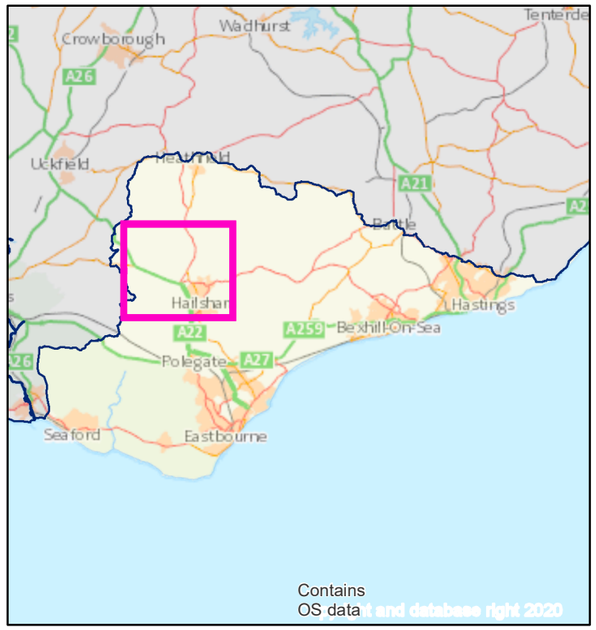
Drainage and Wastewater Management Plan

Hailsham North
Wastewater System Plan

from Southern Water

Contents

Hailsham North wastewater system: map and key facts



Population Equivalent (PE)	**12,023**
Discharge Waterbody	**Hurst Haven at Hailsham**
Number of Pumping Stations	**17**
Number of Overflows	**6**
Length of Sewer (km)	**100.2**
Catchment Reference	**HAIN**

BRAVA Results Table

	Planning Objective	2020	2050
1	Internal Sewer Flooding Risk	1	
2	Pollution Risk	2	
3	Sewer Collapse Risk	2	
4	Risk of Sewer Flooding in a 1 in 50 year storm	1	1
5	Storm Overflow performance	2	2
6	Risk of WTW Compliance Failure	0	1
7	Risk of flooding due to Hydraulic Overload	2	2
8	Dry Weather Flow Compliance	0	2
9	Good Ecological Status / Potential	1	
10	Surface Water Management	1	
11	Nutrient Neutrality	0	0
12	Groundwater Pollution	0	
13	Bathing Waters	NA	
14	Shellfish Waters	NA	

Drivers of Risks

- Customer
- Hydraulics
- Operational
- Quality
- Unknown

Catchment Strategy: IMPROVE

HAILSHAM NORTH WTW

HAILSHAM

Lower Dicker

Upper Dicker

0 0.25 0.5 1 1.5 2 Kilometers

Problem Characterisation
Hailsham North (HAIN)

This document describes the causes of the risks identified by the Baseline Risk and Vulnerability Assessment (BRAVA). The BRAVA results for this wastewater system are summarised in Table 1. The results indicate that flooding, pollution and water quality are the main concerns in this wastewater system. We have completed risk assessments for 2050 where we have the data and tools available to do so. For the other planning objectives, we will explore how we can predict future risks for the next cycle of DWMPs. All the risk assessment methods need to be reviewed after the first DWMPs have been produced with a view to improve the methods and data for future planning cycles.

Table 1: Results of the BRAVA for Hailsham North wastewater system

Planning Objectives		2020	Driver	2050
1	Internal Sewer Flooding Risk	1	Customer	
2	Pollution Risk	2	Operational	
3	Sewer Collapse Risk	2	Operational	
4	Sewer Flooding in a 1 in 50-year storm	1	Hydraulic	1
5	Storm Overflow Performance	2	Hydraulic	2
6	WTW Water Quality Compliance	0	Quality	1
7	Flooding due to Hydraulic Overload	2	Hydraulic	2
8	WTW Dry Weather Flow Compliance	0	-	2
9	Good Ecological Status / Good Ecological Potential	1	Quality	
10	Surface Water Management	1	Hydraulic	
11	Nutrient Neutrality	0	-	0
12	Groundwater Pollution	0	-	
13	Bathing Waters	NA	-	
14	Shellfish Waters	NA	-	

Key

BRAVA Risk Band	
NA	Not Applicable*
0	Not Significant
1	Moderately Significant
2	Very Significant

*No issues relevant to planning objective within Wastewater System

Investment Strategy

The risks identified in this wastewater system mean that we have assigned the following investment strategy:

Improve

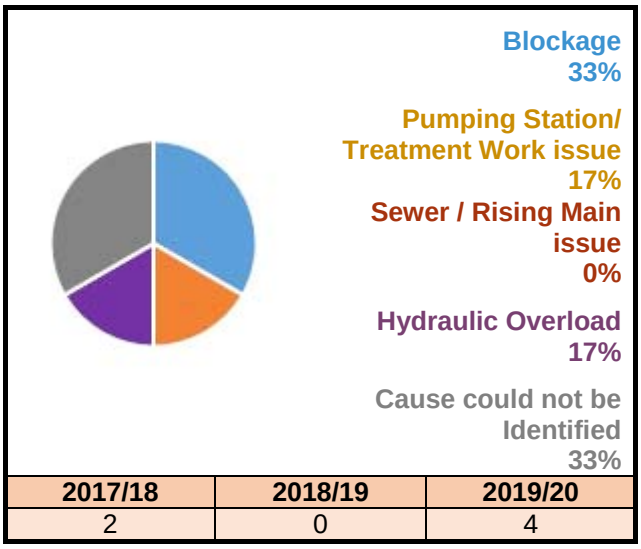
This means that we consider that the current performance of the drainage and wastewater system needs to be improved to reduce the impacts on our customers and/or the environment. We will plan investment to reduce the current risks by actively looking to invest capital funding in the short term to address current performance issues (and consider future risks when implementing improvements).

Planning Objective 1: Internal Sewer Flooding Risk

The number of internal sewer flooding incidents reported during the three years considered by the risk assessment are shown in Figure 1. The total number of connections in this wastewater system means there have been between 1.68 and 3.35 incidents per 10,000 connections per year (a threshold set by Ofwat) so the risk is in the 'moderately significant' band.

The primary driver for internal sewer flooding in this wastewater system is 'Customer'. Blockages caused 33% of all incidents recorded in this wastewater system. Blockages are often caused by fats, oils, grease, nappies, wet wipes and sanitary products within the system. These items are non-flushable and should not be disposed of into wastewater systems.

Figure 1: Number of internal flooding incidents per annum and causes



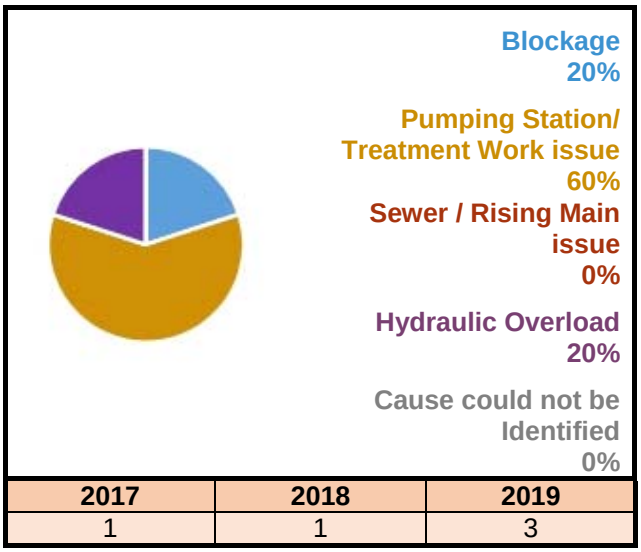
2017/18	2018/19	2019/20
2	0	4

Planning Objective 2: Pollution Risk

The number of pollution incidents reported during the three years considered by the risk assessment are shown in Figure 2. The length of sewer in this wastewater system means there have been more than 49.01 incidents per 10,000km per year (a threshold set by Ofwat) so the risk is in the 'very significant' band.

The primary driver for pollution is 'Operational' due to asset operational issues. Asset operational issues at our pumping stations and treatments works are the main cause of incidents, contributing to 60% of all incidents recorded in this wastewater system.

Figure 2: Number of pollution incidents per annum and causes



2017	2018	2019
1	1	3

Planning Objective 3: Sewer Collapse Risk

The number of sewer collapses reported during the three years considered by the risk assessment are shown in Table 2. The length of sewer in this wastewater system means there have been more then 9.44 incidents per 1,000km per year (a threshold set by Ofwat) so the risk is in the 'very significant' band.

Table 2: Sewer collapses and rising main bursts

Sewer Collapse	**2017/18**	1
	2018/19	1
	2019/20	3
Rising Main Bursts	**2017/18**	0
	2018/19	0
	2019/20	0

The primary driver is 'Operational' as the cause of these collapses and bursts is due to the age and condition of the sewers.

Planning Objective 4: Sewer Flooding in a 1 in 50 Year Storm

The risk of flooding in a 1 in 50 year storm is moderately significant in 2020 and 2050. This is because our computer model of the sewer network indicate for 2020 that approximately 200 - 300 properties within this wastewater system are in areas that could flood by water escaping from sewers. This model prediction increases the number of properties in areas at risk from flooding to approximately 500 - 600 by 2050.

Our wastewater networks are generally designed with capacity for up to a 1 in 30 year storm, hence flooding is expected to occur during more severe storms such as a 1 in 50 year event. Flooding will occur due to insufficient capacity of the drainage system either on the surface before it enters the drainage system, and/or from manholes, in people's homes or at a low point elsewhere in the system.

Planning Objective 5: Storm Overflow Performance

The storm overflow performance risk has been assessed as very significant for both 2020 and 2050. Table 3 shows the overflows that discharge above the low threshold set for storm overflow discharges to Shellfish Water, Bathing Water and inland rivers.

The primary driver for the Storm Overflow Performance is 'Hydraulic.'

Table 3: Overflows exceeding discharge frequency threshold per annum

	Number of overflows		Threshold for number of discharges per annum		
	2020	2050	Low	Medium	High
Shellfish Waters	0 Medium	0 Medium	Less than 8	Between 8-10	10 or more
Bathing Waters	0 Medium	0 Medium	Less than 3	Between 3-10	10 or more
Freshwater	1 High	1 High	Less than 20	Between 20-40	40 or more

Planning Objective 6: Wastewater Treatment Works Water Quality Compliance

The risk of non-compliance with our wastewater quality permit has been assessed as not significant for 2020 but is predicted to increase to moderately significant by 2050. This is because the wastewater treatment works has no record of compliance failure during the last three years (2018-2020). However it was assessed to not have adequate capacity to cope with future growth in the wastewater system.

Planning Objective 7: Flooding due to Hydraulic Overload

This is an assessment of the risk of flooding from sewers during a 1 in 30 year storm, and more frequent rainfall, to understand where flooding could occur. The risk of sewer flooding due to hydraulic overload is very significant in 2020 and 2050. The annualised number of properties in areas at risk of flooding is shown in Table 4.

Table 4: Annualised number of properties at risk per 10,000 connections.

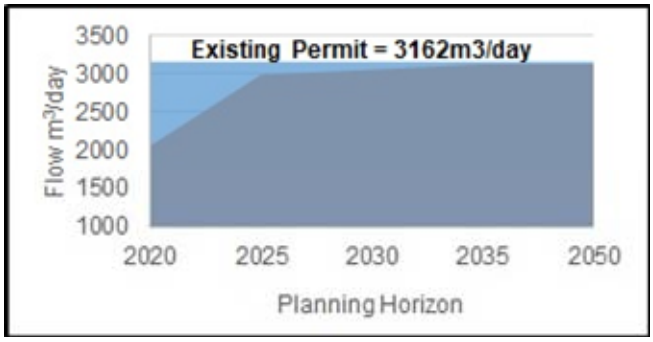
Rainfall Return Period (yr)	Number of Properties at Risk		Annualised per 10,000 connections	
	2020	2050	2020	2050
1 in 1	110	237	70	150
1 in 2	134	240	53	94
1 in 5	183	304	33	55
1 in 10	202	339	19	32
1 in 20	217	406	11	20
1 in 30	239	454	8	15
Total Annualised			**193**	**366**

This indicates that the existing capacity of the wastewater network can already be exceeded during 1 in 30 year storms (or more frequent events).

Planning Objective 8: Wastewater Treatment Works Dry Weather Flow Compliance

The risk of Wastewater Treatment Works Dry Weather Flow Compliance is not significant for 2020 but is predicted to increase to very significant in 2050, shown in Figure 3. This is because the predicted DWF in 2050 is expected to exceed the current permit.

Figure 3: Recorded and predicted dry weather flow with existing permit



Planning Objective 9: Good Ecological Status / Good Ecological Potential

Table 5: Waterbodies not achieving GES/GEP

Waterbody	Classification	EA-Status	Activity
Cuckmere from Warbleton to Lower Horsebridge	Phosphate	Poor	Sewage discharge (continuous)
Cuckmere from Warbleton to Lower Horsebridge	Macrophytes and Phytobenthos Combined	Moderate	Sewage discharge (continuous)

Table 5 shows the waterbodies connected to this wastewater system are not achieving Good Ecological Status or Potential (GES/GEP). The Environment Agency has attributed the 'reasons for not achieving good status' to water company operations. Our risk assessment has been assessed based on the worst assigned status (Poor) and has been moderated from very significant to moderately significant because of the presence of Tertiary Treatment at the wastewater system Treatment Works. This is because we are might not be complying with our permit from the Environment Agency, or the permits need to be tightened to reduce the risk.

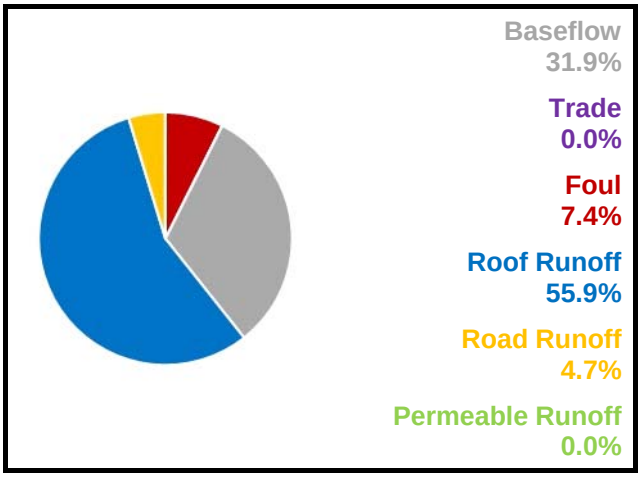
The primary driver is 'Quality'.

Planning Objective 10: Surface Water Management

Our initial high level assessment indicated that there is moderately significant interaction between surface water flooding and flooding from sewers in this wastewater system.The cause of this localised flooding is the capacity of the drainage network in these areas to convey both wastewater and surface water run-off.

Figure 4 illustrates the sources of water flowing in the wastewater system during a 1 in 20 year storm. It shows that surface water runoff from roofs, road and permeable surfaces constitutes more than 60.6% of the flow in the sewers. The total contribution of foul water from homes is 7.4%. The baseflow is infiltration from water in the ground and makes up 31.9% of the flow in the system.

Figure 4: Sources of water flowing in sewers during a 1 in 20 year storm



Planning Objective 11: Nutrient Neutrality

The risk to internationally designated habitat sites from this wastewater system is not significant in 2020 or 2050. This is because Natural England have advised that there is no risk condition for the habitat site hydraulically linked to our wastewater system.

Table 6: Habitat Sites hydraulically linked to wastewater system

Habitat Sites	
Pevensey Levels	No Threat/Remedy Identified or Anticipated

Planning Objective 12: Groundwater Pollution

The risk of Groundwater Pollution is not significant. This is because the wastewater network in this wastewater system does not overlap with any groundwater Source Protection Zones (SPZ) used for water supply.

Planning Objective 13: Bathing Waters

This wastewater system does not discharge into a designated bathing water.

Planning Objective 14: Shellfish Waters

The discharges from this wastewater system do not impact on any designated shellfish waters.

Southern Water
August 2021
Version 1

Generic Options Assessment for: Hailsham North (HAIN)

Planning Objectives		2020	Driver	2050
PO1	Internal Flooding	1	Customer	-
PO2	Pollution Risk	2	Operational	-
PO3	Sewer Collapse	2	Operational	-
PO4	Risk of Sewer Flooding in 1 in 50 yr	1	Hydraulic	1
PO5	Storm Overflow Performance	2	Hydraulic	2
PO6	Risk of WTW Compliance Failure	0	Quality	1
PO7	Annualised Flood Risk/Hydraulic Overload	2	Hydraulic	2
PO8	DWF Compliance	0	-	2
PO9	Achieve Good Ecological Status	1	Quality	-
PO10	Improve Surface Water Management	1	Hydraulic	-
PO11	Secure Nutrient Neutrality	0	-	0
PO12	Reduce Groundwater Pollution	0	-	-
PO13	Improve Bathing Water Quality	NA	-	-
PO14	Improve Shellfish Water Quality	NA	-	-

Type of Measures	Generic Option Categories	Icon	Take Forward?	Reasons	Examples of Generic Options
Source (Demand) Measures (to reduce likelihood)	Control / Reduce surface water run-off		Y	-	Natural Flood Management; rural land management and catchment management; SuDS including blue and green infrastructure; storm management
	Reduce groundwater levels		N	Reducing groundwater levels would reduce the risks from infiltration into the network. However, in practice, reducing groundwater levels will be detrimental to the environment, ground conditions and is prohibitively too costly to implement. For these reasons, this generic option has been discounted.	Reduce leakage from water supply pipes; pump away schemes to locally lower groundwater near sewer network
	Improve **quality** of wastewater		Y	-	Domestic and business customer education; incentives and behaviour change (reduce Fats, Oils & Grease, wet wipes etc.); monitoring trade waste at source; on-site black water and/or greywater pre-treatment
	Reduce the **quantity** / demand		Y	-	Water efficient appliances; water efficient measures; blackwater and/or greywater re-use; treatment at source
Pathway (Supply) Measures (to reduce likelihood)	Network Improvements		Y	-	Asset optimisation; additional network capacity; storage; separate flows; structural repairs; re-line sewer pipe and manholes; smart networks.
	Improve Treatment Quality		Y	-	Increase treatment capacity; rationalisation of treatment works (centralisation / de-centralisation); install tertiary plant; UV plant or disinfection facilities; innovation; improve Technical Achievable Limits; new WTWs
	Wastewater Transfer to treatment elsewhere		N	The causes of risk are not due to where our systems discharge to the environment or our ability to increase the capacity to connect more homes. Transferring wastewater for treatment elsewhere will not reduce any of the significant risks in this catchment.	Transfer flow to other network or treatment sites; transport sewage by tanker to other sites
Receptor Measures (to reduce consequences)	Mitigate impacts on Air Quality		N/A	Not included in first round of DWMPs	Carbon offsetting; noise suppression /filtering; odour control and treatments
	Improve Land and Soils		N/A	Not included in first round of DWMPs	Sludge soil enhancement
	Mitigate impacts on receiving waters		Y	-	River enhancement, aeration
	Reduce impact on properties		Y	-	Property flood resilience; non-return valves; flood guards / doors; air brick covers
Other	Study / Investigation		N	No further studies are required at this stage	Additional data required; hydraulic model development; WQ monitoring and modelling

August 2021
Version 1

Hailsham North Wastewater System - Outline Options Appraisal

Generic Option	Location of Risk	Planning Objective and Description of Risk	Option Reference	Description	Further Description	Unconstrained Option?	Constrained Option?	Feasible Option?	Net Benefits	Estimated Cost	Preferred Option	Best value / Least cost or Reasons for Rejection
Control/ Reduce surface water entering the sewers	HAIN FC01 Whitesmith	PO4 and PO7 Flooding	HAIN.SC01.1	Infiltration Reduction (HAIN012 Option 1)	DAP Option.	No						
Control/ Reduce surface water entering the sewers	HAIN FC02_1 - Battle Road	PO4 and PO7 Flooding	HAIN.SC01.2	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	HAIN FC03_1 - The Dicker	PO4 and PO7 Flooding	HAIN.SC01.3	Surface Water Separation	DAP Option.	No						
Control / Reduce groundwater infiltration												
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	Harebeating Crescent	PO1- Internal Flooding	HAIN.SC03.1	Customer Education Programme	Customer education programme to reduce the risk.	Yes	Yes	Yes	Minor Positive +	£115K	Yes	Best Value
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	Upper Horsebridge	PO2- Pollution Risk	HAIN.SC03.2	Customer Education Programme	Customer education programme.	Yes	Yes	Yes	Minor Positive +	£115K	Yes	Best Value
Control / Reduce the quantity / flow of wastewater entering sewer system	HAILSHAM NORTH WTW	PO8 (2050)- Dry Weather Flow	HAIN.SC04.1	Water Efficient Appliance / Measures	Southern Water aims to reduce water consumption to 100 l/h/d by 2040.	No						Deliver the required outcome
Network Improvements (eg increase capacity, storage, conveyance)	GOURNAY ROAD HAILSHAM WPS	PO1- Internal Flooding	HAIN.PW01.1	Maintenance Programme	An efficient maintenance programme for pumping stations and/Treatment works to elimate the risk of a pollution incident due to an operational failure.	Yes	Yes	Yes	Minor Positive +	£235K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	AMBERSTONE HAILSHAM WPS	PO1- Internal Flooding	HAIN.PW01.2	Additional Storage	Additional Storage.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Upper Dicker Wps, Upper Dicker Wps,	PO2- Pollution Risk	HAIN.PW01.3	Maintenance Programme WPS	An efficient maintenance programme for pumping stations to elimate the risk of a pollution incident due to an operational failure.	Yes	Yes	Yes	Minor Positive +	£235K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO2- Pollution Risk	HAIN.PW01.4	Additional Storage	Additional Storage.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Upper Horsebridge	PO3- Sewer Collapse	HAIN.PW01.5	Pipe Rehabilitation Programme	Targeted CCTV / electroscan surveys and proactive sewer rehabilitation to reduce risk of sewer collapse.	Yes	Yes	Yes	Minor Positive +	£315K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO8 (2050)- Dry Weather Flow	HAIN.PW01.6	Pipe Rehabilitation Programme	Relining/improving structural grades of sewers across the catchment.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Harebeating Crescent	PO1- Internal Flooding	HAIN.PW01.7	Jetting Programme	Jetting Programme.	Yes	Yes	Yes	Minor Positive +	£25K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Upper Horsebridge	PO2- Pollution Risk	HAIN.PW01.8	Jetting Programme	Jetting Programme.	Yes	Yes	Yes	Minor Positive +	£10K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	HAIN FC01 Lower Horsebridge	PO4 and PO7 Flooding	HAIN.PW01.9	Upsizing (HAIN011 Option 1)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£3,900K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	HAIN FC02 Whitesmith	PO4 and PO7 Flooding	HAIN.PW01.10	Offline storage with pump return (HAIN012 Option 3)	DAP Option.	No						
Network Improvements (eg increase capacity, storage, conveyance)	HAIN FC03 - Upper Dicker	PO4 & PO7 - Growth	HAIN.PW01.11	Upsizing (HAINGR01 Option 2)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£975K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	HAIN FC04 - Lower Horsebridge	PO4 & PO7 - Growth	HAIN.PW01.12	Upsizing (HAINGR01 Option 2)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£975K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	HAIN FC05 - Amberstone	PO4 & PO7 - Growth	HAIN.PW01.13	Upsizing (HAINGR01 Option 2)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£975K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	HAIN FC02_1 - Battle Road	PO4 & PO7 - Growth	HAIN.PW01.14	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£855K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	HAIN FC03_1 - The Dicker	PO4 & PO7 - Growth	HAIN.PW01.15	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,195K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	HAILSHAM NORTH WTW	PO6 (2050)- WTW compliance	HAIN.PW02.1	Increase Capacity	Catchment was banded 0 in 2020 (however should be Band 1); Catchment was banded 1 in 2050 because; Biological Capacity= -4.	Yes	Yes	Yes	Minor Positive +	£16,055K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	HAILSHAM NORTH WTW	PO8 (2050)- Dry Weather Flow	HAIN.PW02.2	Permit Review	Proposed permit-4095m3.	Yes	Yes	Yes	Minor Positive +	£1,705K	Yes	Best Value
Wastewater Transfer	HAILSHAM NORTH WTW	PO8 (2050)- Dry Weather Flow	HAIN.PW03.1	Construct New WPS & Rising Main	No other WTWs are within a 20km radius of HAILSHAM NORTH WTW with spare capacity to take DWF.	No						Technically feasible and Cost Effective
Wastewater Transfer	HAIN FC01 Whitesmith	PO4 and PO7 - Flooding	HAIN.PW03.2	Flow Transfer (HAIN012 Option 2)	DAP Option.	No						
Mitigate impacts on Air Quality (e.g. Carbon neutrality, noise, odour)												Not included in the first round of DWMPs
Improve Land and Soils												Not included in the first round of DWMPs
Mitigate impacts on Water Quality												
Reduce consequences Properties (e.g. Property Flood Resilience)	Catchment Wide	PO1- Internal Flooding	HAIN.RC04.1	Property Flood Mitigation / Resistance	Short-term property level protection ahead of flood alleviation scheme - Non-return valves and flood mitigation doors / gates.	No						Do customer support it and Risk and uncertainty - future resilience
Study/ investigation to gather more data	Church Road, Station Road	PO1- Internal Flooding	HAIN.OT01.1	Investigation into causes	Further investigation to identify the cause of the internal flooding incident.	No						Cost Effective
Study/ investigation to gather more data	Upper Horsebridge	PO3- Sewer Collapse	HAIN.OT01.2	CCTV Investigation	CCTV Investigation.	No						Deliver the required outcome and Risk and
Study/ investigation to gather more data	Catchment Wide	PO8 (2050)- Dry Weather Flow	HAIN.OT01.3	Infiltration Reduction Plan	Relining/improving structural grades of sewers across the catchment.	No						Cost Effective and Risk and uncertainty - future resilience
Study/ investigation to gather more data	Cuckmere from Warbleton to Lower Horsebridge	PO9- GE Status / Potential Sewage discharge (continuous)	HAIN.OT01.4	Study and Investigation- Phosphate Macrophytes and Phytobenthos Combined	Catchment was banded 1(moderated due to spare tertiary treatment capacity) in because; Cuckmere from Warbleton to Lower Horsebridge- Phosphate (Poor Sewage discharge (continuous)) Cuckmere from Warbleton to Lower Horsebridge- Macrophytes and Phytobenthos Combined (Moderate Sewage discharge (continuous)).	Yes	Yes	Yes	Minor Positive +	£75K	No	Best Value

