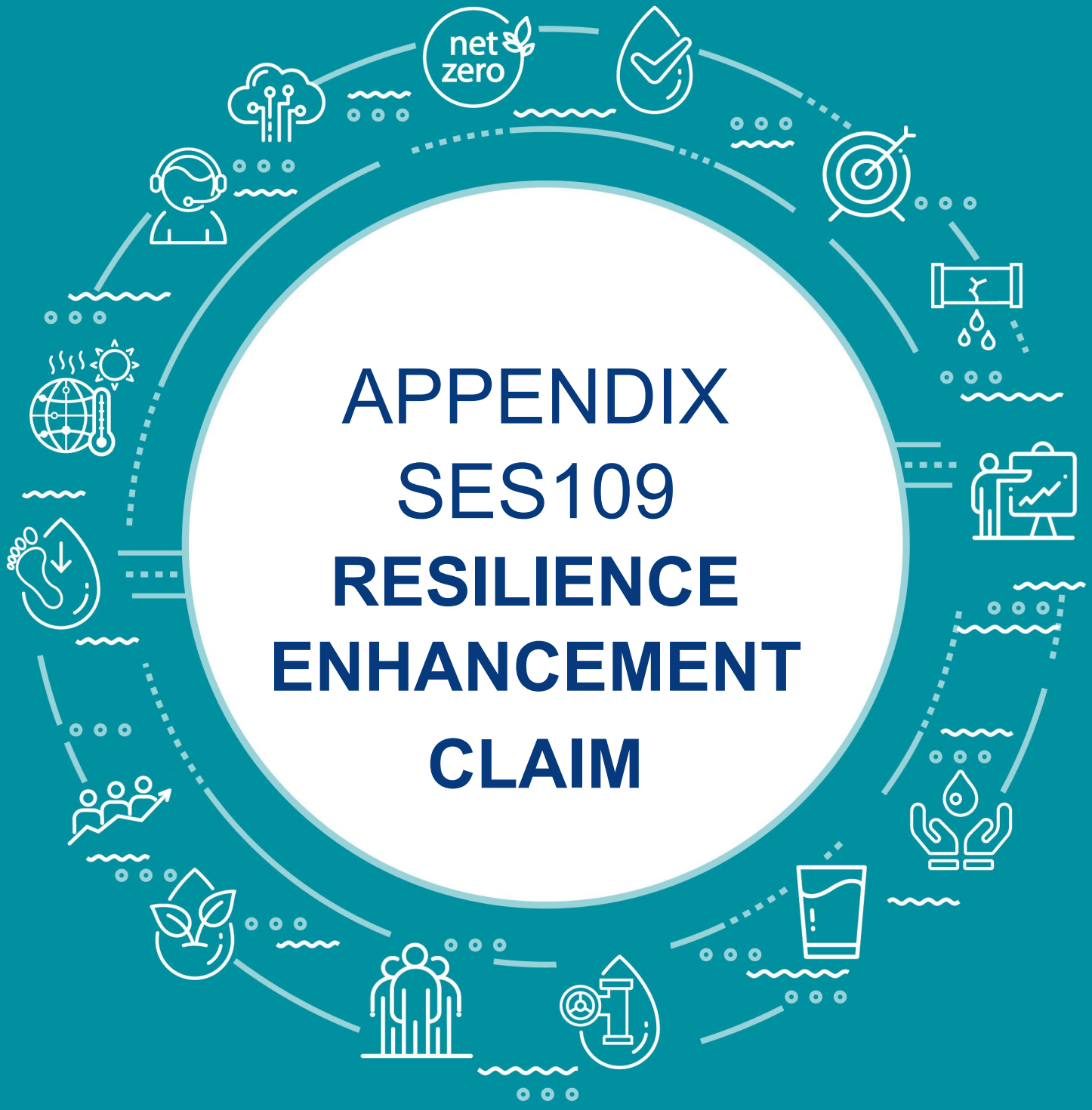
APPENDIX SES109 RESILIENCE ENHANCEMENT CLAIM



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APPENDIX SES109: RESILIENCE ENHANCEMENT CLAIM

In this Appendix we present more detailed material across a number of enhancements to justify the required investment needed to ensure ongoing resilience of our water treatment works, processes and production assets.

In some cases, Ofwat have considered the activities relate to climate change resilience and form part of the sector-wide uplift included in the draft determination. We therefore endeavour to provide information that reflects why several of the proposed activities are key to our operational resilience; and that the risk of significantly reduced funding presents specific and defined challenges, in both our continued operation today and our ability to be sufficiently equipped to deliver our core LTDS pathway.

A. Introduction

1. In our PR24 Business Plan submission, we set out an enhancement case (SES007 – *Enhancing the resilience of our water treatment works and processes*). The draft determination has awarded elements of funding and contributed a further industry-wide award of £1.6 million for enhancements related to climate resilience.
2. In this representation, we are seeking the full funding level of our original Business Plan enhancement case for resilience, including the elements Ofwat have assessed as resilience related. These total £6.87m and are comprised of the following areas[1]:
   - **(a)** Firstly, we represent back on the provision of the £3.73m funding sought to deliver specific resilience schemes for a number of our sites that Ofwat assesses as being covered by a climate change resilience allowance.
   - **(b)** Secondly, we represent back on the funding requirements for three specific enhancement activities (SEMD and cyber-related works – £2.04m; the provision of resilience intra-connectors – £0.5m; and undertaking regional resilience water resource planning activities – £0.6m) that Ofwat has either partially or wholly rejected in its draft determination.
3. We believe that several items included in our enhancement case may have been interpreted as climate-related activities. However, this is not the case, and we therefore believe we have been underfunded for several enhancement actions that are vital to improve the resilience of our treatment works and processes for the benefit of our customers and the environment.
4. We have prepared this Representation (Appendix SES109) to provide further information across our enhancements with a view to further informing Ofwat of the need for our enhancements and award an increased level of funding. The Appendix is structured as follows:
   - **Section B** provides an overview of the resilience enhancement activities we included in our PR24 Business Plan and outlines the basis we are making representations.

[1] These component enhancements are reflected in Appendix SES118 (Ofwat Proforma, Table RP2).

- **Section C** provides further information on activities that we agree are related to climate resilience but that we consider have a shortfall in funding.
- **Section D** provides evidence on activities we believe Ofwat has considered are related to climate resilience but which are needed to fulfil other resilience needs.
- **Section E** provides further information on all remaining actvities forming part of our original resilience enhancement case to demonstrate why (in most cases) the orginal level of funding is required.
- **Section F** concludes our Representation and provides closing remarks on the details we have set out within this document.

References to our value framework and decision support tool – Copperleaf

5. When developing our Long-Term Delivery Strategy (LTDS) and PR24 Business Plan, we utilised an objective value framework and decision support tool to align with Ofwat's expectations in appraising our needs and developing value assessments when setting out our investment cases. This representation makes reference to the tool, Copperleaf, throughout.
6. As an overview, Copperleaf is a Canadian decision analytics company that worked with us to provide a tailored framework (the 'Copperleaf Value Framework') and specialised tool ('Copperleaf Optimisation Tool/Decision Analytics'). These products enable us to assess both the tangible and intangible benefits across our investment options on an equalised basis, so that we can make informed and objective comparisons between different investments to meet the required investment need.
7. As well as providing insight to investment decision making, we can optimise our investment strategies so that we highlight where and when to invest in our business. This ensures that we maximise capital efficiency, achieve our performance targets, manage risk effectively, and meet our long-term goals driven by our ESG (Environmental, Social, and Governance) strategy, our financial health and our legal/statutory and regulatory requirements.
8. We presented information covering Copperleaf in our LTDS and PR24 Business Plan Appendix SES001 – *LTDS Development Process*. References throughout this document to Copperleaf relate to the decision support tool and related optioneering using Copperleaf products.

B. Overview of our enhancement activities

9. As noted in Section A, our original resilience enhancement case included a number of activities and elements across our water treatment works and wholesale water business model generally. Table 1 below summarises the different elements of this resilience enhancement claim, the draft determination cross referencing, and where the expenditure was reported in data table CW3.

Table 1 Overview of our PR24 and draft determination across our water treatment works and processes enhancements

Activity	PR24 Business Plan totex	Draft determination position	CW3 line	Notes
Site resilience standby programme Site generator connection points (Resilience – Power)	£2.2m	£1.6m	CW3.118	These activities appear to form part of Ofwat's climate change resilience allowance. We concur these do relate to climate-related resilience; however, the limited funding puts our business at risk in this critical area. We understand the nature of the challenge Ofwat has applied in its draft determination on elements of cost, and we provide additional detail in Section C to justify why we consider the full enhancement case is needed to complete these activities.
Leatherhead flood protection (Resilience – Flood)	£0.23m		CW3.119	
Run to waste facilities	£0.83m		CW3.118	These activities also appear to form part of Ofwat's climate change resilience allowance, however, we do not consider these activities relate to climate resilience. In Section D we provide set out why these activities should not be included in the climate resilience assessment and why they require enhancement funding.
Smart water production sites (Resilience T1)	£0.47m		CW3.118 CW3.119	
Inter-zonal resilience (Resilience – interconnection)	£0.50m	£0.30m	CW3.118	Ofwat have outlined there was insufficient evidence surrounding our optioneering to support this activity and applied an additional efficiency challenge. We provide further details on our optioneering work and explain why we require this activity to be fully funded in Section E.
Cyber	£0.38m	£0.30m	CW3.121	We had included this activity as part of our SEMD activity, and we note it has been assessed separately by Ofwat. An efficiency challenge has been proposed by Ofwat and we provide further details in Section E to support the costs originally included in our enhancement case.

SEMD	£1.66m[2]	£1.32m	CW3.121 CW3.122	An efficiency challenge has been proposed by Ofwat and we provide further details in Section E to support the costs included in our enhancement case.
Regional planning	£0.60m[3]	£0.00m	CW3.133	This was rejected by Ofwat on the basis we had not made a clear case as to why this would not be base expenditure. In Section E we present our rationale for a proportion of the costs being enhancement.

[2] Not including the cyber element denoted in the row above.
[3] Not including costs misaligned from our modelling relating to CSL which has now been corrected.

C. Providing further evidence to support our enhancements relating to climate change resilience

10. We understand Ofwat have reviewed various enhancements across the industry that are considered to relate to climate change resilience and made an industry-wide assessment of enhancement funding to cover relevant activities. The draft determination awarded us £1.6 million for these activities.

11. We have identified five enhancement activities from our PR24 Business Plan that Ofwat have interpreted as driven by climate change and included in their industry-wide adjustment. These are as follows:

    - Site resilience standby programme, attributed to 'Resilience – Power',
    - Site generator connection points, also attributed to 'Resilience – Power',
    - Leatherhead flood protection, attributed to 'Resilience – Flood',
    - Run to waste facilities, attributed to 'Resilience', and
    - Smart water production sites, attributed to 'Resilience T1'.

12. We consider that three of these activities do relate to climate change resilience, however, they have not been funded to a level that allows us to deliver the required work. These activities are:

    - Site resilience standby programme, attributed to 'Resilience – Power',
    - Site generator connection points, also attributed to 'Resilience – Power', and
    - Leatherhead flood protection, attributed to 'Resilience – Flood',

13. The final two activities – run to waste facilities and smart water production sites – we consider are enhancement programmes that do not relate to climate resilience. These programmes are needed to address Drinking Water Inspectorate (DWI) regulatory expectations and operational resilience needs. We address Ofwat's draft determinations on these schemes in Section D.

14. To fully demonstrate our need and why we consider the costs for the three climate change resilience related activities are reasonable enhancements, we have set out each activity in this section with further evidence and explanation. In each case we provide:

    - An overview of the proposed enhancement scheme.
    - A summary of the needs case.
    - The optioneering analysis that we have undertaken to identify that the proposed solution is the best value option for customers.
    - Our justification for the proposed enhancement value.
    - How we have reflected this representation in our resubmitted data tables as part of the draft determination response.

15. We continue to consider that each of the three activities are critical to our business and our resilience to the risks from climate change. They are integral elements of the core pathway that we set out in our LTDS and, therefore, Ofwat only funding a proportion of the programme potentially puts the goals and objectives of this long-term investment programme at risk.

Climate change resilience activity 1 – site resilience standby programme

Site resilience standby programme	
Ofwat classification	Resilience – Power
Overview	This investment involves installing equipment and facilities for the seamless, auto-synchronisation changeover from mains power to on-site generation at our Bough Beech Water Treatment Works site. This site, which provides approximately 16% of our distribution input, is particularly vulnerable to climate change related power outages due to its rural location and has experienced a 70% increase in power outages since 2020.
Need	We continue to maintain our standby generation system (from base expenditure) but despite ongoing investment the situation at our Bough Beech site is worsening. We recognise we therefore need to achieve a resolution that ensures a power outage does not result in an operational shutdown in the first place. This will mitigate the ongoing risks associated with shutdowns on our water quality and providing continued security of supply to customers.
Optioneering	When developing our LTDS, we presented the following options to our value framework and decision support tool, Copperleaf: • Option a – undertake no enhancement activities and be exposed to risk and costs arising from repeated outages and associated shutdowns at key sites. • Option b – install battery technology as a form of large-scale uninterruptable power supply, or • Option c – install power monitoring and auto-synchronisation changeover at priority sites – namely our must vulnerable site at Bough Beech – to seamlessly switch to the existing standby generation provision and ensure stability of our operations. Option (c) was selected as the best value option to manage the risks associated with increased frequency of power outages arising from climate change. In preparing our PR24 Business Plan, we prioritised our Bough Beech site as our analysis demonstrated this site experiences significant variability in its power supply. In addition to this PR24 investment, our LTDS identifies an alternative adaptive pathway requiring additional investment for standby generation systems at other key sites if the climate change related trigger points we are monitoring are met. Based on our value framework assessment, the benefits and value derived from this investment contributes to our water quality performance indicators and supporting our unplanned outage PC. As such, there is demonstrable value to our customers from making this enhancement intervention in AMP8.
Enhancement value	£1.2 million We acknowledge that we do not have a detailed solution for this need and best value investment, and we need to specifically explore and optioneer the most appropriate technology for us to deploy at the site. The costs were therefore developed using an internal assessment with an adjustment applied to recognise the variance arising from known solutions to relatively unproven technologies. Known solutions

	did not directly compare to our site (Bough Beech), in terms of scale, and the adjustment therefore addresses this.
Table CW3 reference and description of changes	There has been no change to Table CW3.118

Climate change resilience activity 2 – site generator connection points

Site generator connection points	
Ofwat classification	Resilience – Power
Overview	A number of our borehole and pumping station sites do not currently have a fixed generator installed for use in the case of power outages. This activity would involve installing connection points for standby generators so that we can safely and efficiently connect mobile power supplies – enabling us to continue supplying raw water to our WTW sites for treatment.
Need	Our power management strategy identifies the need to mitigate the risk of power outages across sites where power failures are becoming less infrequent – causing disruptions to our operations and ultimately our ability to treat and supply water as normal. With this trend of outages set to continue and become more widespread, our strategy has identified 55 borehole and pumping station sites requiring proficient alternative operations in the event of a power outage. Through our work and contributions to Programme [redacted][4], we identified that despite having fixed standby generation at our most critical WTW sites and pumping stations we are vulnerable to longer duration power outages if we do not have standby generation – or the ability to rapidly connect mobile equipment – at the remainder of our sites.
Optioneering	We defined and presented the following options to our value framework and decision support tool, Copperleaf: • Option a – Continue with our current operations with the risk posed by power outages; • Option b – Provide standby generation capability at all sites, which would incur significant capital and embedded carbon costs delivering new assets with average levels of utilisation below 1%; or • Option c – Install ‘plug and play’ generation connection points at identified critical sites; involving the formalisation of necessary hire agreements with providers of standby generation capacity. Option (c) was selected as the best value option and supports an appropriate balance between managing risk and avoiding unmanageable costs that may be considered abortive in the event the DNO stabilises. To further ensure this enhancement equips us for an uncertain future, the installation would also facilitate fixed site generation being installed should this become a necessary requirement of continued frequency in power outages.

[4] [redacted]

Enhancement value	£1.0 million The costs for this investment were provided by an independent consultant who completed surveys at all required sites forming a part of this activity alongside actual costs of an equivalent scope of work already undertaken at our Elmer WTW in the last two years. Should the risks increase and one of these sites require fixed standby generation in the future, the connection points that we would install could be used in the future to connect one. We therefore consider this to be low or no regrets investment as it increases our resilience.
Table CW3 reference and description of changes	There has been no change to Table CW3.118

Climate change resilience activity 3 – Leatherhead flood protection

Leatherhead flood protection	
Ofwat classification	Resilience – Flood
Overview	This investment centred on investigating the most appropriate means to protect our Leatherhead pumping station and boreholes from flooding using upstream nature-based solutions. To date all other sites (three) that were identified as being at a high risk of flooding have undergone grey infrastructure mitigation works.
Need	Our Leatherhead pumping station and boreholes remains the only critical site that is at a high risk of flooding, from the nearby River Mole. The River Mole is a flashy river[5] that also presents flooding impacts to the immediate locality, namely parts of Dorking, Leatherhead, Cobham, Hersham and Molesey – the latter two areas being mitigated to some extent by the Environment Agency's Lower Mole Flood Alleviation Scheme that is currently under consultation for upgrading. Existing sites where we have undertaken works to mitigate significant flood risk have been completed as discrete enhancement investments to protect our infrastructure, due to the instances of investment need being manageable within our business planning cycles. We have therefore maintained this approach for our Leatherhead assets.
Optioneering	At the time of submitting our PR24 Business Plan in October 2023, we planned this activity as a means of optioneering the most appropriate interventions to be undertaken in the Mole catchment to mitigate the downstream flood risk at our site. Since submitting the plan, we have developed our role within the Mole catchment and initiated a partnership with Surrey County Council. Surrey County Council launched *Surrey Adapt,* their climate and resilience programme, in early 2024 and we both see alignment across a number of their strategies and our climate adaptation plan. This includes the management of natural resources and our collective action to positively contribute to the catchments we both operate in, thereby mitigating the effects of climate change.

[5] The term 'flashy' is used to describe river channels that experience a sudden rise and fall of the water level during and after a heavy rainfall event.

	We are aware various strategic partners[6] have completed work across the catchment to define the required nature-based interventions (which in few cases may be underway or completed) to manage flooding and catchment risks across the area. We therefore consider that the enhancement investment we had allocated to this activity can now be used to undertake beneficial nature-based work. As such, we consider this investment will now lead to a broader value, as a result of collective investments across partners to deliver improved resilience, for our shared customers and residents.
Enhancement value	£0.23 million This cost was assessed on the basis of an investigation and is comparable to our WINEP investigations. Based on our environmental improvement enhancement case (encompassing our WINEP), Ofwat have considered these costs were efficient in the draft determination. In preparing for AMP8, we understand our work since the submission of the PR24 Business Plan would now enable us to use this investment for *in-catchment* work. This is in advance of the AMP9 delivery phase we had been able to set out in our PR24 Business Plan and LTDS. Whilst this means we are able deliver more from the enhancement and protect our customers from costs that would repeat elements of work completed by strategic partners, we recognise Ofwat may consider there is some uncertainty with how the funding is invested to resolve the need. We therefore propose we could proactively report to both Ofwat and the Environment Agency on our investment plan and associated works for this enhancement in order to demonstrate this funding is utilised efficiently and effectively.
Table CW3 reference and description of changes	There has been no change to Table CW3.119

[6] We consider strategic partners would include Surrey County Council, the Environment Agency and Defra functions operating in the North Downs National Landscape.

D. Providing further evidence to support our enhancements that do not arise from climate change resilience needs

16. Further to the five activities set out above (Section C, Para 6), we consider the following activities are not solely as a result of needs arising from climate change resilience:
    - Run to waste facilities, attributed to 'Resilience', and
    - Smart water production sites, attributed to 'Resilience T1'.
17. We therefore set out in this section the need for each activity and why this should be assessed separately to the industry wide climate change resilience adjustment. We also provide details across the options that have been considered so that we can demonstrate these activities provide the best value for our customers. We follow the same reporting framework as for the climate change related activities in Section C.

Non climate change resilience activity 1 – run to waste facilities

Run to waste facilities	
Ofwat classification	Resilience
Overview	This investment activity seeks to install run to waste facilities at our Water Treatment Works (WTW) sites where there is currently no ability to safely drain water that has entered the treatment process but, for whatever reason, does not meet water quality standards and needs to be removed from the system.
Need	We have three WTW sites with risks of increased outage, additional water quality monitoring and disruption to customer supplies in the event water needs to be removed from a part of the treatment process. This is as a result of site configurations where there is no ability to remove water from the treatment process. This arrangement does not meet the expectations of our regulators, primarily the Drinking Water Inspectorate (DWI)[7] and as such, is being considered a new requirement. As such, this is an enhancement rather than a base-funded intervention. Our current means to operate in this circumstance involves relying on other WTW sites to maintain customer supplies. Whilst this is feasible it is not resolving the root cause. Current alternative operations result in lost time to remove the water from the treatment process and to rezone our distribution network to maintain customer supplies. The need is specifically considered to be the effective means to remove water from part of the treatment process without entering treated water tanks for storage (thereby significantly reducing the time a site may be shutdown). Beyond the specific need to resolve areas of risk across our sites, this investment need is driven by our water quality and environmental performance requirements. It is defined as a specific area to meet regulatory expectations from the DWI.
Optioneering	This enhancement was selected across each of the common reference scenarios used when developing the LTDS. The following alternatives were considered when developing options to remedy our identified need: • Option a – Install run to waste facilities across the three sites to discharge water to waste;

[7] Based on recommendation 2020/119, Drinking Water Inspectorate (February 2020)

	• Option b – Install run to waste facilities that divert water requiring removal to the head of the works and return to the treatment process; • Option c – Install necessary provisions of additional infrastructure standby tanks and related pipework modifications. Option (b) was presented as the preferred option owing to the following attributes: • Reduced wastage of water volumes, contributing to our overall plan to reduce abstractions (two of the sites requiring this enhancement being subject to environmental destination reductions in our WRMP), • Reduced requirement for additional discharge consent permits and the associated risks with non-compliance of those permits, and • Comparatively reduced capital and carbon costs associated with the construction and operation. Based on the preferred option, the proposed investment will require the installation of pipelines to route water from either the contact or treated water tanks back to the head of the works (where feasible) or to waste (if not). This approach minimises additional expenditure and the environmental impact by re-using the water where possible. As well as delivering regulatory compliance, it will contribute to our continued improvement in unplanned outage. This work therefore minimises compliance risk whilst improving resilience.
Enhancement value	£0.83 million The costs for this investment were assessed by our engineering framework consultant, AtkinsRealis. We therefore consider they are representative costs based on our optioneering and site requirements.
Table CW3 reference and description of changes	There has been no change to Table CW3.118

Non climate change resilience activity 2 – smart water production sites

Smart water production sites	
Ofwat classification	Resilience T1
Overview	This enhancement will replicate our industry-leading smart technology success from our distribution network to our production activities – improving our resilience across our abstraction and supply activities. This requires appropriate technology for our production assets which we have been trialling in AMP7 and achieved a successful milestone in July 2024.
Need	This investment is a key part of our strategy to ensure our production sites and activities are run and maintained as efficiently as possible, in order to best prepare for an operationally challenging future. Trialling and deploying key strategies across our distribution network towards the latter part of AMP6 and into AMP7, namely including our iDMA technology and our DMA Asset Health programme, has notably helped to provide:

	• Industry-leading projects to find, fix and repair leaks quicker, and continue upper quartile performance for our leakage reduction, • Targeted mains renewals based on real asset health indicators, thereby being more efficient, • Demonstrable strong performance during shock events (particularly highlighted in recent freeze/thaw weather) using real-time data that allows us to efficiently and proactively plan prioritised personnel hours, and • Upper quartile supply interruptions performance, actioning network operations or alterations before our customers are affected. We identified the following areas and future challenges relating to our production activities that led us to the conclusion we needed to undertake a similar transformation of our production strategy and assets: • Identified opportunities for efficiencies across our abstraction, energy use and chemical utilisation, • