

320Tables	Outcome Summary – Scenario A		
Table	<b>Table 1 – Pollution Incidents</b>	AMP8	AMP9+
Lines	1a – Pollution incidents – baseline		
	1b – Pollution incidents – base		
	1c – Pollution incidents – post enhancement		
	1ci – Pollution incidents – enhancement cost CAPEX		
	1cii – Pollution incidents – enhancement cost OPEX		
	1ciii – Pollution incidents – enhancement costs TOTEX		
Data Owner	Steve Rosser		
Senior Manager	Mark Worsfold		
Executive Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

**COMMENTARY**

**Line 1 – pollution incidents**

**1. Overall summary**

We have an established pollution incident reduction plan (PIRP) in AMP7 which aims effect the step change in performance required to achieve our 2025 performance commitment (PC) of 19.5 incidents per 10,000km sewer. Our DWMP strategy builds on this approach through the adoption of risk-based catchment planning to ensure investments to reduce storm overflow spills are optimised to deliver additional pollution and flooding benefits. Our overall aim is to reduce pollution incidents by a minimum of 30% to 13.6 per 10,000km sewer by 2030, and to sustain this enhanced performance standard through to 2050.

As noted in the RAID section below, our table forecasts do not allow for changes in the Category 4 incident classification, or inclusion of EDM/FFT monitoring to identify unauthorised discharges.

ID	Outcome	Description	Unit	AMP7							AMP8					AMP9					AMP10	AMP11	AMP12	Total 25 yr
				Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2930)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)					
1a	Pollution incidents - baseline	Number of category 1-3 pollution incidents per 10,000km of wastewater network	nr	19.5	23.66	27.82	31.98	36.14	40.3	40.3	44.3	48.5	52.6	56.8	60.3	60.3	79.6	98.1	116.1	116.1				
1b	Pollution incidents - base	Number of category 1-3 pollution incidents per 10,000km of wastewater network (excluding impact of AMP8 onwards enhancements)	nr	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5				
1c	Pollution incidents – post enhancement	Number of category 1-3 pollution incidents per 10,000km of wastewater network (including impact of AMP8 onwards enhancements)	nr	19.5	18.3	17.1	15.9	14.7	13.6	13.6	13.6	13.7	13.7	13.7	13.7	13.7	13.9	13.6	13.8	13.8				
1ci	Pollution incidents - enhancement cost	capex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0				
1cii	Pollution incidents - enhancement cost	opex	£m	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00				
1ciii	Pollution incidents - enhancement cost	totex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0				

**All scenarios**

**2. Line specifics**

Line 1a baseline – Our 2024-25 PC is 19.5 incidents per 10,000km sewer and without further intervention above our current 2020 levels this performance is predicted to deteriorate substantially, risk would broadly double to 40.3 incidents per 10,000km by 2030, and continue on that trajectory to 116.1 per 10,000km by 2050.

Line 1b base – From a starting position of 19.5 incidents per 10,000km sewer at 2024-25 our base investment will mitigate asset deterioration risks and maintain pollution performance at 19.5 incidents per 10,000km between 2030 and 2050.

Line 1c post enhancement – The DWMP enhancement programme to reduce storm overflow spills has substantial synergies and overlaps with high service failure risk catchments and asset groups. Adoption of catchment-based planning and targeting solutions addressing the root cause of related service failures will provide additional pollution performance benefits to deliver a 30% improvement to 13.6 incidents per 10,000km sewer by 2030, and holding this performance broadly stable to 2050.

Lines 1ci enhancement costs capex – There is no capex for pollution incidents as improved performance is funded from other planning objectives, predominantly storm overflows.

Lines 1cii enhancement costs Opex – There is no Opex for pollution incidents as improved performance is funded from other planning objectives, predominantly storm overflows.

Lines 1ciii enhancement costs Totex – Totex is zero.

### **3. RAID - Risks Assumptions Issues Dependencies**

Assumption – Pollution incident reduction plan (PIRP) and funding continues through to 2025

Risk – The EA may introduce new EDM/FFT monitoring to identify unauthorised discharges which would substantially increase overall pollution risk

Risk – The EA are reviewing CICS to remove the option to have incidents downgraded from Cat 3 to Cat 4 this would substantially increase overall pollution risk

Risk – Performance forecasts only allows for a marginal increase in risk due to inclusion of the Isles of Scilly within pollution reporting, this remains a relative unknown factor

Dependency – Forecast performance profiles are dependent upon the 30% additional sewer lengths identified being accepted for normalisation from 2025

Tables	Outcome Summary – Scenario A		
Table	<b>Table 2 – Compliance at WwTWs</b>	AMP8	AMP9+
Lines	2a – Compliance at WwTWs – baseline		
	2b – Compliance at WwTWs – base		
	2c – Compliance at WwTWs – post enhancement		
	2ci – Compliance at WwTWs – enhancement cost CAPEX		
	2cii – Compliance at WwTWs – enhancement cost OPEX		
	2ciii – Compliance at WwTWs – enhancement costs TOTEX		
Data Owner	Jane O’Connor		
Senior Manager	Mark Worsfold		
GEX Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

**COMMENTARY**

**Line 2 – compliance at WwTWs**

**1. Overall summary**

Our latest compliance performance at Waste Water Treatment Works (WWTW) for 2022 is 99.4% which is within the 99% deadband and reflects the improvements delivered by WINEP, UIMP5, UIMP6 programmes and our prioritised capital maintenance programme in the current AMP7 period. The 100% compliance performance commitment (PC) for 2024 will be met through the active management of some high risk WWTWs.

The delivery of enhanced performance standards to meet new legislative drivers for the 2025-50 period and maintain performance within the anticipated deadband of 99% (whilst targeting 100% compliance), will be achieved by the enhancement plan and associated £1.002bn capital investment, which is profiled to minimise modelled risks, and promote efficient delivery.

In addition, the separate supply demand and capital maintenance programmes will ensure standards of asset health are maintained and process headroom maintained while enhanced programme is delivered.

**Scenario 1a:**

Outcome	Description	Unit	Scenario 1a Performance																
			Forecast 2024-25	AMP7			AMP8					AMP9					AMP10		
			2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2029)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)		
2a	Compliance at WwTWs - baseline	%	100.00%	99.87%	99.76%	99.62%	99.49%	99.36%	99.23%	99.10%	98.98%	98.85%	98.72%	98.72%	98.00%	97.64%	96.80%	96.80%	
2b	Compliance at WwTWs - base	%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
2c	Compliance at WwTWs - post enhancement	%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
2ci	Compliance at WwTWs - enhancement cost CAPEX	£m	£0	£30	£39	£39	£38	£39	£39	£32	£34	£36	£48	£122	£242	£395	£390	£1,002	
2cii	Compliance at WwTWs - enhancement cost OPEX	£m	£5.00	10.12	10.37	10.73	11.22	12.44	£4.88	£2.68	£2.93	£3.18	£3.43	£3.68	£15.90	£22.12	£27.39	£32.79	
2ciii	Compliance at WwTWs - enhancement cost TOTEX	£m	£0	£30	£39	£39	£38	£39	£39	£32	£37	£39	£52	£124	£237	£333	£338	£1,235	

Scenario 1a assumes a 25-year storm overflow spill reduction plan from 2025 to 2050.

**2. Line specifics**

Line 2a baseline – Our 2024-25 PC forecast is 100% compliance and without further intervention, performance is predicted to deteriorate to 99.36% by 2030 and to 96.80% by 2050.

Line 2b base – From a starting position of 100% compliance in 2024-25 our base investment is expected to offset deterioration to maintain 100% compliance with current performance standards to 2050.

Line 2c enhancement – The WINEP enhancement plan will deliver targeted investment to achieve enhanced Chemicals, Nutrient reductions and FFT compliance standards, and provide additional support to maintain 100% regulatory compliance between 2025 and 2050.

Lines 2ci enhancement cost Capex – Overall investment of £1.002bn is profiled to deliver £190M of capital improvements during AMP8, £241M during AMP9 and in the region of £190M per AMP for the periods AMP10 to 12. This has been profiled to manage the timing of emerging risks but also to ramp up supply chain and deliver relatively early in the 25-year period.

Line 2cii enhancement cost Opex – Opex investment covers the maintenance costs for new storm overflow assets constructed at WWTWs to reduce storm overflow spill. Costs are profiled in line with the storm overflow improvement plan, increasing cumulatively as more assets are constructed. In scenario 1a £4.88M additional Opex is planned for AMP8, £15.9M for AMP9 and £22.12M for AMP10, £27.69M for AMP11 and £32.78M for AMP12.

Line 2ciii enhancement cost Totex – Totex is the sum of Capex and Opex, the 25-year total is £1.105bn.

**Scenario’s 1b, 2, 3, 4, 5, 6:**

Outcome	Description	Unit	AMP7	AMP8					AMP9					AMP10					AMP11					AMP12					Total 25 yr
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)											
2a	Compliance at WwTWs - baseline	WwTW compliance with permit conditions from base expenditure	%	100.00%	99.87%	99.74%	99.62%	99.49%	99.36%	99.36%	99.23%	99.10%	98.97%	98.85%	98.72%	98.72%	98.00%	97.44%	96.80%	96.80%									
2b	Compliance at WwTWs - base	WwTW compliance with permit conditions from base expenditure (including impact of AMP8 onwards enhancements)	%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%									
2c	Compliance at WwTWs - post enhancement	WwTW compliance with permit conditions following enhancement expenditure (including impact of AMP8 onwards enhancements)	%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%									
2ci	Compliance at WwTWs - enhancement cost	capex	£m	£0	£30	£19	£29	£38	£95	£190	£12	£24	£36	£48	£121	£241	£190	£190	£190	£1,002									
2cii	Compliance at WwTWs - enhancement cost	opex	£m	£0.00	£0.12	£0.37	£0.72	£1.12	£1.44	£4.88	£1.90	£3.26	£3.82	£4.29	£4.79	£23.09	£32.36	£34.90	£34.90	£23.90									
2ciii	Compliance at WwTWs - enhancement cost	totex	£m	£0.00	£9.6	£19.4	£29.2	£39.2	£97.4	£194.9	£15.0	£27.5	£40.0	£52.4	£125.2	£260.1	£221.4	£224.8	£224.8	£1,126.9									

**3. Line specifics**

Line 2a baseline – This is the same as scenario 1a

Line 2b base – This is the same as scenario 1a

Line 2c enhancement – This is the same as scenario 1a

Lines 2ci enhancement cost Capex – Overall investment of £1.002bn is the same as scenario 1a.

Line 2cii enhancement cost Opex – Costs are profiled in line with the storm overflow improvement plan, increasing cumulatively as more assets are constructed. In these scenario’s the Opex profile is £4.88M in AMP8, £19.06M for AMP9 and £30.36M for AMP10 and £34.8M for AMP11 and AMP12.

Line 2ciii enhancement cost Totex - Totex is the sum of Capex and Opex, the 25-year total is £1.126bn.

### 3. RAID - Risks Assumptions Issues Dependencies

**Assumption** – WINEP, UIMP5, UIMP6 programmes and funding continues

**Assumption** – Compliance % projections based on no change to total WWTW numbers (additional works and consolidation schemes are possible in some cases)

**Risk** – Baseline performance deteriorates more than expected (e.g., population growth exceeds forecast)

**Risk** – Programme costs increase so fewer outputs are delivered for same cost

**Risk** – Future compliance standards tighten and plans insufficient to maintain compliance performance

**Issue** – The Isles of Scilly have been included in DWMP, but detailed costs are being prepared as part of the PR24 programme. SWW became the water and wastewater service provide for the IoS, in April 2020, after the DWMP process for Cycle 1 had started so have been managed outside of the Water UK Framework for DWMP.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 3 – Risk of Sewer flooding in a 1 in 50 storm</b>	AMP8	AMP9+
Lines	3a – Risk of Sewer flooding in a 1 in 50 storm – baseline		
	3b – Risk of Sewer flooding in a 1 in 50 storm – base		
	3c – Risk of Sewer flooding in a 1 in 50 storm – post enhancement		
	3ci – Risk of Sewer flooding in a 1 in 50 storm – enhancement cost CAPEX		
	3cii – Risk of Sewer flooding in a 1 in 50 storm – enhancement cost OPEX		
	3ciii – Risk of Sewer flooding in a 1 in 50 storm – enhancement costs TOTEX		
Data Owner	Jane O’Connor		
Senior Manager	Mark Worsfold		
GEX Director	Lisa Gahan		

Key to completion guidance

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COMMENTARY

Line – Risk of Sewer flooding in a 1 in 50 storm

1. Overall summary

This measure is closely related to the internal sewer flooding outcome, representing the modelled risk of flooding impacting a property due to lack of sewer capacity, this is an area where we have invested substantially over the last 15 years. Our current forecast for 2024-25 is 9.8% properties at risk in a 50-year storm.

Scenario 1a/1b

Outcome	Description	Unit	Forecast 2024-25	AMPS						AMPS						AMPS			Total 25 yr
				2025-26	2026-27	2027-28	2028-29	2029-30	Total AMPS (2025-2830)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMPS (2030-32)	Total AMPS10 (2025-40)	Total AMPS11 (2040-42)	Total AMPS12 (2045-50)	
3a	Risk of Sewer flooding in a 1 in 50 storm - baseline	%	9.80%	9.84%	9.88%	9.92%	9.96%	10.00%	10.00%	10.04%	10.08%	10.12%	10.16%	10.20%	10.20%	10.40%	10.60%	10.80%	10.80%
3b	Risk of Sewer flooding in a 1 in 50 storm - base	%	9.80%	9.83%	9.87%	9.90%	9.94%	9.97%	9.97%	10.00%	10.04%	10.07%	10.11%	10.14%	10.14%	10.31%	10.48%	10.65%	10.65%
3c	Risk of Sewer flooding in a 1 in 50 storm - post enhancement	%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%
3ci	Risk of Sewer flooding in a 1 in 50 storm	£m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
3cii	Risk of Sewer flooding in a 1 in 50 storm	£m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
3ciii	Risk of Sewer flooding in a 1 in 50 storm	£m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Scenarios 1a/1b assume a 2 degree rise in temperature (low climate change scenario) resulting in a predicted increase in properties at risk of 1 in 50-year storm flooding of 0.04% per year for the next 25 years up to 10.8% in 2050. Our Base sewer flooding investment outside the DWMP will provide a marginal performance benefit from Baseline. However, more substantial benefits will arise from the storm overflow reduction plan which will prioritise catchment separation and flow reduction and enable risk to be maintained at no more than 9.8% properties out to 2050.

## 2. Line specifics

Line 3a baseline – With no additional investment above 2020 levels the effects of urban creep and 2 degrees rise in temperature are forecast to increase risk from 9.8% properties at risk in a 50-year storm in 2025, to 10% of properties by 2030, and 10.8% by 2050.

Line 3b base – There is currently a modest internal sewer flooding programme outside DWMP investment which targets properties at risk of flooding to lack of sewer capacity. This is forecast to marginally offset baseline deterioration, to 9.97% of properties at risk in a 50-year storm in 2030, and 10.65% by 2050.

Line 3c enhancement – The DWMP enhancement programme to reduce storm overflow spills will provide cumulative flood reduction benefits through the adoption of surface water separation and nature-based solutions which is expected to offset base deterioration. Our target is to hold the number of properties at risk of flooding in a 50-year storm at 9.8% through to 2050.

Lines 3ci enhancement cost CAPEX – There is no capex in scenarios 1a and 1b

Line 3cii enhancement cost OPEX – There is no Opex in scenarios 1a and 1b

Line 3ciii enhancement cost TOTEX - There is no Totex in scenarios 1a and 1b

## Scenario 2:

Outcome	Description	Unit	AMPS											Total							
			Forecast 2023-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMPS (2025-2028)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMPS (2030-35)	Total AMPS (2035-40)	Total AMPS (2040-45)	Total AMPS (2045-50)	Total 25 yr		
3a	Risk of Sewer Flooding in a 1 in 50 storm - baseline	%	9.80%	9.93%	10.06%	10.18%	10.31%	10.44%	10.44%	10.57%	10.70%	10.82%	10.95%	11.08%	11.08%	11.22%	11.36%	11.50%	11.65%	11.80%	11.95%
3b	Risk of Sewer Flooding in a 1 in 50 storm - base	%	9.80%	9.92%	10.04%	10.16%	10.28%	10.40%	10.40%	10.52%	10.65%	10.77%	10.89%	11.01%	11.01%	11.14%	11.27%	11.40%	11.53%	11.66%	11.79%
3c	Risk of Sewer Flooding in a 1 in 50 storm - good enhancement	%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%	9.80%
3ci	Risk of Sewer Flooding in a 1 in 50 storm - enhancement cost	£m	£0.0	£12.5	£25.0	£37.5	£50.0	£125.0	£250.0	£12.5	£25.0	£37.5	£50.0	£125.0	£250.0	£250.0	£250.0	£250.0	£250.0	£250.0	£1,250.0
3cii	Risk of Sewer Flooding in a 1 in 50 storm - enhancement cost	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
3ciii	Risk of Sewer Flooding in a 1 in 50 storm - enhancement cost	£m	£0.0	£12.5	£25.0	£37.5	£50.0	£125.0	£250.0	£12.5	£25.0	£37.5	£50.0	£125.0	£250.0	£250.0	£250.0	£250.0	£250.0	£250.0	£1,250.0

Scenario 2 assumes a 4 degree rise in temperature (high climate change scenario) resulting in a predicted increase in properties at risk of 1 in 50-year storm flooding of approximately 0.13% per year for the next 25 years up to 13% in 2050. This scenario also includes a modest investment of £1.25bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, this will mitigate deterioration and enable risk to be maintained at no more than 9.8% properties at out to 2050.

## 3. Line specifics

Line 3a baseline – With no additional investment above 2020 levels the effects of urban creep and 4 degrees rise in temperature are forecast to increase risk from 9.8% properties at risk in a 50-year storm in 2025, to 10.44% of properties by 2030, and 13% by 2050.

Line 3b base – There is currently a modest internal sewer flooding programme outside DWMP investment which targets properties at risk of flooding to lack of sewer capacity. This is forecast to marginally offset baseline deterioration, to 10.40% of properties at risk in a 50-year storm in 2030, and 12.82% by 2050.

Line 3c enhancement – Modest investment of £1.25bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, plus the benefits of the storm overflow spills reduction plan is expected to offset this accelerated baseline deterioration. Our target is to hold the number of properties at risk of flooding in a 50-year storm at 9.8% through to 2050.

Lines 3ci enhancement cost CAPEX – The enhancement plan includes £250m capex per AMP targeted at 1 in 50-year storm flooding, £1.25bn overall to 2050.

Line 3cii enhancement cost OPEX – There is no Opex in scenarios 2 as the investment will be in separation and flow reduction rather than storage.

Line 3ciii enhancement cost TOTEX – Overall Totex is £250m per AMP, £1.25bn overall to 2050.

**Scenario 3:**

Outcome	Description	Unit	Forecast 2023-25	AMP7					AMP8					AMP9					Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	Total 25 yr
				2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-40	2040-45	2045-50							
3a	Risk of Sewer flooding in a 1 in 50 storm - baseline	%	9.80%	9.84%	9.88%	9.92%	9.96%	10.00%	10.00%	10.04%	10.08%	10.12%	10.16%	10.20%	10.20%	10.40%	10.60%	10.80%	10.80%	10.80%			
3b	Risk of Sewer flooding in a 1 in 50 storm - base	%	9.80%	9.83%	9.87%	9.90%	9.94%	9.97%	9.97%	10.00%	10.04%	10.07%	10.11%	10.14%	10.14%	10.31%	10.48%	10.65%	10.65%	10.65%			
3c	Risk of Sewer flooding in a 1 in 50 storm - post enhancement	%	9.80%	9.61%	9.42%	9.22%	9.03%	8.84%	8.84%	8.65%	8.46%	8.46%	8.26%	8.26%	8.26%	7.30%	6.34%	5.00%	5.00%	5.00%			
3ci	Risk of Sewer flooding in a 1 in 50 storm - enhancement cost	£m	£0	£23	£45	£68	£90	£115	£150	£23	£45	£68	£90	£115	£450	£450	£450	£450	£2,250				
3cii	Risk of Sewer flooding in a 1 in 50 storm - enhancement cost	£m	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0			
3ciii	Risk of Sewer flooding in a 1 in 50 storm - enhancement cost	£m	£0	£23	£45	£68	£90	£115	£150	£23	£45	£68	£90	£115	£450	£450	£450	£450	£2,250				

Scenario 3 assumes a 2 degree rise in temperature (low climate change scenario) resulting in a predicted increase in properties at risk of 1 in 50-year storm flooding of approximately 0.04% per year for the next 25 years up to 10.8% in 2050. This scenario also includes investment of £2.25bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, this will mitigate deterioration and broadly halve the overall risk down to 5% by 2050.

**4. Line specifics**

Line 3a baseline – With no additional investment above 2020 levels the effects of urban creep and 2 degrees rise in temperature are forecast to increase risk from 9.8% properties at risk in a 50-year storm in 2025, to 10% of properties by 2030, and 10.8% by 2050.

Line 3b base – There is currently a modest internal sewer flooding programme outside DWMP investment which targets properties at risk of flooding to lack of sewer capacity. This is forecast to marginally offset baseline deterioration, to 9.97% of properties at risk in a 50-year storm in 2030, and 10.65% by 2050.

Line 3c enhancement – Medium investment of £2.25bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, plus the benefits of the storm overflow spills reduction plan is expected to offset base deterioration and broadly halve the overall risk down to 5% by 2050.

Lines 3ci enhancement cost CAPEX – The enhancement plan includes £450m capex per AMP targeted at 1 in 50-year storm flooding, £2.25bn overall to 2050.

Line 3cii enhancement cost OPEX – There is no Opex in scenarios 2 as the investment will be in separation and flow reduction rather than storage.

Line 3ciii enhancement cost TOTEX – Overall Totex is £450m per AMP, £2.25bn overall to 2050.

**Scenarios 4,5 and 6:**



Outcome	Description	Unit	AMP7							AMP8							AMP9							Total AMP9 (2039-50)	Total AMP10 (2040-50)	Total AMP11 (2040-50)	Total AMP12 (2045-50)	Total 25 yr
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2039-50)	Total AMP10 (2040-50)	Total AMP11 (2040-50)	Total AMP12 (2045-50)										
3a	Risk of Sewer Flooding in a 1 in 50 storm - baseline	%	9.80%	9.92%	10.06%	10.28%	10.52%	10.64%	10.44%	10.57%	10.70%	10.82%	10.95%	11.08%	11.08%	11.22%	12.36%	13.00%	13.00%	13.00%	13.00%							
3b	Risk of Sewer Flooding in a 1 in 50 storm - base	%	9.80%	9.92%	10.04%	10.16%	10.28%	10.40%	10.40%	10.52%	10.65%	10.77%	10.89%	11.01%	11.01%	11.61%	12.22%	12.82%	12.82%	12.82%	12.82%							
3c	Risk of Sewer Flooding in a 1 in 50 storm - post enhancement	%	9.80%	9.61%	9.42%	9.22%	9.03%	8.84%	8.84%	8.65%	8.46%	8.26%	8.07%	7.88%	7.88%	6.92%	5.96%	5.00%	5.00%	5.00%	5.00%							
3ci	Risk of Sewer Flooding in a 1 in 50 storm - enhancement cost	£m	£0.0	£35.0	£70.0	£105.0	£140.0	£170.0	£700.0	£35.0	£70.0	£105.0	£140.0	£350.0	£700.0	£700.0	£700.0	£700.0	£700.0	£3,500.0								
3cii	Risk of Sewer Flooding in a 1 in 50 storm - enhancement cost	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0								
3ciii	Risk of Sewer Flooding in a 1 in 50 storm - enhancement cost	£m	£0.0	£35.0	£70.0	£105.0	£140.0	£170.0	£700.0	£35.0	£70.0	£105.0	£140.0	£350.0	£700.0	£700.0	£700.0	£700.0	£700.0	£3,500.0								

Scenarios 4, 5 and 6 all assume a 4 degree rise in temperature (high climate change scenario) resulting in a predicted increase in properties at risk of 1 in 50-year storm flooding of 0.13% per year for the next 25 years up to 13% in 2050. These scenarios also include a substantial investment of £3.5bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, this will mitigate accelerated deterioration and enable risk to be broadly halved to 5% by 2050.

**5. Line specifics**

Line 3a baseline – With no additional investment above 2020 levels the effects of urban creep and 4 degrees rise in temperature are forecast to increase risk from 9.8% properties at risk in a 50-year storm in 2025, to 10.44% of properties by 2030, and 13% by 2050.

Line 3b base – There is currently a modest internal sewer flooding programme outside DWMP investment which targets properties at risk of flooding to lack of sewer capacity. This is forecast to marginally offset baseline deterioration, to 10.40% of properties at risk in a 50-year storm in 2030, and 12.82% by 2050.

Line 3c enhancement – Substantial investment of £3.5bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, plus the benefits of the storm overflow spills reduction plan is expected to offset this accelerated baseline deterioration and enable risk to be broadly halved to 5% by 2050.

Lines 3ci enhancement cost CAPEX – The enhancement plan includes £700m capex per AMP targeted at 1 in 50-year storm flooding, £3.5bn overall to 2050.

Line 3cii enhancement cost OPEX – There is no Opex in scenarios 2 as the investment will be in separation and flow reduction rather than storage.

Line 3ciii enhancement cost TOTEX – Overall Totex is £700m per AMP, £3.5bn overall to 2050.

**6. RAID - Risks Assumptions Issues Dependencies**

Assumption – WINEP, UIMP5, UIMP6 programmes and funding continues

Assumption – Compliance % projections based on no change to total WWTW numbers (additional works and consolidation schemes are possible in some cases)

Risk – Baseline performance deteriorates more than expected (e.g., population growth exceeds forecast)

Risk – Programme costs increase so fewer outputs are delivered for same cost

Risk – Future compliance standards tighten and plans insufficient to maintain compliance performance

Issue – The Isles of Scilly have been included in DWMP, but detailed costs are being prepared as part of the PR24 programme. SWW became the water and wastewater service provide for the IoS, in

April 2020, after the DWMP process for Cycle 1 had started so have been managed outside of the Water UK Framework for DWMP.

Issue – Two different methods of calculating SWS unit rates for FFR and SO risks.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 4 – Storm Overflows – more than 10 spills a year</b>	AMP8	AMP9+
Lines	4a – Storm overflows 10 spills – baseline		
	4b – Storm overflows 10 spills – base		
	4c – Storm overflows 10 spills – post enhancement		
	4ci – Storm overflows 10 spills – enhancement cost CAPEX		
	4cii – Storm overflows 10 spills – enhancement cost OPEX		
	4ciii – Storm overflows 10 spills – enhancement cost TOTEX		
Data Owner	Jane O'Connor		
Senior Manager	Mark Worsfold		
Executive Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

**COMMENTARY**

**Line 4 – Storm Overflows – more than 10 spills per year**

**Scenario 1b:**

Outcome	Description	Unit	Forecast 2024-26	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-28)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2035-37)	Total AMP10 (2038-40)	Total AMP11 (2041-43)	Total AMP12 (2044-50)	Total 25 yr
4a	Storm overflows - more than 10 spills per year - baseline	nr	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435
4b	Storm overflows - more than 10 spills per year - base	nr	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435
4c	Storm overflows - more than 10 spills per year - post enhancement	nr	435	434	432	430	427	420	420	412	395	370	336	251	251	0	0	0	0
4ci	Storm overflows - more than 10 spills per year - enhancement cost CAPEX	£m	£0.0	£2.9	£5.7	£8.0	£11.4	£28.5	£56.5	£38.1	£77.3	£115.5	£153.6	£384.5	£769.0	£923.7	£0.0	£0.0	£1,749.2
4cii	Storm overflows - more than 10 spills per year - enhancement cost OPEX	£m	£0.0	£0.86	£0.97	£1.13	£1.35	£1.90	£6.21	£2.26	£2.62	£2.99	£3.35	£3.71	£14.93	£24.46	£28.39	£28.39	£102.38
4ciii	Storm overflows - more than 10 spills per year - enhancement cost TOTEX	£m	£0.0	£3.7	£6.7	£9.1	£12.8	£30.4	£62.7	£40.4	£80.0	£118.4	£156.9	£388.2	£783.9	£948.2	£28.4	£28.4	£1,851.5

**1. Overall summary**

There are currently an estimated 435 overflows spilling more than 10 times a year where Env Act\_IMP4 is the primary WINEP driver, and this baseline is predicted to remain stable through to AMP12. There is no current base spend to reduce spills hence the base profile mirrors the baseline, and any reductions need to be delivered by enhancement.

The investment outlined in our DWMP enhancement plan for storm overflows is front end loaded but prioritised at overflows causing ecological harm to help protect the environment and meet the 2040 Defra target, and at overflows impacting bathing waters in response to customer feedback. These overflows are covered in Lines 5-7. The profile for reducing overflows spilling more than 10 times a year starts slowly in AMP8 but accelerates in AMP9 and AMP10 to deliver 0 by 2050.

To act now to improve environmental performance, we launched our WaterFit programme to resolve approx.197 sites spilling more than 10 times including Coastal SOs, SPS, and WWTW starting in AMP7. Where this investment is planned for AMP7 it is not included in the DWMP, where it continues in AMP8 it is included. Again, as this targeted coastal sites it does not impact this line.

The breakdown of each AMP is calculated by targeting 5% in the first year and increasing this in 5% increments up until the final year where 50% of the total are targeted.

**2. Line specifics**

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**Scenario 1a:**

Line 4a baseline – Our forecast for 2024-25 is 435 storm overflows spilling more than 10 times per year and this number is not expected to deteriorate. Hydraulic modelling of spills indicates that whilst predicted spill volumes may increase over time, spill frequency remains largely unchanged.

Line 4b base – This is the same as the baseline due to there being no base investment.

Line 4c enhancement – The 2024-25 forecast is 435 storm overflows spilling more than 10 times per year and with enhanced investment by 2050 this number is expected to reduce to 0. As the AMP8-9 focus is on ecological harm and bathing water the reduction in overflows spilling in AMP8 is only 15 overflows so 420 overflows remain but ramps up to 89 in AMP9 leaving 331 overflows, 101 in AMP10 leaving 230 overflows, 116 in AMP11 leaving 114 overflows and 114 in Amp12 delivering the target of 0 by 2050.

Line 4ci enhancement cost CAPEX – The CAPEX plan mirrors the enhancement plan with a slow start in AMP8 with a spend of £56.5m, split by year in accordance with the breakdown in the summary, as is AMP9. This increases dramatically to £434.1m in AMP9 and then follows a relatively consistent profile out to the end of AMP12 with £390.3m in AMP10, £429.5m in AMP11 and £438.9m in AMP12.

Line 4cii enhancement cost OPEX – The OPEX costs mirror the CAPEX profile but increase cumulatively. The AMP8 and AMP9 costs are split by year in accordance with the breakdown in the summary, with a total cost of £6.21m and £12.75m for AMP8 and AMP9 respectively. The AMP10 to 12 costs are not split by year and increase slightly by AMP. The AMP10 costs are £18.70m, the AMP11 costs are £22.37m and the AMP12 costs are £26.30m.

Line 4ciii enhancement cost TOTEX - No specifics simply a sum of CAPEX + OPEX.

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**Scenario 1b:**

Line 4a baseline – See scenario 1a.

Line 4b base – See scenario 1a.

Line 4c enhancement – The 2024-25 forecast is 435 storm overflows spilling more than 10 times per year and with enhanced investment by 2040 this number is expected to reduce to 0. The reduction in AMP8 is only 15 overflows, leaving 420 overflows to be delivered, but ramps up to 169 overflows delivered in AMP9, leaving 251 overflows to be delivered, finally to decrease the number of overflows to 0 by the end 2040, 251 overflows are delivered in AMP10. This means that no overflows are delivered from in AMP11 and AMP12 as all overflows will be sorted by the end of AMP10.

Line 4ci enhancement cost CAPEX – The CAPEX plan mirrors the enhancement plan with a slow start in AMP8 with a spend of £56.5m, split by year in accordance with the breakdown in the summary, as is AMP9. This increases dramatically to £769.0m in AMP9 and then £923.7m in AMP10. There is no CAPEX spend in AMP11 and AMP12 due to the accelerated nature of scenario 1bs programme.

Line 4cii enhancement cost OPEX – The OPEX costs mirror the CAPEX profile but increase cumulatively. The AMP8 and AMP9 costs are split by year in accordance with the breakdown in the

summary, with a total cost of £6.21m and £14.93m for AMP8 and AMP9 respectively. The AMP10 to 12 costs are not split by year and increase slightly by from AMP10 to AMP11 before levelling off for AMP12 due to the accelerated programme. The AMP10 costs are £24.46m, the AMP11 costs are £28.39m and the AMP12 costs are also £28.39m.

Line 4ciii enhancement cost TOTEX - No specifics simply a sum of CAPEX + OPEX.

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**Scenario 2:****2. Line specifics**

Line 4a baseline – See scenario 1b

Line 4b base – See scenario 1b

Line 4c enhancement – See scenario 1b

Line 4ci enhancement cost Capex – See scenario 1b

Line 4cii enhancement cost Opex - See scenario 1b

Line 4ciii enhancement cost Totex - See scenario 1b

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**Scenario 3:****2. Line specifics**

Line 4a baseline – See scenario 1b

Line 4b base – See scenario 1b

Line 4c enhancement – See scenario 1b

Line 4ci enhancement cost Capex – See scenario 1b

Line 4cii enhancement cost Opex - See scenario 1b

Line 4ciii enhancement cost Totex - See scenario 1b

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**Scenario 4:****2. Line specifics**

Line 4a baseline – See scenario 1b

Line 4b base – See scenario 1b

Line 4c enhancement – See scenario 1b

Line 4ci enhancement cost Capex – See scenario 1b

Line 4cii enhancement cost Opex - See scenario 1b

Line 4ciii enhancement cost Totex - See scenario 1b

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**Scenario 5:****2. Line specifics**

Line 4a baseline – See scenario 1b

Line 4b base – See scenario 1b

Line 4c enhancement – See scenario 1b

Line 4ci enhancement cost Capex – See scenario 1b

Line 4cii enhancement cost Opex - See scenario 1b

Line 4ciii enhancement cost Totex - See scenario 1b

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**Scenario 6:****2. Line specifics**

Line 4a baseline – See scenario 1b

Line 4b base – See scenario 1b

Line 4c enhancement – See scenario 1b

Line 4ci enhancement cost Capex – See scenario 1b

Line 4cii enhancement cost Opex - See scenario 1b

Line 4ciii enhancement cost Totex - See scenario 1b

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**3. RAID - Risks Assumptions Issues Dependencies**

Assumption – Accuracy of modelled data, EDM spill data from which assessment and extrapolation calculations made. Improved information over time might change assumptions

Risk – Baseline performance deteriorates

Risk – Programme costs increase so fewer outputs are delivered for same cost

Risk – Storm overflow investments for AMPs 9 to 12 were derived from the WINEP programme to meet Environment Act targets and are based on 2050 requirements

Risk – Storm overflow investments for AMP8 were derived using cost certainty analysis applied to the WINEP programme, using knowledge from the operations and catchment teams.

Risk – Guidance on how an overflow is categorised is subject to change.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 5 – Storm Overflows (high priority)</b>	AMP8	AMP9+
Lines	5a - Storm overflows (high priority) - ecological harm - baseline		
	5b - Storm overflows (high priority) - ecological harm - base		
	5c - Storm overflows (high priority) - ecological harm - post enhancement		
	5ci - Storm overflows (high priority) - ecological harm - enhancement cost CAPEX		
	5cii - Storm overflows (high priority) - ecological harm - enhancement cost OPEX		
	5ciii - Storm overflows (high priority) - ecological harm - enhancement cost TOTEX		
Data Owner	Jane O'Connor		
Senior Manager	Mark Worsfold		
Executive Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DWMP
	Calculated cells

COMMENTARY

Line 5 – Storm Overflows (high priority)

Scenario 1

Outcome	Description	Unit	Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	Total 25 yr
5a	Storm overflows (high priority) - ecological harm - baseline	nr	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244
5b	Storm overflows (high priority) - ecological harm - base	nr	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244
5c	Storm overflows (high priority) - ecological harm - post enhancement	nr	244	236	221	198	167	91	91	86	77	63	45	0	0	0	0	0	0
5ci	Storm overflows (high priority) - ecological harm - enhancement cost CAPEX	Em	£0.0	£23.0	£46.0	£69.0	£92.0	£230.5	£460.5	£36.8	£32.5	£69.3	£65.0	£363.7	£327.3	£0.0	£0.0	£0.0	£787.8
5cii	Storm overflows (high priority) - ecological harm - enhancement cost OPEX	Em	£0.00	£0.48	£0.54	£0.63	£0.76	£1.07	£3.48	£1.27	£1.47	£1.67	£1.88	£2.08	£8.37	£13.72	£15.52	£15.52	£57.41
5ciii	Storm overflows (high priority) - ecological harm - enhancement cost TOTEX	Em	£0.0	£23.5	£46.5	£69.6	£92.8	£231.6	£464.0	£38.1	£34.0	£51.0	£66.9	£365.7	£336.7	£13.7	£15.5	£15.5	£845.2

1. Overall summary

There are currently 244 overflows spilling more than 10 times a year causing ecological harm at high priority sites and that have an Env-Act\_IMP2 or Env-Act\_IMP2 Shellfish driver, and this baseline is predicted to remain stable through to AMP12. There is no current base spend to reduce spills hence the base profile mirrors the baseline, and any reductions need to be delivered by enhancement.

The investment outlined in our DWMP enhancement plan for storm overflows is front end loaded and prioritised at overflows causing ecological harm to help protect the environment and meet the 2040 Defra target for resolution, as well as at overflows impacting bathing waters in response to customer feedback. Most high priority overflows causing ecological harm will be resolved in AMP8 with the remainder will be delivered in AMP9 and AMP10 to deliver 0 by 2040.

The breakdown of each AMP is calculated by targeting 5% in the first year and increasing this in 5% increments up until the final year where 50% of the total is targeted.

2. Line specifics

**Scenario 1a**

Line 5a baseline – Our forecast for 2024-25 is 244 high priority overflows spilling more than 10 times per year and this number is not expected to deteriorate. Hydraulic modelling of spills indicates that whilst predicted spill volumes may increase over time, spill frequency remains largely unchanged

Line 5b base – This is the same as the baseline due to there being no base investment.

Line 5c enhancement – The 2024-25 forecast is 244 high priority overflows causing ecological harm and with enhanced investment by 2040 this number is expected to reduce to 0. The reduction in AMP8 is 153 overflows to 91 remaining which are resolved by the end of AMP9 and AMP10 to deliver the target of 0 by 2040. This is split as 52 overflows in AMP9 and 39 overflows in AMP10.

Lines 5ci enhancement cost Capex – The CAPEX plan mirrors the enhancement plan with a fast start in AMP8 with a spend of £460.5m split by year in accordance with the breakdown in the summary, as is AMP9. This decreases dramatically to £256.7m in AMP9 and then decreases again to £71.1m in AMP10. There is no spend in AMP11 or AMP12 due to the target set of 2040.

Lines 5cii enhancement cost Opex – The OPEX costs mirror the CAPEX profile but increase cumulatively. The AMP8 and AMP9 costs are split by year in accordance with the breakdown in the summary, with a total cost of £3.5m and £7.2m for AMP8 and AMP9 respectively. The AMP10 to 12 costs are not split by year and increase slightly by AMP. The AMP10 costs are £10.49m, the AMP11 costs are £12.55m and the AMP12 costs are £14.75m.

Lines 5ciii enhancement cost Totex – No specifics simply a sum of CAPEX + OPEX.

**Scenario 1b**

Line 5a baseline – See scenario 1a.

Line 5b base – See scenario 1a.

Line 5c enhancement – The 2024-25 forecast is 244 high priority overflows causing ecological harm and with enhanced investment by 2035 this number is expected to reduce to 0. The reduction in AMP8 is 153 overflows to 91 which are resolved by the end of AMP9 to deliver the target of 0 by 2040. Due to the accelerated nature of this programme, all overflows causing ecological harm are sorted by 2035.

Lines 5ci enhancement cost Capex – The CAPEX plan mirrors the enhancement plan with a fast start in AMP8 with a spend of £460.5m split by year in accordance with the breakdown in the summary, as is AMP9. This decreases slightly to £327.3m in AMP9 and then there is no spend in AMP10, AMP11 or AMP12 as all overflows under this driver are sorted by 2035 due to the accelerated nature of this scheme.

Lines 5cii enhancement cost Opex – The OPEX costs mirror the CAPEX profile but increase cumulatively. The AMP8 and AMP9 costs are split by year in accordance with the breakdown in the summary, with a total cost of £3.5m and £8.37m for AMP8 and AMP9 respectively. The AMP10 to 12 costs are not split by year and increase slightly by AMP. The AMP10 costs are £13.72m, the AMP11 costs are £15.92m and the AMP12 costs are also £15.92m.

Lines 5ciii enhancement cost Totex – No specifics simply a sum of CAPEX + OPEX.



**Scenario 2****2. Line specifics**

Line 5a baseline – See scenario 1b

Line 5b base – See scenario 1b.

Line 5c enhancement – See scenario 1b

Lines 5ci enhancement cost Capex – See scenario 1b

Lines 5cii enhancement cost Opex – See scenario 1b.

Lines 5ciii enhancement cost Totex– See scenario 1b.

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**Scenario 3****2. Line specifics**

Line 5a baseline – See scenario 1b

Line 5b base – See scenario 1b.

Line 5c enhancement – See scenario 1b.

Lines 5ci enhancement cost Capex – See scenario 1b.

Lines 5cii enhancement cost Opex – See scenario 1b.

Lines 5ciii enhancement cost Totex– See scenario 1b.

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**Scenario 4****2. Line specifics**

Line 5a baseline – See scenario 1b.

Line 5b base – See scenario 1b.

Line 5c enhancement – See scenario 1b.

Lines 5ci enhancement cost Capex – See scenario 1b.

Lines 5cii enhancement cost Opex – See scenario 1b.

Lines 5ciii enhancement cost Totex– See scenario 1b.

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**Scenario 5****2. Line specifics**

Line 5a baseline – See scenario 1b.

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Line 5b base – See scenario 1b.

Line 5c enhancement – See scenario 1b.

Lines 5ci enhancement cost Capex – See scenario 1b.

Lines 5cii enhancement cost Opex – See scenario 1b.

Lines 5ciii enhancement cost Totex– See scenario 1b.

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## **Scenario 6**

### **2. Line specifics**

Line 5a baseline – See scenario 1b.

Line 5b base – See scenario 1b.

Line 5c enhancement – See scenario 1b.

Lines 5ci enhancement cost Capex – See scenario 1b.

Lines 5cii enhancement cost Opex – See scenario 1b

Lines 5ciii enhancement cost Totex– See scenario 1b

### **3. RAID - Risks Assumptions Issues Dependencies**

Assumption – No more high priority overflows causing ecological harm are added (no deterioration)

Assumption – Solutions will be delivered in AMP8-9 and not take longer to deliver

Risk – Baseline performance deteriorates

Risk – Programme costs increase so fewer outputs are delivered for same cost

Risk – Storm overflow investments for AMPs 9 to 12 were derived from the WINEP programme to meet Environment Act targets and are based on 2050 requirements

Risk – Storm overflow investments for AMP8 were derived using cost certainty analysis applied to the WINEP programme, using knowledge from the operations and catchment teams.

Risk – Guidance on how an overflow is categorised is subject to change.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 6– Storm Overflows (all) – ecological harm</b>	AMP8	AMP9+
Lines	6a - Storm overflows (all) - ecological harm - baseline		
	6b - Storm overflows (all) - ecological harm - base		
	6c - Storm overflows (all) - ecological harm - post enhancement		
	6ci - Storm overflows (all) - ecological harm - enhancement cost CAPEX		
	6cii - Storm overflows (all) - ecological harm - enhancement cost OPEX		
	6ciii - Storm overflows (all) - ecological harm - enhancement cost TOTEX		
Data Owner	Jane O'Connor		
Senior Manager	Mark Worsfold		
Executive Director	Lisa Gahan		

Key to completion guidance (often different for AMP7 and AMP8 hence 2 columns)

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

**COMMENTARY**

**Scenario 1:**

Outcome	Description	Unit	Forecast 2024-26	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	Total 25 yr
6a	Storm overflows (all) - ecological harm - baseline	nr	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244
6b	Storm overflows (all) - ecological harm - base	nr	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244
6c	Storm overflows (all) - ecological harm - post enhancement	nr	244	236	221	198	167	91	91	86	77	63	45	0	0	0	0	0	0
6ci	Storm overflows (all) - ecological harm - enhancement cost capex	£m	£0.0	£23.0	£46.0	£89.0	£92.0	£230.5	£460.5	£16.8	£32.5	£49.3	£65.0	£163.7	£327.3	£0.0	£0.0	£0.0	£787.8
6cii	Storm overflows (all) - ecological harm - enhancement cost opex	£m	£0.00	£0.48	£0.54	£0.63	£0.76	£1.07	£3.48	£3.27	£3.47	£3.67	£3.88	£2.08	£8.37	£13.72	£15.92	£15.92	£57.41
6ciii	Storm overflows (all) - ecological harm - enhancement cost totex	£m	£0.0	£23.5	£46.5	£89.6	£92.8	£231.6	£464.0	£18.1	£36.0	£53.0	£66.9	£165.7	£335.7	£13.7	£15.9	£15.9	£845.2

**Line 6 – Storm Overflows (all)**

**1. Overall summary**

As all overflows causing ecological harm are deemed as high priority the profiling for line 6 is the same as it was for line 5.

**2. Line specifics**

Line 6a baseline – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6b base – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6c enhancement – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Lines 6ci enhancement cost Capex – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Lines 6cii enhancement cost Opex – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Lines 6ciii enhancement costs Totex – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

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### **Scenario 2:**

#### **Line 6 – Storm Overflows (all)**

##### **2. Line specifics**

Line 6a baseline – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6b base – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6c enhancement – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6ci enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6cii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6ciii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

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### **Scenario 3:**

#### **Line 6 – Storm Overflows (all)**

##### **2. Line specifics**

Line 6a baseline – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6b base – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6c enhancement – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6ci enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6cii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6ciii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

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### **Scenario 4:**

#### **Line 6 – Storm Overflows (all)**

##### **2. Line specifics**

Line 6a baseline – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

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Line 6b base – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6c enhancement – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6ci enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6cii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6ciii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

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### **Scenario 5:**

#### **Line 6 – Storm Overflows (all)**

##### **2. Line specifics**

Line 6a baseline – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6b base – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6c enhancement – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6ci enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6cii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6ciii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

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### **Scenario 6:**

#### **Line 6 – Storm Overflows (all)**

##### **2. Line specifics**

Line 6a baseline – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6b base – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6c enhancement – See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6ci enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

Line 6cii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

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Line 6ciii enhancement costs - See fDWMP data tables - Commentary line 05 Storm overflows (High priority)

### **3. RAID - Risks Assumptions Issues Dependencies**

Assumption – No more overflows causing ecological harm are added (no deterioration)

Assumption – Solutions will be delivered in AMP8-9 and not take longer to deliver

Risk – Baseline performance deteriorates

Risk – Programme costs increase so fewer outputs are delivered for same cost

Risk – Storm overflow investments for AMPs 9 to 12 were derived from the WINEP programme to meet Environment Act targets and are based on 2050 requirements

Risk – Storm overflow investments for AMP8 were derived using cost certainty analysis applied to the WINEP programme, using knowledge from the operations and catchment teams.

Risk – Guidance on how an overflow is categorised is subject to change.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 7 – Storm Overflows – designated bathing areas</b>	AMP8	AMP9+
Lines	7a - Storm overflows - designated bathing waters - baseline		
	7b - Storm overflows - designated bathing waters - base		
	7c - Storm overflows - designated bathing waters - post enhancement		
	7ci - Storm overflows - designated bathing waters - enhancement cost CAPEX		
	7cii - Storm overflows - designated bathing waters - enhancement cost OPEX		
	7ciii - Storm overflows - designated bathing waters - enhancement cost TOTEX		
Data Owner	Jane O'Connor		
Senior Manager	Mark Worsfold		
Executive Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

COMMENTARY

Scenario 1

Outcome	Description	Unit	Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	Total 25 yr
7a	Storm overflows - designated bathing waters (coastal and inland) - baseline	nr	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152
7b	Storm overflows - designated bathing waters (coastal and inland) - base	nr	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152
7c	Storm overflows - designated bathing waters (coastal and inland) - post enhancement	nr	152	146	135	118	96	41	41	39	36	31	24	7	7	0	0	0	0
7cii	Storm overflows - designated bathing waters - enhancement cost	£m	£0	£23	£47	£70	£93	£231	£463	£7	£15	£21	£28	£71	£141	£24	£0	£0	£627
7ciii	Storm overflows - designated bathing waters - enhancement cost	£m	£0.00	£0.30	£0.34	£0.40	£0.47	£0.67	£2.18	£0.80	£0.92	£1.05	£1.17	£1.30	£5.24	£8.55	£9.92	£9.92	£35.81
7ciii	Storm overflows - designated bathing waters - enhancement cost	£m	£0	£24	£47	£70	£93	£231	£465	£8	£15	£22	£29	£72	£146	£32	£10	£10	£663

Line 7 – Storm Overflows – designated bathing areas

1. Overall summary

There are currently 152 overflows in designated bathing waters spilling more than 3 times per bathing season that have an Env-Act\_IMP3 driver, and this is baseline is predicted to remain stable through to AMP12. There is no current base spend to reduce spills hence the base profile mirrors the baseline and any reductions need to be delivered by enhancement.

The investment outlined in our DWMP enhancement plan for storm overflows as a whole is front end loaded and prioritised at overflows causing ecological harm to help protect the environment and meet the 2040 Defra target for resolution, as well as at overflows impacting bathing waters in response to customer feedback. Most overflows in bathing waters will be resolved in AMP8 with the remainder delivered in AMP9 and some more complex schemes in AMP10-12 so the target of 0 is met by 2050.

To act now to improve environmental performance, we launched our WaterFit programme to resolve approx. 197 sites spilling more than 10 times including Coastal SOs, SPS, and WWTW starting in AMP7. Where this investment is planned for AMP7 it is not included in the DWMP, where it continues in AMP8 it is included and will affect this line as it targeted at coastal sites.

The breakdown of each AMP is calculated by targeting 5% in the first year and increasing this in 5% increments up until the final year where 50% of the total targeted.

## 2. Line specifics

### Scenario 1a

Line 7a baseline – Our forecast for 2024-25 is 152 overflows in designated bathing waters spilling more than 3 times per bathing season and this number is not expected to deteriorate. Hydraulic modelling of spills indicates that whilst predicted spill volumes may increase over time, spill frequency remains largely unchanged

Line 7b base – This is the same as the baseline due to there being no base investment.

Line 7c enhancement – The 2024-25 forecast is 152 overflows in bathing waters spilling more than 3 times per bathing season and with enhanced investment by 2050 this number is expected to reduce to 0. The reduction in AMP8 is 111 overflows leaving 41 remaining, and further reductions of 27 in AMP9 leaving 14, 4 in AMP10 leaving 10, 7 in AMP11 delivering 3 and 3 in AMP12 delivering the target of 0 by 2050.

Lines 7ci enhancement costs Capex – The CAPEX plan mirrors the enhancement plan with a fast start in AMP8 with a spend of £462.6m, split by year in accordance with the breakdown in the summary, as is AMP9. This decreases dramatically to £141.2m in AMP9 and then follows a relatively consistent profile out to the end of AMP12 with £15.5m in AMP10, £27.9m in AMP11 and £9.9m in AMP12.

Lines 7cii enhancement costs Opex – The OPEX costs mirror the CAPEX profile but increase cumulatively. The AMP8 and AMP9 costs are split by year in accordance with the breakdown in the summary, with a total cost of £2.18m and £4.49m for AMP8 and AMP9 respectively. The AMP10 to 12 costs are not split by year and increase slightly by AMP. The AMP10 costs are £6.53m, the AMP11 costs are £7.82m and the AMP12 costs are £9.19m.

Lines 7ciii enhancement costs Totex – No specifics simply a sum of CAPEX + OPEX.

### Scenario 1b

Line 7a baseline – See scenario 1a.

Line 7b base – See scenario 1a.

Line 7c enhancement – The 2024-25 forecast is 152 overflows in bathing waters spilling more than 3 times per bathing season and with enhanced investment by 2040 this number is expected to reduce to 0 due to the accelerated nature of this scheme. The reduction in AMP8 is 111 overflows, leaving 41 remaining, and further reductions of 34 in AMP9 leaving 7, all of which are sorted in AMP10. There is no further enhancement in AMP11 or AMP12.

Lines 7ci enhancement costs Capex – The CAPEX plan mirrors the enhancement plan with a fast start in AMP8 with a spend of £463m, split by year in accordance with the breakdown in the summary, as is AMP9. This decreases dramatically to £141m in AMP9 and then decreases again down to £24m in AMP10. There is no spend in AMP11 or AMP12 due to the accelerated scheme.



Lines 7cii enhancement costs Opex – The OPEX costs mirror the CAPEX profile but increase cumulatively. The AMP8 and AMP9 costs are split by year in accordance with the breakdown in the summary, with a total cost of £2.18m and £5.24m for AMP8 and AMP9 respectively. The AMP10 AMP11 cost increases slightly but then stays the same for AMP12 as it was for AMP11. The AMP10 costs are £8.55m, the AMP11 costs are £9.92m and the AMP12 costs are also £9.92m.

Lines 7ciii enhancement costs Totex – No specifics simply a sum of CAPEX + OPEX.

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## Scenario 2

### Line 7 – Storm Overflows – designated bathing areas

#### 2. Line specifics

Line 7a baseline – See scenario 1b.

Line 7b base – See scenario 1b.

Line 7c enhancement – See scenario 1b.

Lines 7ci-iii enhancement costs Capex – See scenario 1b

Lines 7cii enhancement costs Opex – See scenario 1b.

Lines 7ciii enhancement costs Totex – See scenario 1b.

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## Scenario 3

### Line 7 – Storm Overflows – designated bathing areas

#### 2. Line specifics

Line 7a baseline – See scenario 1b.

Line 7b base – See scenario 1b.

Line 7c enhancement – See scenario 1b.

Lines 7ci-iii enhancement costs Capex – See scenario 1b.

Lines 7cii enhancement costs Opex – See scenario 1b.

Lines 7ciii enhancement costs Totex – See scenario 1b.

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## Scenario 4

### Line 7 – Storm Overflows – designated bathing areas

#### 2. Line specifics

Line 7a baseline – See scenario 1b.

Line 7b base – See scenario 1b.

Line 7c enhancement – See scenario 1b.

Lines 7ci-iii enhancement costs Capex – See scenario 1b.

Lines 7cii enhancement costs Opex – See scenario 1b.

Lines 7ciii enhancement costs Totex – See scenario 1b.

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## **Scenario 5**

### **Line 7 – Storm Overflows – designated bathing areas**

#### **2. Line specifics**

Line 7a baseline – See scenario 1b.

Line 7b base – See scenario 1b.

Line 7c enhancement – See scenario 1b.

Lines 7ci-iii enhancement costs Capex – See scenario 1b.

Lines 7cii enhancement costs Opex – See scenario 1b.

Lines 7ciii enhancement costs Totex – See scenario 1b.

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## **Scenario 6**

### **Line 7 – Storm Overflows – designated bathing areas**

#### **2. Line specifics**

Line 7a baseline – See scenario 1b.

Line 7b base – See scenario 1b.

Line 7c enhancement – See scenario 1b

Lines 7ci-iii enhancement costs Capex – See scenario 1b.

Lines 7cii enhancement costs Opex – See scenario 1b.

Lines 7ciii enhancement costs Totex – See scenario 1b.

#### **3. RAID - Risks Assumptions Issues Dependencies**

Assumption – No more overflows impacting bathing waters are added (no deterioration)

Assumption – DWMP Solutions will be delivered in AMP8-9 and not take longer to deliver

Risk - baseline performance deteriorates more than expected

Risk – Programme costs increase so fewer outputs are delivered for same cost

Risk – Storm overflow investments for AMPs 9 to 12 were derived from the WINEP programme to meet Environment Act targets and are based on 2050 requirements

Risk – Storm overflow investments for AMP8 were derived using cost certainty analysis applied to the WINEP programme, using knowledge from the operations and catchment teams.

Risk – Guidance on how an overflow is categorised is subject to change.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 8 – Sewer collapses</b>	AMP8	AMP9+
Lines	8a – Sewer collapses - baseline		
	8b - Sewer collapses - base		
	8ci - Sewer collapses – base cost CAPEX		
	8cii - Sewer collapses - base cost OPEX		
	8ciii - Sewer collapses - base cost TOTEX		
Data Owner	Steve Rosser		
Senior Manager	Mark Worsfold		
Executive Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

COMMENTARY

Line 8 – Sewer collapses

1. Overall summary

Our current sewer collapse reduction strategy based upon risk-based CCTV investigations and follow-up sewer rehabilitation and repairs has effectively improved AMP7 performance. The 2024-25 forecast performance is 9.8 sewer collapses per 1,000km sewer, this is well ahead of our performance commitment (14.0). Our aim is to further improve performance to 7.8 per 1,000km by 2030 and 6.8 per 1,000km by 2050 through continuing insights-based investment in sewer infrastructure.

Scenarios 1a, 1b, 2, 3, 4

Outcome	Description	Unit	AMP																	
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP9 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	Total 25 yr	
8a	Sewer collapses - baseline	nr per 1,000km	9.8	8.3	8.3	8.4	8.4	8.5	8.5	8.5	8.5	8.5	8.5	8.7	8.7	8.7	9.0	9.2	9.4	9.4
8b	Sewer collapses - base	nr per 1,000km	9.8	9.4	9.0	8.6	8.2	7.8	7.8	7.8	7.7	7.7	7.6	7.6	7.6	7.3	7.1	6.9	6.9	6.9
8ci	Sewer collapses - base costs	£m	10.8	11.9	11.9	11.9	11.9	11.9	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
8cii	Sewer collapses - base costs	£m	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
8ciii	Sewer collapses - base costs	£m	20.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0

Scenarios 1a, 1b, 2, 3, 4 assume a slower rate of the development of technological advance from 2045 onwards, whilst scenarios 5 and 6 assume a more rapid technological advancement commencing in 2040.

2. Line specifics

Line 8a baseline – The 2024-25 forecast is 9.8 sewer collapses per 1,000km, based upon our AMP7 EPA sewer length 19,334km. However, this sewer length has been re-assessed as 23,124km for AMP8, this will provide a re-based start value of 8.3 sewer collapses per 1,000km for the start of AMP8. Without further intervention, asset health will deteriorate, with the number of collapses increasing to 8.5 per 1,000km by 2030 and to 9.4 per 1,000km by 2050.

Line 8b base – From a re-based starting position of 8.2 sewer collapses per 1,000km in 2024-25, base investment in sewer rehabilitation (£55m in AMP8 rising to £176m in AMP12) will effectively

mitigate asset deterioration risks. With the additional benefits from our catchment based DWMP investments, performance is forecast to improve to 7.8 sewer collapses per 1,000km by 2030 and 6.8 per 1,000km by 2050.

Lines 8ci base costs CAPEX – An overall £580m investment in base sewer rehabilitation over the 2025-50 period is profiled on an upward trend, with £55m in AMP8, rising to £80m in AMP8, and £176m in AMP12. This recognises the need to challenge the need for base investment against the asset renewal benefits provided from the expansive storm overflow spill reduction programme to maintain customer bill affordability, whilst still striving to improve overall performance.

Lines 8cii base costs OPEX – There are no OPEX costs associated with this programme, which is derived predominantly from capital maintenance activity.

Lines 8ciii base costs Totex – Totex costs of £580m across the 2025 to 2050 period are all CAPEX.

### Scenario 5 and 6

8a	sewer collapses - baseline	Number of sewer collapses	98 per 1000km	8.3	8.3	8.4	8.4	8.5	8.5	8.5	8.6	8.6	8.7	8.7	8.7	9.0	9.2	9.4	9.4
8b	sewer collapses - base	Number of sewer collapses	8 per 1000km	9.4	9.0	8.6	8.2	7.8	7.8	7.8	7.7	7.7	7.6	7.6	7.6	7.3	7.1	6.8	6.8
8ci	sewer collapses - base costs	capex	£m	£11.0	£11.0	£11.0	£11.0	£11.0	£55.0	£16.0	£16.0	£16.0	£16.0	£16.0	£80.0	£120.0	£119.2	£176.0	£550.2
8cii	sewer collapses - base costs	opex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
8ciii	sewer collapses - base costs	totex	£m	£11.0	£11.0	£11.0	£11.0	£11.0	£55.0	£16.0	£16.0	£16.0	£16.0	£16.0	£80.0	£120.0	£119.2	£176.0	£550.2

Scenarios 5 and 6 assume a more rapid technological advancement commencing in 2040 which reduces the overall capex by £30m, from £580m to £550m.

### 4. Line specifics

Line 8a baseline – The 2024-25 forecast is 9.8 sewer collapses per 1,000km, based upon our AMP7 EPA sewer length 19,334km. However, this sewer length has been re-assessed as 23,124km for AMP8, this will provide a re-based start value of 8.2 sewer collapses per 1,000km for the start of AMP8. Without further intervention, asset health will deteriorate, with the number of collapses increasing to 8.5 per 1,000km by 2030 and to 9.4 per 1,000km by 2050.

Line 8b base – From a re-based starting position of 8.3 sewer collapses per 1,000km in 2024-25, base investment in sewer rehabilitation of £550m between 2025 and 2050 will effectively mitigate asset deterioration risks. With the additional benefits from our catchment based DWMP investments, performance is forecast to improve to 7.8 sewer collapses per 1,000km by 2030 and 6.8 per 1,000km by 2050.

Line 8ci base costs CAPEX – An overall £550m investment in base sewer rehabilitation over the 2025-50 period is profiled on an upward trend, with £55m in AMP8, rising to £80m in AMP8, and £176m in AMP12. This recognises the need to challenge the need for base investment against the asset renewal benefits provided from the expansive storm overflow spill reduction programme to maintain customer bill affordability, whilst still striving to improve overall performance. The beneficial impacts of new technology enable a £30m reduction in capex through AMP11, from £149m (AMP11 scenario 1 to 4) down to £119m (AMP11 scenario 5 and 6).

Line 8cii base costs OPEX – There are no OPEX costs associated with this programme, which is derived predominantly from capital maintenance activity.

Lines 8ciii base costs Totex – Totex costs of £550M across the 2025 to 2050 period are all CAPEX.

### 3. RAID - Risks Assumptions Issues Dependencies

**Assumption** – Sewer rehab programme and funding continues

**Assumption** – Reactive repair and relining activity and funding continues

**Risk** – Baseline performance deteriorates more than expected

**Risk** – Rehab and reactive costs increase so fewer outputs are delivered for same cost

**Issue** – The Isles of Scilly have been included in DWMP, but detailed costs are being prepared as part of the PR24 programme. SWW became the water and wastewater service provide for the IoS, in April 2020, after the DWMP process for Cycle 1 had started so have been managed outside of the Water UK Framework for DWMP.

Chwefror_2023Tables	Outcome Summary – Scenario A		
Table	<b>Table 9 – Internal sewer flooding</b>	AMP8	AMP9+
Lines	9a - Internal sewer flooding - baseline		
	9b - Internal sewer flooding - base		
	9c - Internal sewer flooding - post enhancement		
	9ci - Internal sewer flooding - enhancement cost CAPEX		
	9cii - Internal sewer flooding - enhancement cost OPEX		
	9ciii - Internal sewer flooding - enhancement cost TOTEX		
Data Owner	Steve Rosser		
Senior Manager	Mark Worsfold		
Executive Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

**COMMENTARY**

**Line 9 – Internal sewer flooding**

**1. Overall summary**

We have an established multi-faceted approach to reducing flooding incidents which is funded by business-as-usual (BAU) investment separate to the DWMP, this has effectively reduced internal flooding through AMP7. Forecast 2024-25 performance of 1.0 incident per 10,000 sewer connections is substantially ahead of our 1.34 incidents per 10,000 connections performance commitment (PC). This plan will continue with the aim of maintaining stable performance through AMP8 and then deliver a sustained reduction in internal flooding risk out to 2050 through the adoption of risk-based catchment planning and as investments to reduce storm overflow spills focus more on separation and nature-based solutions.

Outcome	Description	Unit	Forecast																
			2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	Total 25 yr
9a	Internal sewer flooding - baseline Total number of internal sewer flooding incidents / escapes per 10,000 sewer connections	nr	1.00	1.00	1.05	1.07	1.09	1.12	1.12	1.10	1.17	1.19	1.20	1.23	1.23	1.34	1.45	1.55	1.55
9b	Internal sewer flooding - base Total number of internal sewer flooding incidents / escapes per 10,000 sewer connections (excluding AMP8 onwards enhancements)	nr	1.00	1.00	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	1.00
9c	Internal sewer flooding - post enhancement Total number of internal sewer flooding incidents / escapes per 10,000 sewer connections (including AMP8 onwards enhancement expenditure) (see note 5.0 on line definitions tab)	nr	1.00	0.99	0.97	0.96	0.94	0.92	0.92	0.92	0.9	0.88	0.87	0.85	0.85	0.71	0.58	0.46	0.46
9ci	Internal sewer flooding - enhancement cost	Em	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
9cii	Internal sewer flooding - enhancement cost	Em	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
9ciii	Internal sewer flooding - enhancement cost	Em	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0

**All scenarios:**

**2. Line specifics**

Line 9a baseline – Our 2024-25 PC is 1.0 internal flooding incidents per 10,000 sewer connections and without further intervention this performance is predicted to deteriorate to 1.12 incidents per 10,000 connections by 2030, and then to 1.55 incidents per 10,000 connections by 2050.

Line 9b base – Reflecting the improvements delivered by BAU flooding programmes, including capital maintenance and sewer flooding investment we predict our base investment will effectively mitigate the impacts of asset deterioration and maintain performance at 1.0 incident per 10,000 sewer connections between 2025 and 2050. These expenditure elements are all outside of the DWMP.

Line 9c enhancement – The DWMP enhancement programme to reduce storm overflow spills has substantial synergies and overlaps with high service failure risk catchments and asset groups, and this will provide internal flooding performance benefits over and above that provided by base investment. Adoption of catchment-based planning and targeting separation solutions which address the root cause of related service failures will provide additional flooding performance benefits over the medium to long term. Our target is to reduce internal flooding to 0.92 incidents per 10,000 sewer connections in 2030 and then to just 0.46 incidents per 10,000km connections by 2050.

Lines 9ci enhancement cost Capex – zero specific internal flooding costs within the DWMP as funded separately as BAU

Lines 9cii enhancement cost Opex – zero specific internal flooding costs under DWMP as funded separately as BAU

Lines 9ciii enhancement cost Totex – zero specific internal flooding costs under DWMP as funded separately as BAU

### **3. RAID - Risks Assumptions Issues Dependencies**

Assumption – BAU internal sewer flooding programme continues and is funded

Risk – With no severe weather exemption for internal flooding, there is the risk of an extreme storm over a large conurbation which could adversely impact our baseline

Risk – BAU programme costs increase so fewer outputs are delivered for same cost

Issue – Disposal of non-flushable wet wipes is a major contributor to internal flooding, a proposed ban on plastic-based wipes would increase confidence in achieving the enhanced long-term performance set out in these tables



Tables	Outcome Summary – Scenario A		
Table	<b>Table 10 – Screening Storm Overflows</b>	AMP8	AMP9+
Lines	10a – Screening Storm Overflows – baseline		
	10b – Screening Storm Overflows – base		
	10c – Screening Storm Overflows – post enhancement		
	10ci – Screening Storm Overflows – enhancement cost CAPEX		
	10cii – Coastal Resilience – enhancement cost OPEX		
	10ciii – Coastal Resilience – enhancement costs TOTEX		
Data Owner	Jane O’Connor		
Senior Manager	Mark Worsfold		
GEX Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

COMMENTARY

Line 11 – Screening Storm Overflows

1. Overall summary

This line includes the number of storm overflows at which screens will be installed but there is no requirement to reduce spill frequency. Storm overflows which require both spill reduction and enhanced screening are reported separately within tables 4-7. There are currently an estimated 560 storm overflows that need only a screen installed under the Env Act\_IMP5 WINEP driver. There is no current base spend to install screens hence the base profile mirrors the baseline, and any reductions need to be delivered through the £241M enhancement expenditure.

Scenario 1a

Outcome	Description	Unit	AMP															Total 25 yr						
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)		Total AMP12 (2045-50)					
10a	Screening storm overflows - baseline	nr	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	
10b	Screening storm overflows - base	nr	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
10c	Screening storm overflows - post enhancement	nr	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	0	0	0	0
10ci	Screening - enhancement cost	£m	0.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
10cii	Screening - enhancement cost	£m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10ciii	Screening - enhancement cost	£m	0.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

Scenario 1a assumes a 25-year storm overflow spill reduction plan from 2025 to 2050.

2. Line specifics

Line 10a baseline – Our forecast for 2024-25 is 560 storm overflows requiring the installation of screens only and this number is not expected to deteriorate.

Line 10b base – This is the same as the baseline as there is no base investment on storm overflow screening improvements.

Line 10c enhancement –

The 2024-25 forecast is 560 storm overflows requiring investment for enhanced screening only, this will be reduced to zero by 2050. The screen installation programme is back end loaded as we are prioritising investment in the complex interventions required to reduce spill frequency and deliver against bathing water and ecological harm targets by 2035. The installation of screens is considered relatively simple in comparison. Scenario 1a profiles all these improvements to be carried out in between 2045 and 2050.

Lines 10ci enhancement cost Capex – The capital investment plan mirrors the enhancement plan with £241M expenditure profiled between 2045 and 2050 due to prioritising the overflows with interventions needed to reduce spill frequency and meet bathing water and ecological harm targets by 2035. Costs were derived from WINEP modelling and analysis and ground truthing with input from case studies and stakeholders.

Line 10cii enhancement cost Opex – The Opex plan mirrors the enhancement plan with £1.44M profiled from 2045 to 2050, we have only included Opex for a proportion of the 560 storm overflows, making allowance for existing screens which are being maintained but need a performance upgrade, against sites where there is no existing screen in place.

Line 10ciii enhancement cost Totex – Overall Totex is £242.4M

### Scenario's 1b, 2, 3, 4, 5, 6

Outcome	Description	Unit	AMPP															Total 25 yr				
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMPP (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMPP (2030-35)	Total AMPP (2035-40)	Total AMPP (2040-45)		Total AMPP (2045-50)			
10a	Screening storm overflows - baseline	nr	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
10b	Screening storm overflows - base	nr	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
10c	Screening storm overflows - post enhancement	nr	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
10ci	Screening - enhancement cost	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£241.0	£0.0	£0.0	£0.0	£241.0
10cii	Screening - enhancement cost	£m	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£1.44	£1.40	£1.40	£1.40	£5.24
10ciii	Screening - enhancement cost	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£242.4	£2.4	£2.4	£2.4	£247.2

Scenario's 1b, 2, 3, 4, 5 and 6 assume an accelerated 15-year storm overflow spill reduction plan from 2025 to 2040, this will deliver the screen only interventions 10 years ahead of our regulatory target date of 2050.

### 3. Line specifics

Line 10a baseline – The baseline is the same as for scenario 1a.

Line 10b base – The base is the same as for scenario 1a.

Line 10c enhancement – For these scenario's installation of the 560 screens is advanced to the 2035 to 2040 period.

Line 10ci enhancement cost Capex – The capital investment plan mirrors the enhancement plan with £241M expenditure profiled between 2035 and 2040 due to prioritising the overflows with interventions needed to reduce spill frequency and meet bathing water and ecological harm targets by 2035.

Line 10cii enhancement cost Opex – The Opex plan mirrors the enhancement plan with £1.44M profiled from 2035 to 2040, we have only included Opex for a proportion of the 560 storm overflows, making allowance for existing screens which are being maintained but need a performance upgrade, against sites where there is no existing screen in place.

Line 10ciii enhancement cost Totex - Overall Totex is £242.4M

#### **4. RAID - Risks Assumptions Issues Dependencies**

**Assumption** – Accuracy of information on screening from site.

**Assumption** – Screens can be installed at all sites.

**Risk** – Baseline performance deteriorates.

**Risk** – Programme costs increase so fewer outputs are delivered for same cost e.g., if due to site specifics, available space significant work is required to relocate overflows to enable screening.

**Risk** – Storm overflow investments were derived from the WINEP programme to meet Environment Act targets and are based on 2050 requirements.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 11 – Coastal Resilience</b>	AMP8	AMP9+
Lines	11a – Coastal Resilience – baseline		
	11b – Coastal Resilience – base		
	11c – Coastal Resilience – post enhancement		
	11ci – Coastal Resilience – enhancement cost CAPEX		
	11cii – Coastal Resilience – enhancement cost OPEX		
	11ciii – Coastal Resilience – enhancement costs TOTEX		
Data Owner	Simon Hawkins		
Senior Manager	Mark Worsfold		
GEX Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

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**COMMENTARY**

**Line 11 – Coastal resilience**

**1. Overall summary**

Coastal flood risk was modelled for climate scenarios, the first representing present-day risk in 2022 and two the future climate change scenarios representing the projected risk in 2035 and 2050. To fully assess future risk for each of the above climate change scenarios, four return events were evaluated, these were:

- Highest Astronomical Tide (HAT) event - represents the maximum observed tide under average atmospheric conditions.
- 1 in 5-year storm return period event - a high probability event with a 20% chance of happening in any one year.
- 1 in 50-year storm return period event – a moderate probability event with a 2% chance of occurring in any one year.
- 1 in 200-year storm return period event – a low probability event with a 0.5% chance of occurring in any one year.

Environment Agency Coastal Flood Boundary data for the assessment of extreme sea level rise was used.

Sites have been assessed based upon several different storm and flood scenarios considering the risks to the site, the defence of the site, and wider EA flood defence work.

The sewer infrastructure identified at risk is associated with the hydrodynamic modelling outputs. This provides additional assurance for the network assessed as being at risk.

Outcome	Description	Unit	AMP7	AMP8					AMP9					AMP10	AMP11	AMP12	Total 25 yr			
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)		Total AMP11 (2040-45)	Total AMP12 (2045-50)	
11a	Coastal Resilience - baseline	Number of assets as risk of coastal flooding or coastal erosion	nr	23	28	33	39	44	49	49	54	60	65	70	76	76	108	140	172	172
11b	Coastal Resilience - base	Number of assets as risk of coastal flooding or coastal erosion	nr	23	28	33	39	44	49	49	54	60	65	70	76	76	108	140	172	172
11c	Coastal Resilience - post enhancement	Number of assets as risk of coastal flooding or coastal erosion	nr	23	23	23	24	24	26	26	19	14	9	5	2	2	2	2	0	0
11ci	Coastal Resilience - enhancement cost	capex	Em	£0.0	£4.3	£3.8	£2.2	£2.6	£2.1	£13.8	£4.3	£2.2	£1.9	£1.7	£1.7	£11.9	£7.6	£6.3	£6.3	£45.9
11cii	Coastal Resilience - enhancement cost	opex	Em	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
11ciii	Coastal Resilience - enhancement cost	totex	Em	£0.0	£4.3	£3.8	£2.2	£2.6	£2.1	£13.8	£4.3	£2.2	£1.9	£1.7	£1.7	£11.9	£7.6	£6.3	£6.3	£45.9

**All scenarios**

**2. Line specifics**

Line 11a baseline – Our 2024-25 modelled forecast is for 23 sites to be at risk of coastal flooding or coastal erosion, 5 Wastewater treatment works (WWTW’s), 14 sewer pumping stations (SPS’s) and 4 sewer network catchments. The WWTW and SPS sites are forecast as being at high-risk of coastal flooding in a 1 in 50-year storm, and at least a medium/high risk for a 1 in 5-year storm in the present-day scenario (2022). By 2035 the risk is forecast to increase to 76 sites, including an additional 3 WWTW, 48 SPS’s and 2 sewer network catchments. By 2050 the risk increases to 172 sites, including an additional 93 SPS’s and 3 sewer network catchments.

Line 11b base – There is no base investment to reduce the risk of coastal flooding or coastal erosion impacting assets.

Line 11c enhancement – In AMP8 23 enhancements will be delivered, 51 in AMP9, 32 in both AMPs 10 and 11 and 34 enhancements in AMP12. This profile reduces the residual risk to 0 by the end of AMP12.

Lines 11ci enhancement cost Capex – Overall capital investment of £45.9M is included within the enhancement plan to address coastal flooding and coastal erosion risks between 2025 and 2050. The capex is profiled as follows: £13.8M in AMP8, £11.9M in AMP9, £7.6M in AMP10, £6.2M AMP11 and £6.3million in AMP12. The higher costs in AMP8 and AMP9 are incurred due to the higher unit rate for WWTW investments compared to the other asset groups.

Line 11cii enhancement cost Opex – No Opex costs are associated with flood defence infrastructure.

Line 11ciii enhancement cost Totex – Totex represents the capex in Line 11b.

**3. RAID - Risks Assumptions Issues Dependencies**

**Assumption** - Costs for WwTW and SPS solutions use a unit cost figure from a previous project that has been corrected for inflation, optimism bias and includes on costs.

**Assumption** - Sewer length cost derived from WINEP figure of £8 million for 161km. Value of £6.88 million delineated from this figure then the 12.1% uplift figure to bring up to 2022/23 costing was applied.

**Issue** – The Isles of Scilly have been included in DWMP, but detailed costs are being prepared as part of the PR24 programme. SWW became the water and wastewater service provide for the IoS, in April 2020, after the DWMP process for Cycle 1 had started so have been managed outside of the Water UK Framework for DWMP.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 12 – Serious Pollution Incidents</b>	AMP8	AMP9+
Lines	12a – Serious Pollution incidents – baseline		
	12b – Serious Pollution incidents – base		
	12c – Serious Pollution incidents – post enhancement		
	12ci – Serious Pollution incidents – enhancement cost CAPEX		
	12cii – Serious Pollution incidents – enhancement cost OPEX		
	12ciii – Serious Pollution incidents – enhancement costs TOTEX		
Data Owner	Steve Rosser		
Senior Manager	Mark Worsfold		
Executive Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

**COMMENTARY**

**Line 12 – Serious pollution incidents**

**1. Overall summary**

We have an established pollution incident reduction plan (PIRP) in AMP7 which aims to effect the step change in performance required to achieve our 2025 performance commitment (PC) of 19.5 incidents per 10,000km sewer and to eliminate the risk of serious pollution incidents. Our DWMP strategy builds on this approach through the adoption of risk-based catchment planning to ensure investments to reduce storm overflow spills are optimised to maximise delivery of additional pollution and flooding benefits. Our overall aim is to offset baseline deterioration and to deliver a sustained improvement in performance such that the incidence of serious pollution incidents remains at zero over the next 25 years.

Line	Outcome	Description	Unit	AMP7	AMP8						AMP9					AMP10	AMP11	AMP12	Total 25 yr	
				Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)		Total AMP12 (2045-50)
12a	Pollution Cat 1 and 2 - baseline	Number of category 1-2 pollution incidents per 10,000km of wastewater network	nr	0.0	0.6	1.2	1.8	2.4	3.0	3.0	3.6	4.2	4.8	5.4	6.0	6.0	9.0	12.0	15.0	15.0
12b	Pollution Cat 1 and 2 - base	Number of category 1-2 pollution incidents per 10,000km of wastewater network	nr	0.0	0.3	0.6	0.9	1.2	1.5	1.5	1.8	2.1	2.4	2.7	3.0	3.0	4.5	6.0	7.5	7.5
12br	Pollution Cat 1 and 2 - post enhancement	Number of category 1-2 pollution incidents per 10,000km of wastewater network	nr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12bi	Pollution Cat 1 and 2 - enhancement cost	capex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
12bii	Pollution Cat 1 and 2 - enhancement cost	opex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
12biv	Pollution Cat 1 and 2 - enhancement cost	totex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0

**All scenarios**

**2. Line specifics**

Line 1a baseline – Our forecast 2024-25 performance is zero serious pollution incidents and without further intervention above our current 2020 levels this performance is predicted to deteriorate substantially, to a risk of 3 incidents by 2030, and 15 incidents by 2050. This reflects the substantive increase in asset base required to deliver the storm overflow spill reduction plan, and the similarly substantive additional maintenance requirement to minimise the risk of serious pollutions.

Line 1b base – From a starting forecast of zero serious pollution incidents in 2024-25 our base investment alone is forecast to mitigate 50% of the forecast baseline deterioration, with 1.5 serious incidents by 2030 and 7.5 by 2050. This reflects the squeeze on Base investment post 2025 to ensure customer bills are affordable, and also the anticipated benefits from the enhanced plan.

Line 1c post enhancement – The DWMP enhancement programme to reduce storm overflow spills has substantial synergies and overlaps with high service failure risk catchments and asset groups. Adoption of catchment-based planning and targeting solutions addressing the root cause of related service failures will provide additional pollution performance benefits. Our target is to maintain the risk of serious pollution incidents at zero between 2025 and 2050.

Lines 1ci enhancement costs capex – There is no capex for serious pollution incidents as improved performance is funded from other planning objectives, predominantly storm overflows.

Lines 1cii enhancement costs Opex – There is no Opex for serious pollution incidents as improved performance is funded from other planning objectives, predominantly storm overflows.

Lines 1ciii enhancement costs Totex – Totex is zero.

### **3. RAID - Risks Assumptions Issues Dependencies**

Assumption – Pollution incident reduction plan (PIRP) and funding continues through to 2025

Risk – The EA may introduce new EDM/FFT monitoring to identify unauthorised discharges which would substantially increase pollution risk

Risk – Performance forecasts only allows for a marginal increase in risk due to inclusion of the Isles of Scilly within pollution reporting, this remains a relative unknown factor

Dependency – Forecast performance profiles are dependent upon the 30% additional sewer lengths identified being accepted for normalisation from 2025

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Tables	Outcome Summary – Scenario A		
Table	<b>Table 13 – Nutrient Reduction</b>	AMP8	AMP9+
Lines	13a – Nutrient Reduction - baseline		
	13b – Nutrient Reduction - base		
	13c – Nutrient Reduction - post enhancement		
	13ci – Nutrient Reduction - enhancement cost CAPEX		
	13cii – Nutrient Reduction - enhancement cost OPEX		
	13ciii – Nutrient Reduction - enhancement cost TOTEX		
Data Owner	Jane O’Connor		
Senior Manager	Mark Worsfold		
GEX Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

**COMMENTARY**

**Line 13 – Nutrient Reduction**

Outcome	Description	Unit	AMP7					AMP8					AMP9					AMP10			AMP11		AMP12		Total 25 yr
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)							
13a	Nutrient Reduction - baseline	nr	48	48	48	48	48	48	48	48	103	103	103	103	103	151	194	235	230	230					
13b	Nutrient Reduction - base	nr	48	48	48	48	48	48	48	48	103	103	103	103	103	151	194	235	230	230					
13c	Nutrient Reduction - post enhancement	nr	48	48	41	34	24	0	0	0	98	88	73	52	0	0	0	0	0	0					
13ci	Nutrient Reduction - enhancement cost	capex	£10.0	£9.0	£10.0	£12.0	£12.0	£10.0	£10.0	£10.0	£17.0	£17.0	£14.0	£9.0	£0.0	£390.0	£130.0	£75.0	£50.0	£27.0					
13cii	Nutrient Reduction - enhancement cost	opex	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00					
13ciii	Nutrient Reduction - enhancement cost	totex	£10.0	£9.0	£10.0	£12.0	£12.0	£10.0	£10.0	£10.0	£17.0	£17.0	£14.0	£9.0	£0.0	£390.0	£130.0	£75.0	£50.0	£27.0					

**1. Overall summary**

Nutrient reduction is targeted on an AMP by AMP basis as new requirements arise at the start of each AMP. The programme is agreed during each Price review process and agreed with the EA under the Water Industry National Environment Programme (WINEP). The AMP7 programme is currently in delivery.

**2. Line specifics**

**Scenario 1a:**

Line 13a baseline – The number of WWTW requiring nutrient reductions in AMP8 is 48 and this, like in all other AMPs, stays steady across the 5 years due to the requirements being set out at the beginning of the AMP and therefore doesn’t change year upon year. After the accumulation across AMP8, AMP9 103 more, AMP10 43 more, AMP11 22 more, AMP12 14 more, the total number of WWTW requiring a reduction by 2050 is 230.

Line 13b base – This line is equal to line 13a as there is no base investment currently in place.

Line 13c enhancement – The number of WWTW being targeted per AMP is based upon the new requirements under the WINEP for that particular AMP, which is 48 in AMP8, and estimated at 103 in AMP9, 43 in AMP10, 22 in AMP11 and 14 in AMP12. The breakdown across the AMP is 5% in year one and an incremental 5% increase through the next 3 years, with 50% of WWTW being resolved in the 5<sup>th</sup> year.



Lines 13ci enhancement cost CAPEX – The Capex cost is based upon the number of WWTWs with new permit standards for nutrients in each year. To enhance 48 WWTW, £160M is being spent across the 5 years of AMP8, with that cost being apportioned in the same percentage intervals as the number of sites undergoing investment. In addition, £336M is being spent in AMP9, £150M in AMP10, £75M in AMP11 and £50M in AMP12, totalling £771M across the 25 years. The breakdown of investment across each AMP is 5% in year 1 and an incremental increase of 5% over the next 3 years with the final 50% in year 5 of the AMP.

Line 13cii enhancement cost OPEX – The OPEX cost is based upon the number of WWTWs with new permit standards for nutrients in each year. To enhance 48 WWTW £4.07M is being spent across the 5 years of AMP8, with that being apportioned in the same percentage intervals as the number of sites undergoing investment. In addition, £17.96M is being spent in AMP9, £7.67M in AMP10, £8.54M in AMP11 and £9.12M in AMP12, totalling £47M across the 25 years. The breakdown of investment across each AMP is 5% in year 1 and an incremental increase of 5% over the next 3 years with the final 50% in year 5 of the AMP.

Line 13ciii enhancement cost TOTEX - No specifics simply a sum of CAPEX + OPEX

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**Scenario 1b:**

Line 13a baseline – See scenario 1a

Line 13b base – See scenario 1a

Line 13c enhancement – See scenario 1a

Line 13ci enhancement cost CAPEX – See scenario 1a

Line 13cii enhancement cost OPEX – See scenario 1a

Line 13ciii enhancement cost TOTEX – See scenario 1a

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**Scenario 2:**

Line 13a baseline – See scenario 1a

Line 13b base – See scenario 1a

Line 13c enhancement – See scenario 1a

Line 13ci enhancement cost CAPEX – See scenario 1a

Line 13cii enhancement cost OPEX – See scenario 1a

Line 13ciii enhancement cost TOTEX – See scenario 1a

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**Scenario 3:**

Line 13a baseline – See scenario 1a

Line 13b base – See scenario 1a

Line 13c enhancement – See scenario 1a

Line 13ci enhancement cost CAPEX – See scenario 1a

Line 13cii enhancement cost OPEX – See scenario 1a

Line 13ciii enhancement cost TOTEX – See scenario 1a

**Scenario 4:**

Line 13a baseline – See scenario 1a

Line 13b base – See scenario 1a

Line 13c enhancement – See scenario 1a

Line 13ci enhancement cost CAPEX – See scenario 1a

Line 13cii enhancement cost OPEX – See scenario 1a

Line 13ciii enhancement cost TOTEX – See scenario 1a

**Scenario 5:**

Outcome	Description	Unit	AMP7	AMP8					AMP9					Total AMP9 (2030-33)	Total AMP10 (2034-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	Total 25 yr		
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34						2034-35	
13a	Nutrient Reduction - baseline	nr	48	48	48	48	48	48	48	48	151	151	151	151	151	151	207	263	319	319
13b	Nutrient Reduction - base	nr	48	48	48	48	48	48	48	48	151	151	151	151	151	151	207	263	319	319
13c	Nutrient Reduction - post enhancement	nr	48	48	41	34	24	9	0	0	98	88	72	52	9	0	0	0	0	0
13ci	Nutrient Reduction - enhancement cost	capex	£0.0	£0.0	£18.0	£24.0	£32.0	£80.0	£160.0	£127.0	£24.0	£20.0	£10.0	£10.0	£38.0	£39.0	£39.0	£39.0	£39.0	£1,083.0
13cii	Nutrient Reduction - enhancement cost	opex	£0.0	£0.2	£0.4	£0.6	£0.8	£2.0	£4.1	£2.23	£2.62	£3.20	£3.98	£5.93	£17.96	£8.23	£10.53	£12.83	£12.83	£53.6
13ciii	Nutrient Reduction - enhancement cost	totex	£0.0	£0.2	£18.4	£24.6	£32.8	£82.0	£164.1	£29.2	£26.6	£13.2	£13.9	£15.9	£56.9	£47.2	£49.5	£51.8	£51.8	£1,136.6

**Overall Summary**

This scenario is based upon having an improved level of technology and therefore the requirements in the later AMPs has increased. This is reflected in the total number of WWTW requiring reduction being 319, which is an increase across the 25 years of 89 WWTW sites. The assumption of improved technology is based on improvements in the reliable measurement of total nitrogen (TN) and improvements in treatment technologies to reliably reduce total nitrogen below the current technically achievable limit (TAL). If these advances in technology occur, then there will be an increased will to reduce total nitrogen standards to further protect waterbodies from the risks of eutrophication.

Line 13a baseline – This is the same as scenario 1a except the later three AMPs have an increased number of sites requiring a reduction in nutrient levels, specifically total nitrogen. AMP10 has increased from 194 to 207 sites, AMP11 from 216 to 263 and AMP12 from 230 to 319, which represents a total increase of 89.

Line 13b base – This is the same as baseline as there is currently no investment, so an increase of 89 sites over AMP10-12.

Line 13c enhancement – This is the same as scenario 1a for AMP8 and AMP9, but now 56 WWTW are now planned for investment in each of AMP10-12, to manage the requirement for reduction in total nitrogen.

Lines 13ci enhancement cost CAPEX – The increase in CAPEX reflects the increase in number of sites undergoing investment. In AMPs 10-12 £195M will be spent in each AMP which is an increase in AMP10 of £45M compared to scenarios 1-4, and in AMP11 the uplift is £120M and in AMP12 the uplift is £145M.

Lines 13cii enhancement cost OPEX – The increase in OPEX reflects the increase in number of sites undergoing investment. OPEX in AMP8 will be £4.1M, in AMP9 it will be £17.96M. In AMP 10, £8.23M will be spent, AMP11 is forecast to be £10.53M and AMP12 this increases to £12.83M, which is an increase in total OPEX spend of £53.6M.

Lines 13ciii enhancement cost TOTEX – No specifics simply a sum of CAPEX + OPEX.

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### Scenario 6:

Line 13a baseline – See scenario 5

Line 13b base – See scenario 5

Line 13c enhancement – See scenario 5

Line 13cii enhancement cost CAPEX – See scenario 5

Line 13cii enhancement cost OPEX – See scenario 5

Line 13ciii enhancement cost TOTEX – See scenario 5

### 3. RAID - Risks Assumptions Issues Dependencies

**Assumption** – WINEP programmes and funding used to calculate costs and benefits for proposed schemes.

**Assumption** – Projections based on no change to total WWTW numbers (additional works and consolidation schemes are possible)

**Risk** – Baseline performance deteriorates more than expected (e.g., population growth exceeds forecast)

**Risk** – Programme costs increase so fewer outputs are delivered for same cost

**Risk** – Future compliance standards tighten and plans insufficient to maintain compliance performance

**Issue** – The Isles of Scilly have been included in DWMP, but detailed costs are being prepared as part of the PR24 programme. SWW became the water and wastewater service provide for the IoS, in April 2020, after the DWMP process for Cycle 1 had started so have been managed outside of the Water UK Framework for DWMP.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 14 – Risk of Sewer flooding in a 1 in 10 storm</b>	AMP8	AMP9+
Lines	14a - Risk of Sewer flooding in a 1 in 10 storm - baseline		
	14b - Risk of Sewer flooding in a 1 in 10 storm - base		
	14c - Risk of Sewer flooding in a 1 in 10 storm - post enhancement		
	14ci - Risk of Sewer flooding in a 1 in 10 storm - enhancement cost CAPEX		
	14cii - Risk of Sewer flooding in a 1 in 10 storm - enhancement cost OPEX		
	14ciii - Risk of Sewer flooding in a 1 in 10 storm - enhancement cost TOTEX		
Data Owner	Steve Rosser		
Senior Manager	Mark Worsfold		
Executive Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

**COMMENTARY**

**Line 14 – Risk of Sewer Flooding in a 1 in 10 storm**

**1. Overall summary**

This measure is closely related to the internal sewer flooding outcome, representing the modelled risk of flooding impacting a property due to lack of sewer capacity, this is an area where we have invested substantially over the last 15 years. Our current forecast for 2024-25 is 5.17% properties at risk in a 10-year storm.

**Scenario 1a/1b**

Outcome	Description	Unit	AMP7										AMP8			AMP9			Total 25 yr
			Forecast 2024/25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2030-30)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	
14a	Risk of Flooding 1 in 10 - baseline	%	5.17%	5.19%	5.21%	5.23%	5.25%	5.27%	5.27%	5.29%	5.32%	5.34%	5.36%	5.38%	5.38%	5.48%	5.50%	5.69%	5.69%
14b	Risk of Flooding 1 in 10 - base	%	5.17%	5.19%	5.21%	5.23%	5.25%	5.26%	5.26%	5.29%	5.31%	5.33%	5.35%	5.38%	5.38%	5.48%	5.52%	5.61%	5.61%
14c	Risk of Flooding 1 in 10 - post enhancement	%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%
14ci	Risk of Flooding 1 in 10 - enhancement cost	Capex	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
14cii	Risk of Flooding 1 in 10 - enhancement cost	OPEX	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
14ciii	Risk of Flooding 1 in 10 - enhancement cost	TOTEX	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0

Scenarios 1a/1b assume a 2 degree rise in temperature (low climate change scenario) resulting in a predicted increase in properties at risk of 1 in 10-year storm flooding of 0.02% per year for the next 25 years up to 5.69% in 2050. Our Base sewer flooding investment outside the DWMP will provide a marginal performance benefit from Baseline. However, more substantial benefits will arise from the storm overflow reduction plan which will prioritise catchment separation and flow reduction and enable risk to be maintained at no more than 5.17% of properties out to 2050.

**2. Line specifics**

Line 3a baseline – With no additional investment above 2020 levels the effects of urban creep and 2 degrees rise in temperature are forecast to increase risk from 5.17% properties at risk in a 10-year storm in 2025, to 5.27% of properties by 2030, and 5.69% by 2050.

Line 3b base – There is currently a modest internal sewer flooding programme outside DWMP investment which targets properties at risk of flooding to lack of sewer capacity. This is forecast to marginally offset baseline deterioration, to 5.26% of properties at risk in a 10-year storm in 2030, and 5.61% by 2050.

Line 3c enhancement – The DWMP enhancement programme to reduce storm overflow spills will provide cumulative flood reduction benefits through the adoption of surface water separation and nature-based solutions which is expected to offset base deterioration. Our target is to hold the number of properties at risk of flooding in a 10-year storm at 5.17% through to 2050.

Lines 3ci enhancement cost CAPEX – There is no capex in scenarios 1a and 1b

Line 3cii enhancement cost OPEX – There is no Opex in scenarios 1a and 1b

Line 3ciii enhancement cost TOTEX - There is no Totex in scenarios 1a and 1b

**Scenario 2:**

Outcome	Description	Unit	AMP7	AMP9						AMP9						AMP10	AMP11	AMP12	
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP9 (2020-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	Total 25 yr
14a	Flooding 1 in 10 - baseline	%	5.17%	5.24%	5.30%	5.37%	5.44%	5.51%	5.51%	5.57%	5.64%	5.71%	5.77%	5.84%	5.84%	6.18%	6.51%	6.85%	6.85%
14b	Flooding 1 in 10 - base	%	5.17%	5.23%	5.30%	5.36%	5.42%	5.49%	5.49%	5.55%	5.62%	5.69%	5.76%	5.82%	5.82%	6.12%	6.43%	6.75%	6.75%
14bi	Flooding 1 in 10 - post enhancement	%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%	5.17%
14bi	Flooding 1 in 10 - enhancement cost	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
14bii	Flooding 1 in 10 - enhancement cost	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
14biii	Flooding 1 in 10 - enhancement cost	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0

Scenario 2 assumes a 4 degree rise in temperature (high climate change scenario) resulting in a predicted higher increase in properties at risk of 1 in 10-year storm flooding of 0.07% per year for the next 25 years up to 6.85% in 2050. This scenario benefits from the modest investment of £1.25bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, this will mitigate deterioration and enable 1 in 10-year risk to be maintained at no more than 5.17% properties out to 2050.

**3. Line specifics**

Line 3a baseline – With no additional investment above 2020 levels the effects of urban creep and 4 degrees rise in temperature are forecast to increase risk from 5.17% properties at risk in a 10-year storm in 2025, to 5.51% of properties by 2030, and 6.85% by 2050.

Line 3b base – There is currently a modest internal sewer flooding programme outside DWMP investment which targets properties at risk of flooding to lack of sewer capacity. This is forecast to marginally offset baseline deterioration, to 5.49% of properties at risk in a 10-year storm in 2030, and 6.75% by 2050.

Line 3c enhancement – Modest investment of £1.25bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm will also provide benefit to 1 in 10-year flood risk. With the additional benefits of the storm overflow spills reduction plan we forecast that the accelerated baseline deterioration can be mitigated, and our target is to hold the number of properties at risk of flooding in a 10-year storm at 5.17% through to 2050.

Lines 3ci enhancement cost CAPEX – The enhancement plan for 1 in 10-year storm flooding includes no specific Capex investment.

Line 3cii enhancement cost OPEX – The enhancement plan for 1 in 10-year storm flooding includes no specific Opex investment.

Line 3ciii enhancement cost TOTEX – Overall Totex is zero.

**Scenario 3:**

Outcome	Description	Unit	AMP7	AMP8					AMP9					AMP10	AMP11	AMP12	Total 25 yr			
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)		Total AMP11 (2040-45)	Total AMP12 (2045-50)	
14a	Flooding 1 in 10 - baseline	Percentage of properties at risk of sewer flooding in a 1 in 10 storm	%	5.17%	5.19%	5.21%	5.23%	5.25%	5.27%	5.27%	5.29%	5.32%	5.34%	5.36%	5.38%	5.38%	5.48%	5.59%	5.69%	£0 m
14b	Flooding 1 in 10 - base	Percentage of properties at risk of sewer flooding in a 1 in 10 storm	%	5.17%	5.19%	5.21%	5.23%	5.24%	5.26%	5.26%	5.28%	5.29%	5.31%	5.32%	5.33%	5.35%	5.45%	5.52%	5.61%	£0 m
14bi	Flooding 1 in 10 - post enhancement	Percentage of properties at risk of sewer flooding in a 1 in 10 storm	%	5.17%	5.07%	4.97%	4.87%	4.77%	4.66%	4.66%	4.65%	4.65%	4.65%	4.65%	4.65%	4.65%	4.65%	4.65%	2.64%	£0 m
14bi	Flooding 1 in 10 - enhancement cost	capex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
14bil	Flooding 1 in 10 - enhancement cost	opex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
14bil	Flooding 1 in 10 - enhancement cost	totex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0

Scenario 3 assumes a 2 degree rise in temperature (low climate change scenario) resulting in a predicted increase in properties at risk of 1 in 10-year storm flooding of 0.02% per year for the next 25 years up to 5.69% in 2050. This scenario benefits from investment of £2.25bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, this will mitigate deterioration and more than halve the overall risk down to 2.64% by 2050.

**4. Line specifics**

Line 3a baseline – With no additional investment above 2020 levels the effects of urban creep and 2 degrees rise in temperature are forecast to increase risk from 5.17% properties at risk in a 10-year storm in 2025, to 5.27% of properties by 2030, and 5.69% by 2050.

Line 3b base – There is currently a modest internal sewer flooding programme outside DWMP investment which targets properties at risk of flooding to lack of sewer capacity. This is forecast to marginally offset baseline deterioration, to 5.26% of properties at risk in a 10-year storm in 2030, and 5.61% by 2050.

Line 3c enhancement – Investment of £2.25bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, plus the benefits of the storm overflow spills reduction plan is expected to offset base deterioration and more than halve the overall risk down to 2.64% by 2050.

Lines 3ci enhancement cost CAPEX – The enhancement plan for 1 in 10-year storm flooding includes no specific Capex investment.

Line 3cii enhancement cost OPEX – The enhancement plan for 1 in 10-year storm flooding includes no specific Opex investment.

Line 3ciii enhancement cost TOTEX – Overall Totex is zero.

**Scenarios 4,5 and 6:**

Outcome	Description	Unit	AMP7					AMP8					AMP9					Total AMP9 (2039-33)	Total AMP10 (2035-40)	Total AMP11 (2040-45)	Total AMP12 (2045-50)	Total 25 yr
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP8 (2025-2030)	2030-31	2031-32	2032-33	2033-34	2034-35								
14a	Flooding 1 in 10 - baseline	Percentage of properties at risk of sewer flooding in a 1 in 10 storm	%	5.17%	5.24%	5.30%	5.37%	5.44%	5.51%	5.52%	5.57%	5.63%	5.71%	5.77%	5.84%	5.84%	6.18%	6.53%	6.80%	6.85%		
14b	Flooding 1 in 10 - base	Percentage of properties at risk of sewer flooding in a 1 in 10 storm	%	5.17%	5.22%	5.30%	5.36%	5.42%	5.49%	5.49%	5.55%	5.61%	5.68%	5.74%	5.80%	5.80%	6.12%	6.43%	6.70%	6.75%		
14bi	Flooding 1 in 10 - post enhancement	Percentage of properties at risk of sewer flooding in a 1 in 10 storm	%	5.17%	5.07%	4.97%	4.87%	4.77%	4.68%	4.68%	4.58%	4.48%	4.38%	4.28%	4.18%	4.18%	3.65%	3.15%	2.64%	2.64%		
14bi	Flooding 1 in 10 - enhancement cost	capex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0			
14bii	Flooding 1 in 10 - enhancement cost	opex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0			
14bii	Flooding 1 in 10 - enhancement cost	totex	£m	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0			

Scenarios 4, 5 and 6 all assume a 4 degree rise in temperature (high climate change scenario) resulting in a predicted higher increase in properties at risk of 1 in 10-year storm flooding of 0.07% per year for the next 25 years up to 6.85% in 2050. These scenarios also benefit from a substantial investment of £3.5bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm. Combined with the benefits from the storm overflow reduction plan, we forecast this will mitigate accelerated deterioration and enable risk to be more than halved to 2.64% by 2050.

### 5. Line specifics

Line 3a baseline – With no additional investment above 2020 levels the effects of urban creep and 4 degrees rise in temperature are forecast to increase risk from 5.17% properties at risk in a 10-year storm in 2025, to 5.51% of properties by 2030, and 6.85% by 2050.

Line 3b base – There is currently a modest internal sewer flooding programme outside DWMP investment which targets properties at risk of flooding to lack of sewer capacity. This is forecast to marginally offset baseline deterioration, to 5.49% of properties at risk in a 10-year storm in 2030, and 6.75% by 2050.

Line 3c enhancement – Substantial investment of £3.5bn over 25 years to address the risk of sewer flooding in a 1 in 50-year storm, plus the benefits of the storm overflow spills reduction plan is expected to offset this accelerated baseline deterioration and enable a more than halving of 10-year flooding risk to 2.64% by 2050.

Lines 3ci enhancement cost CAPEX – The enhancement plan for 1 in 10-year storm flooding includes no specific Capex investment.

Line 3cii enhancement cost OPEX – The enhancement plan for 1 in 10-year storm flooding includes no specific Opex investment.

Line 3ciii enhancement cost TOTEX – Overall Totex is zero.

### 3. RAID - Risks Assumptions Issues Dependencies

**Assumption** – BAU programme and funding continues - Yes

**Risk** – Baseline performance deteriorates more than expected – Possible but there is a buffer at present

**Risk** – BAU programme costs increase so fewer outputs are delivered for same cost

**Issue** – The Isles of Scilly have been included in DWMP, but detailed costs are being prepared as part of the PR24 programme. SWW became the water and wastewater service provide for the IoS, in April 2020, after the DWMP process for Cycle 1 had started so have been managed outside of the Water UK Framework for DWMP.

Tables	Outcome Summary – Scenario A		
Table	<b>Table 15 – DWF Compliance</b>	AMP8	AMP9+
Lines	15a – DWF Compliance - baseline		
	15b – DWF Compliance - base		
	15c – DWF Compliance - post enhancement		
	15ci – DWF Compliance - enhancement cost		
	15cii – DWF Compliance - enhancement cost		
	15ciii – DWF Compliance - enhancement cost		
Data Owner	Jane O'Connor		
Senior Manager	Mark Worsfold		
GEX Director	Lisa Gahan		

Key to completion guidance

	Cell to be completed as part of final DWMP
	Optional but recommended as part of final DMWP
	Calculated cells

**COMMENTARY**

**Table 15 – DWF Compliance**

Outcome	Description	Unit	AMP7	AMP8					AMP9					AMP10	AMP11	AMP12	Total 25 yr				
			Forecast 2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total AMP9 (2025-2830)	2030-31	2031-32	2032-33	2033-34	2034-35	Total AMP9 (2030-35)	Total AMP10 (2035-40)		Total AMP11 (2040-45)	Total AMP12 (2045-50)		
15a	DWF Compliance - baseline	nr	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	123
15b	DWF Compliance - base	nr	0	3	2	1	1	0	0	0	30	28	24	18	0	0	0	0	0	0	0
15c	DWF Compliance - post enhancement	nr	0	3	2	1	1	0	0	0	30	28	24	18	0	0	0	0	0	0	0
15ci	DWF Compliance - enhancement cost	capex	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
15cii	DWF Compliance - enhancement cost	opex	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0
15ciii	DWF Compliance - enhancement cost	totex	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0

**1. Overall summary**

DWF compliance is targeted on an AMP-by-AMP basis as new requirements arise at the start of each AMP. The objective of this investment line is to ensure appropriate levels of investment to manage risks derived from population growth. As population growth occurs, volumetric and treatment capacity headroom is eroded and eventually investment is required to increase treatment capacity to maintain compliance with dry weather flow permitted values (and qualitative permit values also). We compare predicted development data from ONS and Local Authority Plans, and monitor DWF on our wastewater treatment works (WWTW) to understand where and when risks to permitted DWF are likely to occur.

Baseline risk increases over time in line with population growth assumptions, without capacity investment the headroom at WWTWs is eroded and DWF risks emerge. As this is a base investment plan to address emerging risks, there are no requirements for enhanced investment and therefore no need for enhanced Capex, Opex or Totex spend.

**2. Line specifics**

**Scenario 1a:**

Line 15a baseline – The number of WWTW requiring investment for DWF compliance in AMP8 is 3 and this, like in all other AMPs, stays steady across the 5 years due to the requirements being set out at the beginning of the AMP with no additional change year on year. An additional 30 WWTW are



forecast to require work to remain compliant in each subsequent AMP period, which totals 123 by 2050.

Line 15b base – This line sets out the number of WWTW at risk of DWF compliance at the beginning of each AMP, with the subsequent yearly entries diminishing as investment addresses the risk. There are 3 high risk sites addressed over AMP8, returning the risk to zero by 2030. In each subsequent AMP, 30 additional WWTW per AMP are forecast to be at risk, with the investment gradually reducing this to zero by the final year. Three sites are addressed in AMP8, across the remainder of the AMPs, the delivery profile is 5% of WWTW in year one and an incremental 5% increase through the next 3 years, with 50% of WWTW being resolved in the final year to reduce risk back to zero.

Line 15c enhancement – This line is equal to line 15b as there is no enhanced investment currently required.

Lines 15ci enhancement cost Capex – No Capex as the issue is already being resolved within base investment and therefore no enhanced investment is required.

Line 15cii enhancement cost Opex – No Opex as the issue is already being resolved within base investment and therefore no enhanced investment is required.

Line 15ciii enhancement cost Totex - No Totex as no Capex or Opex.

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**Scenario 1b:**

Line 15a baseline – See scenario 1a

Line 15b base – See scenario 1a

Line 15c enhancement – See scenario 1a

Lines 15ci enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

---

**Scenario 2:**

Line 15a baseline – See scenario 1a

Line 15b base – See scenario 1a

Line 15c enhancement – See scenario 1a

Lines 15ci enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

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**Scenario 3:**

Line 15a baseline – See scenario 1a

Line 15b base – See scenario 1a

Line 15c enhancement – See scenario 1a

Lines 15ci enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

---

**Scenario 4:**

Line 15a baseline – See scenario 1a

Line 15b base – See scenario 1a

Line 15c enhancement – See scenario 1a

Lines 15ci enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

---

**Scenario 5:**

Line 15a baseline – See scenario 1a

Line 15b base – See scenario 1a

Line 15c enhancement – See scenario 1a

Lines 15ci enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

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**Scenario 6:**

Line 15a baseline – See scenario 1a

Line 15b base – See scenario 1a

Line 15c enhancement – See scenario 1a

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Lines 15ci enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

Lines 15ciii enhancement costs – See scenario 1a

### 3. RAID - Risks Assumptions Issues Dependencies

**Assumption** - Costs for WWTW and SPS solutions based on cost from Countess Wear, current uplift value is 12.1%.

**Assumption** - On cost and Optimism bias applied is 80.6% and 23.3% respectively.

**Assumption** - Sewer length cost derived from WINEP figure of £8 million for 161km. Value of £6.88 million delineated from this figure then the 12.1% uplift figure applied.

**Assumption** – WINEP programmes and funding.

**Assumption** – Compliance % projections based on no change to total WWTW numbers (additional works and consolidation schemes are possible in some cases).

**Risk** – Baseline performance deteriorates more than expected (e.g., population growth exceeds forecast).

**Risk** – Programme costs increase so fewer outputs are delivered for same cost.

**Risk** – Future compliance standards tighten and plans insufficient to maintain compliance performance.

**Issue** – The Isles of Scilly have been included in DWMP, but detailed costs are being prepared as part of the PR24 programme. SWW became the water and wastewater service provide for the IoS, in April 2020, after the DWMP process for Cycle 1 had started so have been managed outside of the Water UK Framework for DWMP.