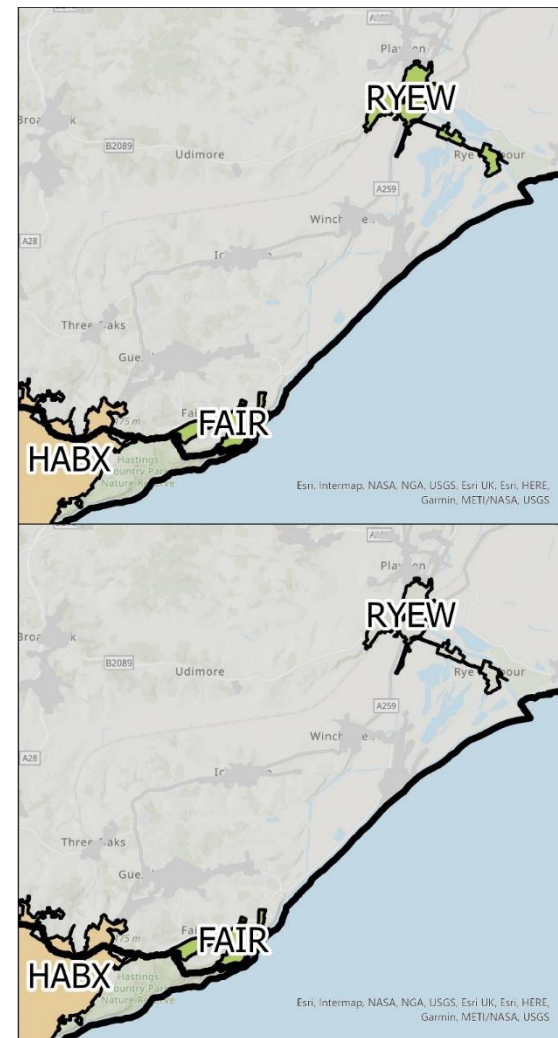
# PO8 – DWF Compliance

Rother	PO8	BRAVA (2050)	
Option Type	Est Cost (£)	Before	After
<b>Fairlight</b>		0	0
<b>Rye</b>			
RYEW.PW02.2 - Increase DWF Capacity	£1272 K	1	0



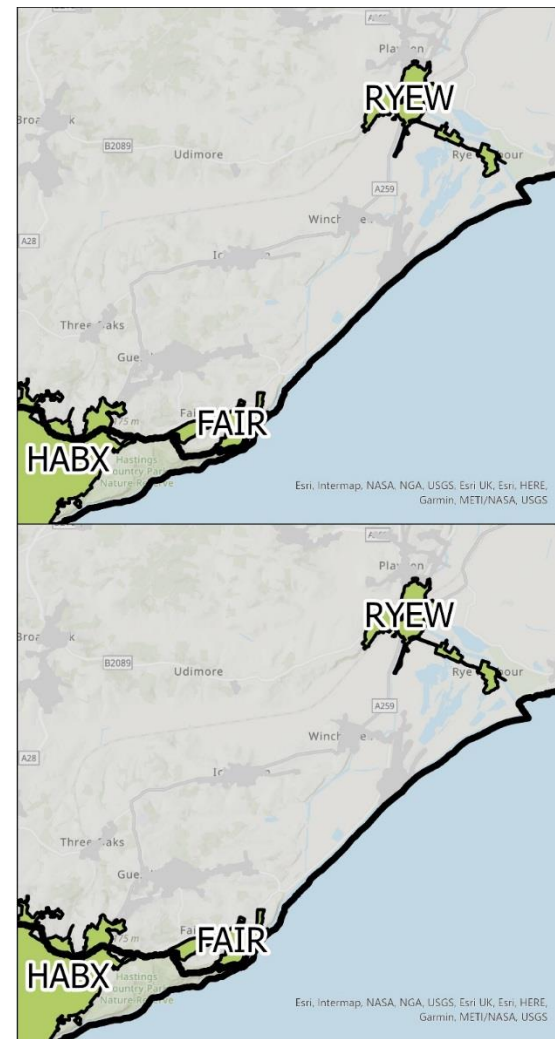
# PO9 – Good Ecological Status

Rother	PO9	BRAVA	
Option Type	Est Cost (£)	Before	After
<b>Fairlight</b>		0	0
<b>Rye</b>		0	0



# PO12 – Groundwater Pollution Risk

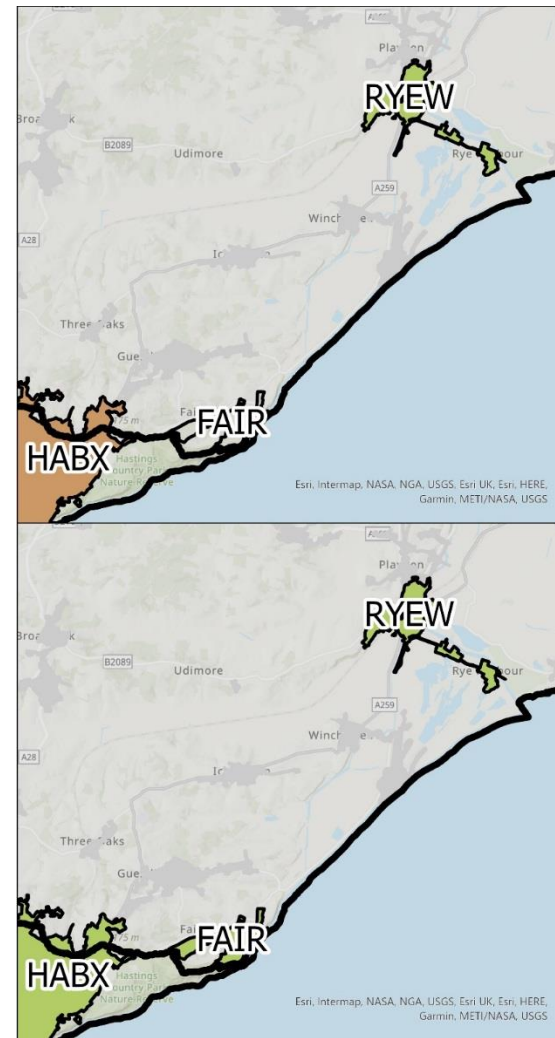
Rother	PO12	BRAVA	
Option Type	Est Cost(£)	Before	After
Fairlight		0	0
Rye		0	0



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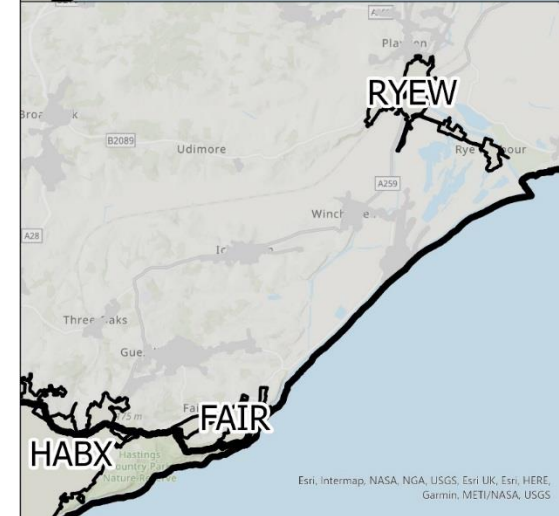
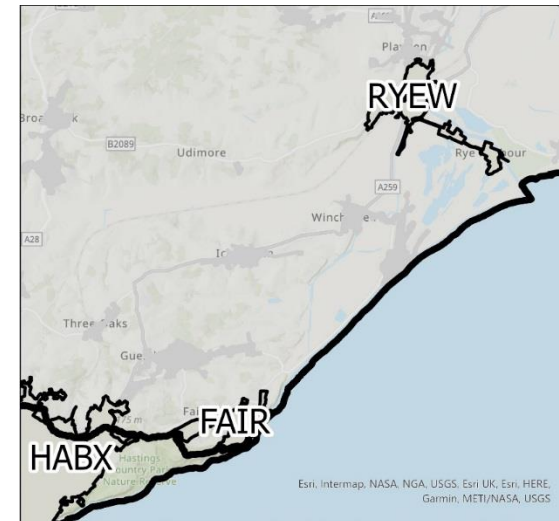
# PO13 – Bathing Water

Rother	PO13	BRAVA	
Option Type	Est Cost (£)	Before	After
<b>Fairlight</b>		0	0
<b>Rye</b>		0	0



# PO14 – Shellfish Water

Rother	PO14	BRAVA	
Option Type	Est Cost (£)	Before	After
<b>Fairlight</b>		0	0
<b>Rye</b>		0	0



# Other Issues from the DWMP Feedback / Input Log

- Eroding cliffs in Fairlight
- Importance of preserving the saline habitat for the flora and fauna
- Groundwater pollution and the need for first time sewerage
- Misconnections

# Programme Appraisal

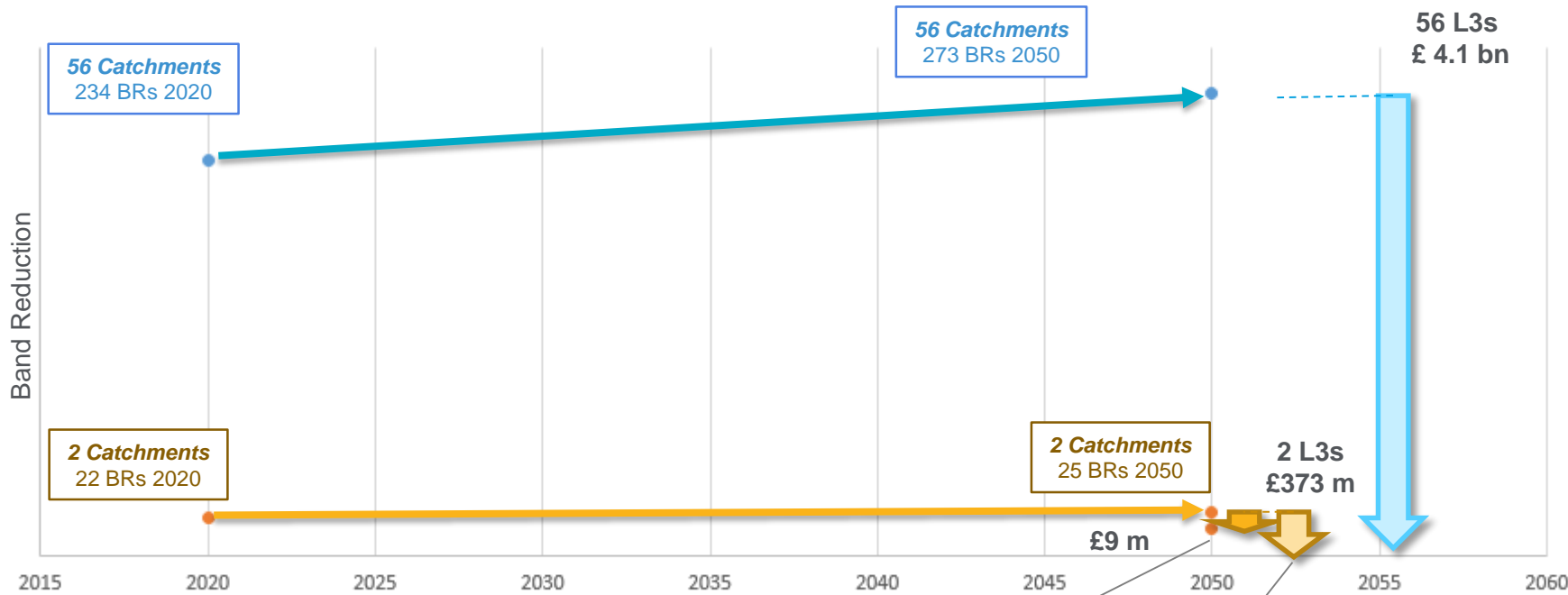


# Programme Appraisal

- 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



# Rother: Total investment needs & risk band reduction



3 WW Systems = 7k Population  
 = (6.6% of population)  
 56 WW systems = 108k Population

2 Catchments  
 DWMP Opt 15 Band 2050

3 Catchments  
 0 BRs Band 2050

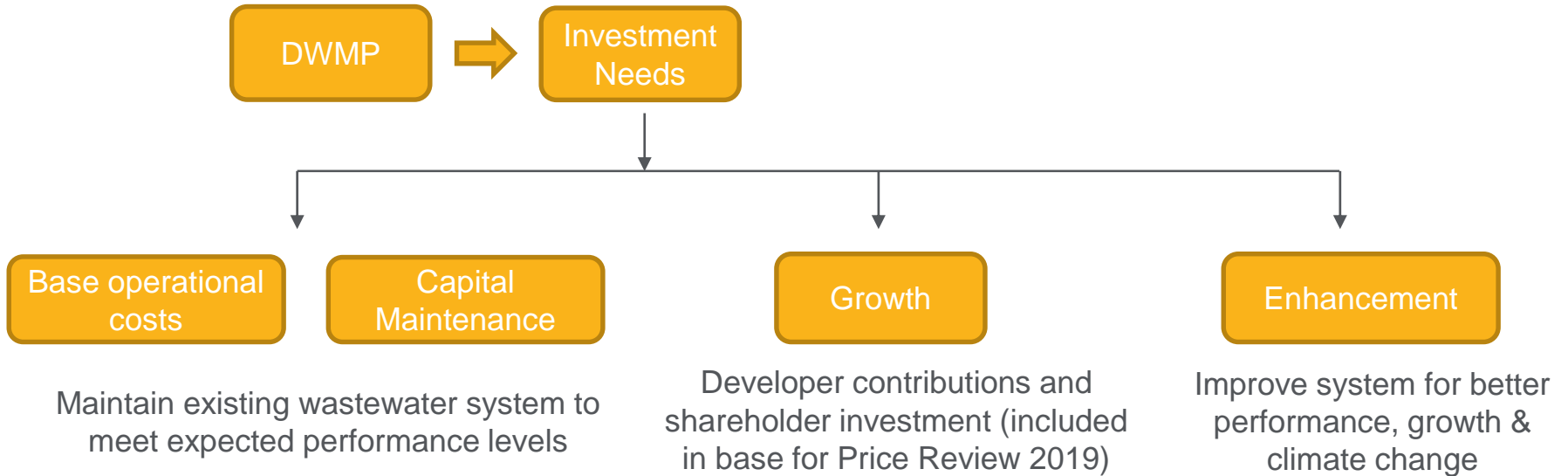
**DRAFT**



# 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

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

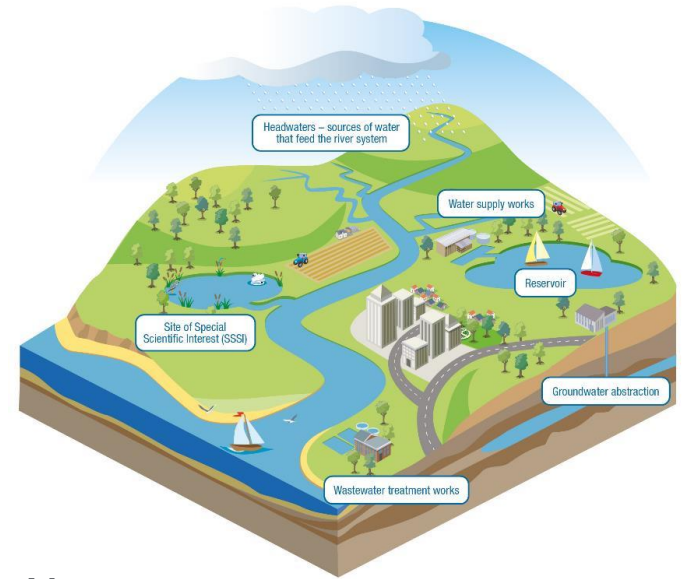
Key findings from our DWMP:

- 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)

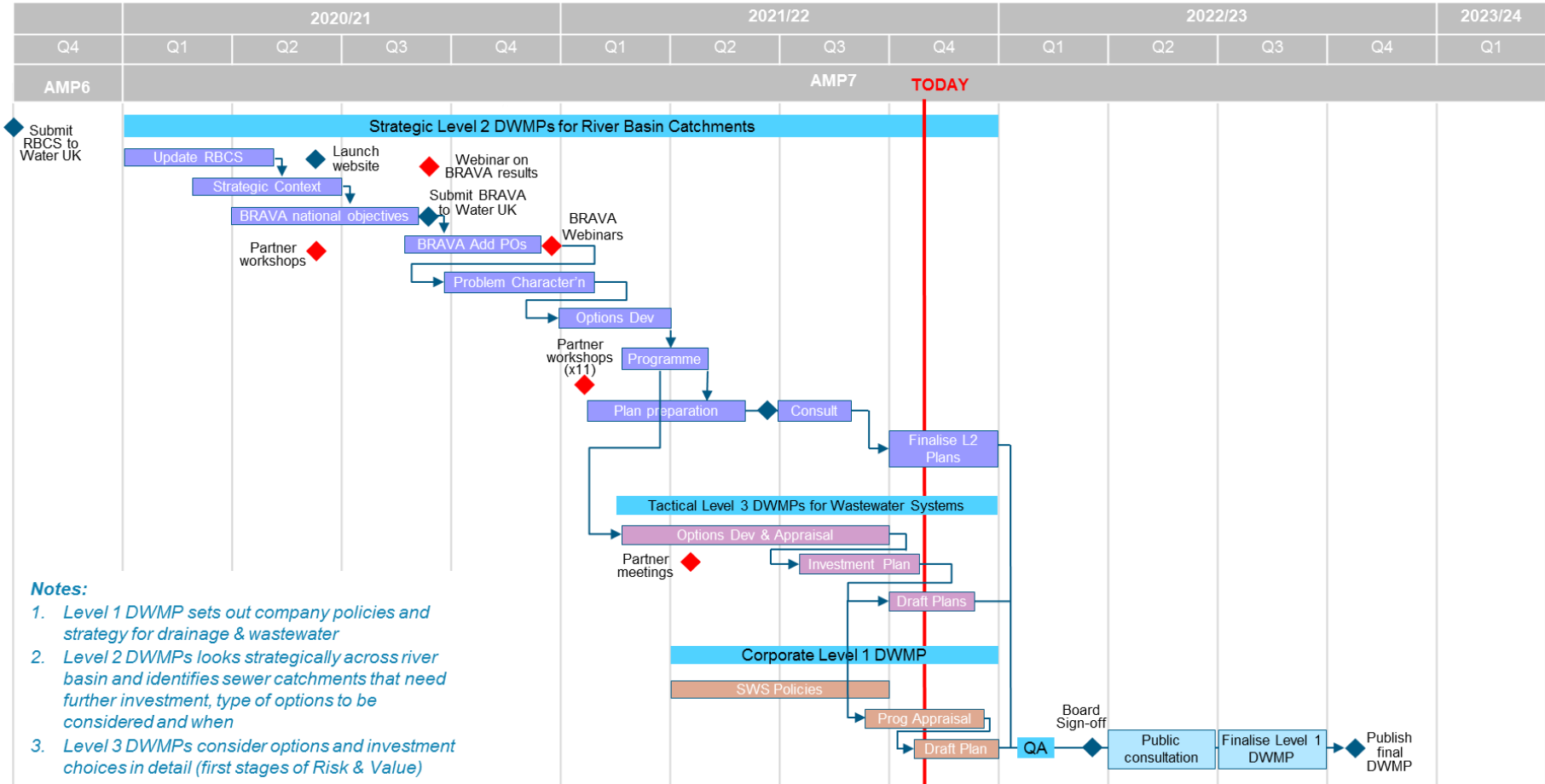




# Next Steps



# 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)

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from  
**Southern  
Water** 