Hailsham North Wastewater System - Outline Options Appraisal

Generic Option	Location of Risk	Planning Objective and Description of Risk	Option Reference	Description	Further Description	Unconstrained Option?	Constrained Option?	Feasible Option?	Net Benefits	Estimated Cost	Preferred Option	Best value / Least cost or Reasons for Rejection
Study/ investigation to gather more data	Catchment Wide	PO4- 1 in 50 year PO5- Storm Overflow PO7- Hydraulic Overload PO10- Surface Water Management	HAIN.OT01.5	Improve Hydraulic Model	Improve Hydraulic Model.	Yes	Yes	Yes	Minor Negative -	£300K	Yes	Least Cost
Study/ investigation to gather more data	HAIN FC08 - Hailsham North WTW	PO4, PO7 and PO5 - Growth and Spill assessments	HAIN.OT01.6	Study/Modelling investigation	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Study/ investigation to gather more data	HAIN FC03-UPPER DICKER WPS	PO5 - Spill Assessments	HAIN.OT01.7	Study and Investigation (FC03-UPPER DICKER WPS)	The DAP model was last verified in 2009.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Study/ investigation to gather more data	HAIN FC01_1 - Station Road	PO4 and PO7 Flooding	HAIN.OT01.8	Study/ model investigation	DAP Option.	No						

DWMP Investment Needs

1. The options listed in the DWMP Investment Needs below are the preferred options in our DWMP. They will need further refinement as we implement the DWMP to confirm the exact location and scope of action needed, and the cost.

2. The costs are indicative costs for planning purposes only. The basis for the cost estimates, including assumptions and uncertainties, are explained in our DWMP Investment Plans.

3. The table of Investment Need provides an indicative cost so we know what level of funding is needed to reduce the risks. It is not a commitment to fund or deliver any option.

4. The Indicative Timescale is when the investment is needed. Some options may take several investment periods to achieve the desired outcomes.

5. Potential Partners have been identified in the table of Investment Needs. This is to indicate where there may be opportunities for us to work with these partners when developing and delivering these options. It is not a commitment by any of the partners to work with us.

6. These options will inform our future business plans as part of the Ofwat periodic review process to secure the finance to implement these options.

7. The options listed are prioritised by the method stated in the Programme Appraisal Technical Summary.

Date : May 2023
Version : 1.0

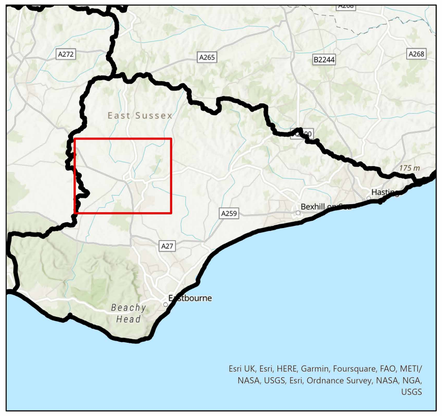
Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
Cuckmere and Pevensey Levels								
Hailsham North								
HAIN.SC03.1	Cuckmere and Pevensey Levels	Hailsham North	Harebeating Crescent	Customer Education Programme: Targeted campaign to reduce the amount of FOG (fats, oils and grease) and unflushables discharged into the sewer network	£115K	AMP8 onwards	Wealden District Council East Sussex County Council	PO1
HAIN.SC03.2	Cuckmere and Pevensey Levels	Hailsham North	Upper Horsebridge	Customer Education Programme: Targeted campaign to reduce the amount of FOG (fats, oils and grease) and unflushables discharged into the sewer network	£115K	AMP8 onwards	Wealden District Council East Sussex County Council	PO2
HAIN.PW01.1	Cuckmere and Pevensey Levels	Hailsham North	Gournay Road Hailsham WPS	Improve the operational resilience of wastewater pumping station (WPS) to reduce flooding incidents	£235K	AMP8 onwards	-	PO1
HAIN.PW01.3	Cuckmere and Pevensey Levels	Hailsham North	Upper Dicker WPS	Improve the operational resilience of wastewater pumping station (WPS) to reduce pollution incidents	£235K	AMP8 onwards	-	PO2
HAIN.PW01.5	Cuckmere and Pevensey Levels	Hailsham North	Upper Horsebridge	Sewer Rehabilitation: Targeted CCTV or electroscan surveys and sewer rehabilitation to reduce the risk of sewer bursts and collapses	£315K	AMP8 onwards	-	PO3
HAIN.PW01.7	Cuckmere and Pevensey Levels	Hailsham North	Harebeating Crescent	Enhanced Sewer Maintenance: Increase targeted sewer jetting to reduce the number of blockages in the network	£25K	AMP8 onwards	-	PO1
HAIN.PW01.8	Cuckmere and Pevensey Levels	Hailsham North	Upper Horsebridge	Enhanced Sewer Maintenance: Increase targeted sewer jetting to reduce the number of blockages in the network	£10K	AMP8 onwards	-	PO2
HAIN.PW01.9	Cuckmere and Pevensey Levels	Hailsham North	Lower Horsebridge	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£3,900K	AMP9	Wealden District Council East Sussex County Council	PO4 PO7
HAIN.PW01.11	Cuckmere and Pevensey Levels	Hailsham North	Upper Dicker	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£975K	AMP9	Wealden District Council East Sussex County Council	PO4 PO7
HAIN.PW01.12	Cuckmere and Pevensey Levels	Hailsham North	Lower Horsebridge	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£975K	AMP9	Wealden District Council East Sussex County Council	PO4 PO7
HAIN.PW01.13	Cuckmere and Pevensey Levels	Hailsham North	Amberstone	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£975K	AMP9	Wealden District Council East Sussex County Council	PO4 PO7
HAIN.PW01.14	Cuckmere and Pevensey Levels	Hailsham North	Battle Road	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£855K	AMP9	Wealden District Council East Sussex County Council	PO4 PO7
HAIN.PW01.15	Cuckmere and Pevensey Levels	Hailsham North	The Dicker	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£2,195K	AMP9	Wealden District Council East Sussex County Council	PO4 PO7
HAIN.PW02.1	Cuckmere and Pevensey Levels	Hailsham North	Hailsham North WTW	Increase treatment capacity to allow for planned new development	£16,055K	AMP11	-	PO6

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
HAIN.PW02.2	Cuckmere and Pevensey Levels	Hailsham North	Hailsham North WTW	Increase capacity to allow for planned new development	£1,000K	AMP8	Environment Agency	PO8
HAIN.OT01.4	Cuckmere and Pevensey Levels	Hailsham North	Cuckmere from Warbleton to Lower Horsebridge	Study and Investigation to understand the impact of wastewater discharges on the local environment and identify measures required to achieve good ecological status in the receiving waterbody	£75K	AMP8	Environment Agency	PO9
HAIN.OT01.5	Cuckmere and Pevensey Levels	Hailsham North	System Wide	Improve the Hydraulic Model: Surveys and reverification of model to improve confidence and accuracy	£300K	AMP8	-	PO4 PO5 PO7 PO10
HAIN.WINEP01.1	Cuckmere and Pevensey Levels	Hailsham North	UPPER HORSEBRIDGE CEO	Reduce the number of storm discharges from UPPER HORSEBRIDGE CEO by a combination of SuDS and storage options	£5,045K	AMP11	-	PO4 PO5 PO7
HAIN.WINEP01.2	Cuckmere and Pevensey Levels	Hailsham North	HAILSHAM NORTH SSO	Reduce the number of storm discharges from HAILSHAM NORTH SSO by a combination of SuDS and storage options	£1,990K	AMP8	-	PO4 PO5 PO7
HAIN.WINEP01.3	Cuckmere and Pevensey Levels	Hailsham North	HAILSHAM NORTH CEO	Reduce the number of storm discharges from HAILSHAM NORTH CEO by a combination of SuDS and storage options	£1,070K	AMP11	-	PO4 PO5 PO7
HAIN.WINEP01.4	Cuckmere and Pevensey Levels	Hailsham North	UPPER DICKER CEO	Reduce the number of storm discharges from UPPER DICKER CEO by creating below-ground storage	£835K	AMP10	-	PO5
HAIN.WINEP01.5	Cuckmere and Pevensey Levels	Hailsham North	AMBERSTONE VIEW HAILSHAM NEW CSO	Reduce the number of storm discharges from AMBERSTONE VIEW HAILSHAM NEW CSO by a combination of SuDS and storage options	£1,145K	AMP12	-	PO4 PO5 PO7

Drainage and Wastewater Management Plan: Location of Potential Options HAILSHAM NORTH Wastewater system in Cuckmere and Pevensey Levels River Basin Catchment

from Southern Water

(i) This map should be read in conjunction with the list of Investment Needs for this wastewater system
(ii) The areas shown on this map are the potential locations for the options. The location of the risk may be elsewhere in the system.
(iii) Labels for each location are the option references in the list of Investment Needs
(iv) Drainage Area Plan (DAP) options on flooding and growth are not shown.



- Customer Education
- Pipe Rehabilitation
- Asset Resilience
- Wastewater Treatment
- WINEP Nutient Neutrality
- WINEP Storm Overflows