



Drainage and Wastewater Management Plan

Lidsey
Wastewater System Plan



from
**Southern
Water** 

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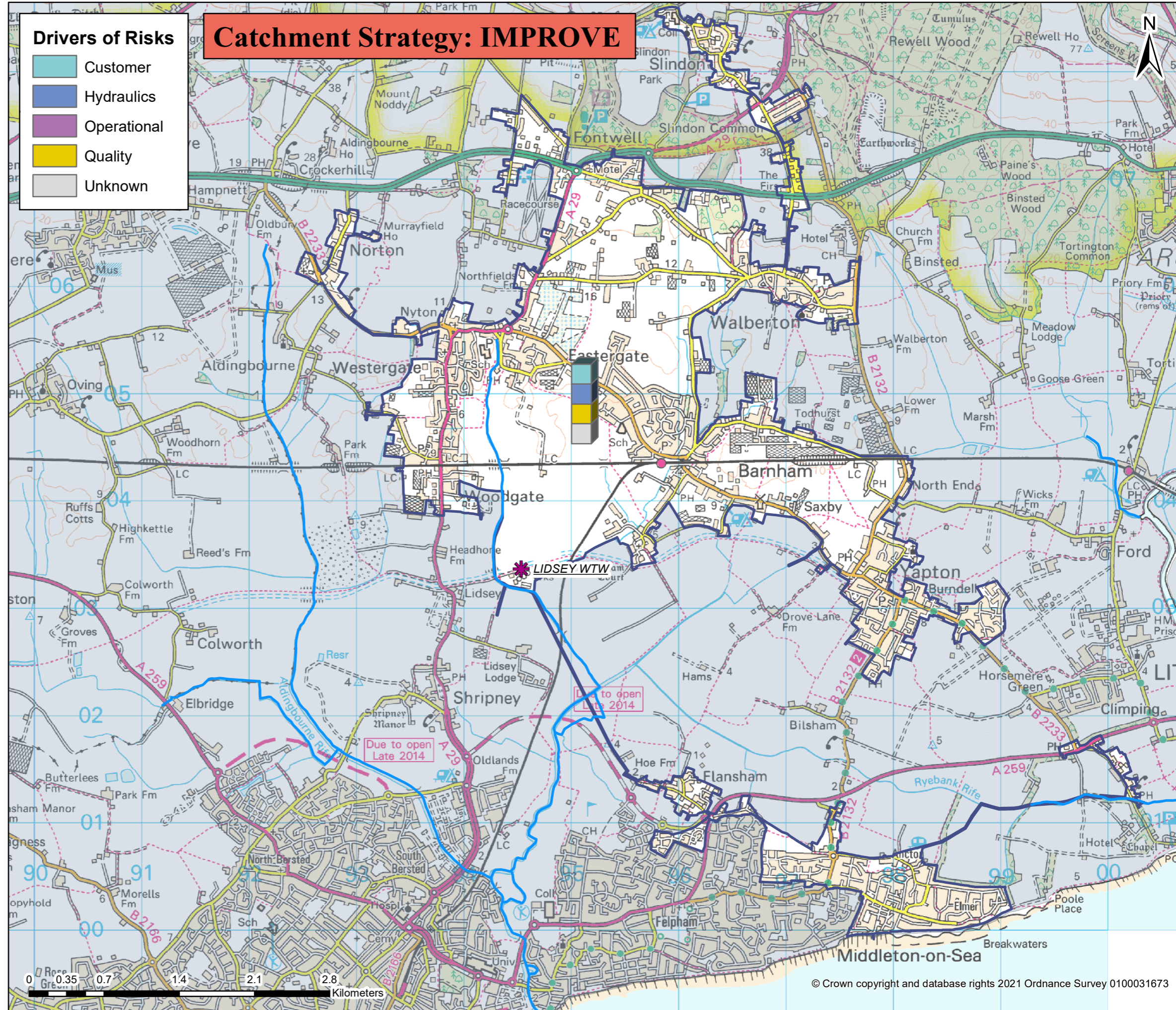
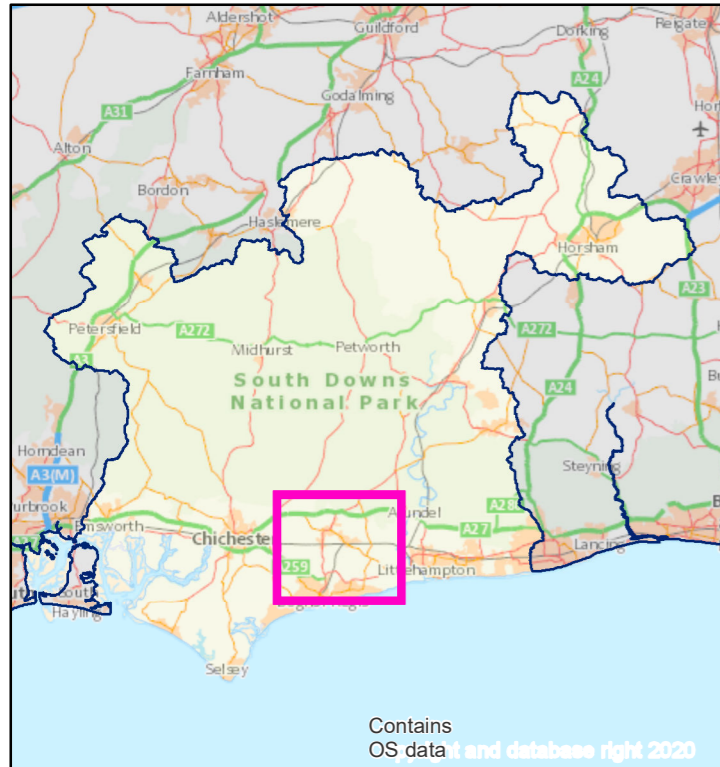
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Lidsey wastewater system: map and key facts



Population Equivalent (PE)	21,708
Discharge Waterbody	Lidsey Rife
Number of Pumping Stations	25
Number of Overflows	5
Length of Sewer (km)	199.7
Catchment Reference	LIDS

BRAVA Results Table		
Planning Objective	2020	2050
1 Internal Sewer Flooding Risk	0	
2 Pollution Risk	2	
3 Sewer Collapse Risk	0	
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	0
7 Risk of flooding due to Hydraulic Overload	1	2
8 Dry Weather Flow Compliance	1	2
9 Good Ecological Status / Potential	1	
10 Surface Water Management	0	
11 Nutrient Neutrality	2	2
12 Groundwater Pollution	0	
13 Bathing Waters	2	
14 Shellfish Waters	NA	



Problem Characterisation

Lidsey (LIDS)

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 Lidsey wastewater system

Planning Objectives		2020	Driver	2050
1	Internal Sewer Flooding Risk	0	-	
2	Pollution Risk	2	Customer	
3	Sewer Collapse Risk	0	-	
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	-	0
7	Flooding due to Hydraulic Overload	1	Hydraulic	2
8	WTW Dry Weather Flow Compliance	1	Quality	2
9	Good Ecological Status / Good Ecological Potential	1	Quality	
10	Surface Water Management	0	-	
11	Nutrient Neutrality	2	Unknown	2
12	Groundwater Pollution	0	-	
13	Bathing Waters	2	Customer	
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

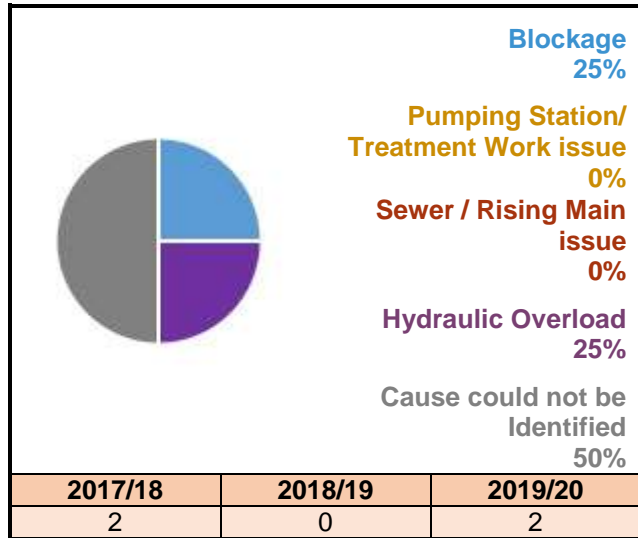
This means that we consider that the current performance of the drainage and wastewater system needs to be improved to reduce the impacts on our customers and/or the environment. We will plan investment to reduce the current risks by actively looking to invest capital funding in the short term to address 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 less than 1.68 incidents per 10,000 connections per year (a threshold set by Ofwat) so the risk is in the 'not significant' band.

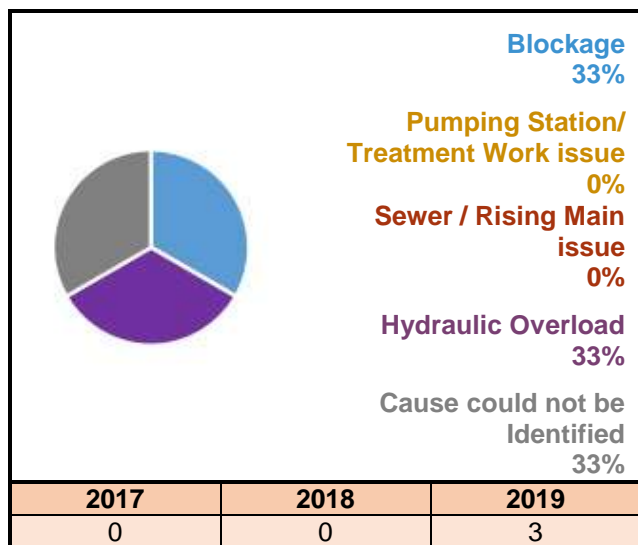
Figure 1: Number of internal flooding incidents per annum and causes



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.

Figure 2: Number of pollution incidents per annum and causes



The primary driver for pollution 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.

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 less than 5.72 incidents per 1,000km per year (a threshold set by Ofwat) so the risk is in the 'not significant' band.

Table 2: Sewer collapses and rising main bursts

Sewer Collapse	2017/18	0
	2018/19	0
	2019/20	0
Rising Main Bursts	2017/18	1
	2018/19	2
	2019/20	0

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 300 - 400 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 600 - 700 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 both 2020 and 2050. This is because the wastewater treatment works has no record of compliance failure during the last three years (2018-2020).

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 moderately significant in 2020. The risk 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	13	76	8	48
1 in 2	20	96	8	38
1 in 5	123	221	22	40
1 in 10	174	336	17	32
1 in 20	280	446	14	22
1 in 30	328	514	11	17
Total Annualised			79	196

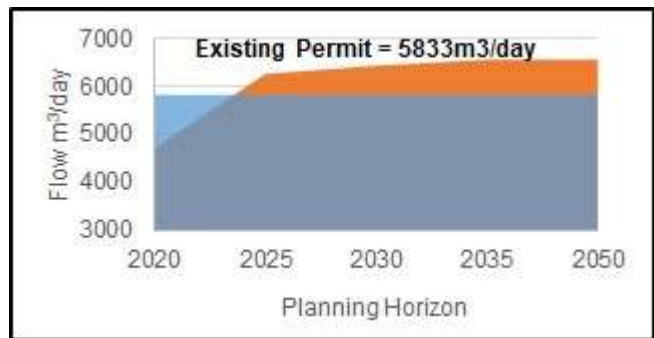
This indicates that the existing capacity of the wastewater network can be exceeded during 1 in 30 year storms (or more frequent events), and that the risk will increase due to future growth, creep and/or climate change by 2050.

Planning Objective 8: Wastewater Treatment Works Dry Weather Flow Compliance

The risk of Wastewater Treatment Works Dry Weather Flow Compliance is moderately significant for 2020 but is predicted to increase to very significant in 2050. This is because the average annual dry weather flow for 2017, 2018 and 2019 has been between 80% and 100% of the current permit, shown in Figure 3. This is because the predicted DWF in 2050 might exceed the current permit.

The primary driver is 'Quality' due to the permit and capacity at the treatment work.

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



Planning Objective 9: Good Ecological Status / Good Ecological Potential

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.

Table 5: Waterbodies not achieving GES/GEP

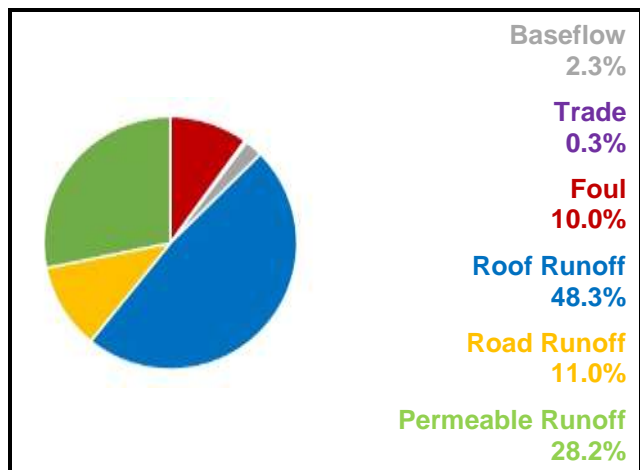
Waterbody	Classification	EA-Status	Activity
Lidsey Rife	Phosphate	Poor	Sewage discharge (continuous)

The primary driver is 'Quality'.

Planning Objective 10: Surface Water Management

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 87.5% of the flow in the sewers. The total contribution of foul water from homes is 10.0% with business contributing 0.3%. The baseflow is infiltration from water in the ground and makes up 2.3% 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 very significant in 2020 and 2050. This is because Natural England have advised that there is a risk to condition for the habitat sites that are hydraulically linked to our wastewater system, listed in Table 6.

Table 6: Habitat Sites hydraulically linked to wastewater system

Habitat Sites	
Solent and Dorset Coast	Nitrate permit review required Overflow Spills

Planning Objective 12: Groundwater Pollution

The risk of Groundwater Pollution is not significant. Although our wastewater network crosses over Source Protection Zones (SPZ) used for water supply, there is no evidence to suggest our network is leaking into these SPZs.

Planning Objective 13: Bathing Waters

The designated bathing waters that could be affected by discharges from this wastewater system are shown in Table 7, along with the current classification from the Environment Agency. The risks from this wastewater system on Felpham, Bognor Regis East bathing waters has led to an assessment of is very significant.

Table 7: Bathing Water annual results

Bathing Waters	Annual Results		
	2017	2018	2019
Felpham	Sufficient	Sufficient	Sufficient
Bognor Regis East	Good	Excellent	Good
Middleton-on-sea	Excellent	Excellent	Excellent

The primary driver is ‘Customer’ due to suspected foul to surface water misconnections as well as suspected agriculture affecting the bathing waters in this wastewater system.

Planning Objective 14: Shellfish Waters

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

Generic Options Assessment for: Lidsey (LIDS)



Planning Objectives		2020	Driver	2050	Type of Measures	Generic Option Categories	Icon	Take Forward?	Reasons	Examples of Generic Options
PO1	Internal Flooding	0	-	-	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
PO2	Pollution Risk	2	Customer	-		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
PO3	Sewer Collapse	0	-	-		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
PO4	Risk of Sewer Flooding in 1 in 50 yr	1	Hydraulic	1		Reduce the quantity / demand		Y	-	Water efficient appliances; water efficient measures; blackwater and/or greywater re-use; treatment at source
PO5	Storm Overflow Performance	2	Hydraulic	2	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.
PO6	Risk of WTW Compliance Failure	0	-	0		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
PO7	Annualised Flood Risk/Hydraulic Overload	1	Hydraulic	2		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
PO8	DWF Compliance	1	Quality	2	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
PO9	Achieve Good Ecological Status	1	Quality	-		Improve Land and Soils		N/A	Not included in first round of DWMPs	Sludge soil enhancement
PO10	Improve Surface Water Management	0	-	-		Mitigate impacts on receiving waters		Y	-	River enhancement, aeration
PO11	Secure Nutrient Neutrality	2	Unknown	2		Reduce impact on properties		Y	-	Property flood resilience; non-return valves; flood guards / doors; air brick covers
PO12	Reduce Groundwater Pollution	0	-	-	Other	Study / Investigation		Y	-	Additional data required; hydraulic model development; WQ monitoring and modelling
PO13	Improve Bathing Water Quality	2	Customer	-						
PO14	Improve Shellfish Water Quality	NA	-	-						

Lidsey 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	LIDS FC01_1 - West Barnham,	PO4 and PO7 Flooding	LIDS.SC01.1	Surface Water Separation	DAP Option.	Yes	No					Feasibility and Risk
Control/ Reduce surface water entering the sewers	LIDS FC03_1 - The Hard,	PO4 and PO7 Flooding	LIDS.SC01.2	Surface Water Separation	DAP Option.	Yes	No					Feasibility and Risk
Control/ Reduce surface water entering the sewers	LIDS FC03_2 - The Hard,	PO4 and PO7 Flooding	LIDS.SC01.3	Surface Water Separation	DAP Option.	Yes	No					Feasibility and Risk
Control / Reduce groundwater infiltration												
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	Catchment Wide	PO2- Pollution Risk	LIDS.SC03.1	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	LIDSEY WTW	PO8 (2050)- Dry Weather Flow	LIDS.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)	Catchment Wide	PO2- Pollution Risk	LIDS.PW01.1	Additional Storage	Additional Storage.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO8 (2050)- Dry Weather Flow	LIDS.PW01.2	Pipe Rehabilitation Programme	Relining/improving structural grades of sewers across the catchment.	No						Deliver the required outcome
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO2- Pollution Risk	LIDS.PW01.3	Jetting Programme	Jetting Programme.	Yes	Yes	Yes	Minor Positive +	£10K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	LIDS FC01_1 - West Barnham,	PO4 and PO7 Flooding	LIDS.PW01.4	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,040K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	LIDS FC03_1 - The Hard,	PO4 and PO7 Flooding	LIDS.PW01.5	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,695K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	LIDS FC03_2 - The Hard,	PO4 and PO7 Flooding	LIDS.PW01.6	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£520K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	LIDSEY WTW	PO8 (2050)- Dry Weather Flow	LIDS.PW02.1	Permit Review	Proposed permit-8567m3.	Yes	Yes	Yes	Minor Positive +	£2,140K	Yes	Best Value
Wastewater Transfer	LIDSEY WTW	PO8 (2050)- Dry Weather Flow	LIDS.PW03.1	Construct New WPS & Rising Main	No other WTWs are within a 20km radius of LIDSEY WTW with spare capacity to take DWF.	No						Technically feasible, Cost Effective, Deliver the required outcome, Do customer support it and Risk and uncertainty - future resilience
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)	Eastergate Lane	PO1- Internal Flooding	LIDS.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						Deliver the required outcome, Environmental risk mitigatable, Do customer support it and Risk and uncertainty - future resilience
Study/ investigation to gather more data	Manual Exercise	PO2- Pollution Risk	LIDS.OT01.1	Investigation into causes	Further investigation to identify the cause of the pollution incident.	No						Cost Effective
Study/ investigation to gather more data	Catchment Wide	PO8 (2050)- Dry Weather Flow	LIDS.OT01.2	Infiltration Reduction Plan	Relining/improving structural grades of sewers across the catchment.	No						Deliver the required outcome
Study/ investigation to gather more data	Lidsey Rife	PO9- GE Status / Potential Sewage discharge (continuous)	LIDS.OT01.3	Study and Investigation- Phosphate	Catchment was banded 1(moderated due to spare tertiary treatment capacity) in because; Lidsey Rife-Phosphate (Poor Sewage discharge (continuous)).	No						Technically feasible, Deliver the required outcome and Risk and uncertainty - future resilience
Study/ investigation to gather more data	Solent and Dorset Coast	PO9- GE Status / Potential Sewage discharge (continuous) PO11 - Nutrient Neutrality	LIDS.OT01.4	Nutrient Budget	For PO11 Catchment is Hydraulically linked to; Solent and Dorset Coast (Threat/Remedy Identified or Anticipated).	Yes	Yes	Yes	Major Positive +++	£75K	Yes	Best Value
Study/ investigation to gather more data	Catchment Wide	PO4- 1 in 50 year PO5- Storm Overflow PO7- Hydraulic Overload	LIDS.OT01.5	Improve Hydraulic Model	Improve Hydraulic Model.	Yes	Yes	Yes	Minor Positive +	£200K	Yes	Best Value
Study/ investigation to gather more data	LIDSEY WTW	PO5 - Storm Overflow	LIDS.OT01.6	Storage	Storage.	Yes	Yes	Yes	Minor Positive +	£1,000K	Yes	Best Value
Study/ investigation to gather more data	MARSHALL CLOSE BARNHAM CSO	PO5 - Storm Overflow	LIDS.OT01.7	Storage	Storage.	Yes	Yes	Yes	Minor Positive +	£1,000K	No	Best Value
Study/ investigation to gather more data	LIDS FC02_1 - Burndell Road,	PO4 and PO7 Flooding	LIDS.OT01.8	Study/Model investigation	DAP Option.	No						
Study/ investigation to gather more data	LIDS FC02_3 - Burndell Road,	PO4 and PO7 Flooding	LIDS.OT01.9	Study/Model investigation	DAP Option.	No						

Drainage and Wastewater Management Plan (DWMP)

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
Arun and Western Streams								
Lidsey								
LIDS.CONSO1.1	Arun and Western Streams	Lidsey	Flansham Road (2020)	Growth scheme from our Drainage Area Plan (DAP): Offline Storage or new WPS	£TBC	AMP10	-	PO2 PO4 PO7 PO8 PO9 PO11 PO13
LIDS.CONSO1.2	Arun and Western Streams	Lidsey	Flansham Road (2040)	Growth scheme from our Drainage Area Plan (DAP): Offline Storage or new WPS	£TBC	AMP10	-	PO2 PO4 PO7 PO8 PO9 PO11 PO13
LIDS.CONSO1.3	Arun and Western Streams	Lidsey	Yapton	Growth scheme from our Drainage Area Plan (DAP): Offline Storage, increased WPS capacity, or transfer to Ford WTW	£TBC	AMP10	-	PO2 PO4 PO7 PO8 PO9 PO11 PO13
LIDS.CONSO1.4	Arun and Western Streams	Lidsey	Flansham & Ancton	Growth scheme from our Drainage Area Plan (DAP): Transfer and increased pass forward flow, or offline storage tank	£TBC	AMP10	-	PO2 PO4 PO7 PO8 PO9 PO11 PO13
LIDS.CONSO1.5	Arun and Western Streams	Lidsey	Lidsey	Growth scheme from our Drainage Area Plan (DAP): Offline storage, transfer, upgrade to WPS, upsizing, and increased capacity at WTW	£TBC	AMP10	-	PO2 PO4 PO7 PO8 PO9 PO11 PO13
LIDS.WINEP01.1	Arun and Western Streams	Lidsey	LIDSEY SSO	Reduce impact from storm spills from LIDSEY SSO through wetland creation and/or sewer lining to reduce infiltration of groundwater	£8,665K	AMP8	-	PO5
LIDS.SC03.1	Arun and Western Streams	Lidsey	Barnham, Westergate	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	West Sussex County Council Arun District Council	PO2
LIDS.PW01.3	Arun and Western Streams	Lidsey	Barnham, Westergate	Enhanced Sewer Maintenance: Increase targeted sewer jetting to reduce the number of blockages in the network	£10K	AMP8 onwards	-	PO2
LIDS.PW01.4	Arun and Western Streams	Lidsey	West Barnham	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)	£1,040K	AMP9	West Sussex CC Arun DC	PO4 PO7
LIDS.PW01.5	Arun and Western Streams	Lidsey	The Elmer Hard i	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)	£1,695K	AMP9	West Sussex CC Arun DC	PO4 PO7
LIDS.PW01.6	Arun and Western Streams	Lidsey	The Elmer Hard ii	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)	£520K	AMP9	West Sussex CC Arun DC	PO4 PO7
LIDS.PW02.1	Arun and Western Streams	Lidsey	Lidsey WTW	Increase capacity to allow for planned new development	£2,140K	AMP9	Environment Agency	PO8
LIDS.OT01.5	Arun and Western Streams	Lidsey	System Wide	Improve the Hydraulic Model: Surveys and reverification of model to improve confidence and accuracy	£200K	AMP8	-	PO4 PO5 PO7
LIDS.OT01.10	Arun and Western Streams	Lidsey	System Wide - Yapton and Angmering	Study and Investigation: Investigate the risk of groundwater pollution	£TBC	AMP8	West Sussex County Council Arun District Council	PO8 PO12

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
LIDS.WINEP01.2	Arun and Western Streams	Lidsey	MARSHALL CLOSE BARNHAM CSO	Reduce the number of storm discharges from MARSHALL CLOSE BARNHAM CSO by creating below-ground storage	£1,065K	AMP8	-	PO5
LIDS.WINEP.PO2.1	Arun and Western Streams	Lidsey	Lidsey WTW	Action to reduce total phosphorus and/or total nitrogen levels from discharges which drain to internationally designated sites where there is a risk from nutrients	£14,705K	AMP10	-	PO9 PO11
LIDS.WINEP.PO2.2	Arun and Western Streams	Lidsey	Lidsey WTW	Optimisation of existing assets to achieve 14mg/l BOD (WINEP action 08SO104042)	£763k	AMP8	-	PO9 PO11
LIDS.WINEP01.3	Arun and Western Streams	Lidsey	ANCTON LANE MIDDLETON ON SEA CSO	Reduce impact from storm spills from ANCTON LANE MIDDLETON ON SEA CSO through wetland creation and/or sewer lining to reduce infiltration of groundwater	£3,880K	AMP12	-	PO5
LIDS.WINEP01.4	Arun and Western Streams	Lidsey	HOBBS COTTAGE CLIMPING CEO	Reduce impact from storm spills from HOBBS COTTAGE CLIMPING CEO through wetland creation and/or sewer lining to reduce infiltration of groundwater	£4,530K	AMP11	-	PO5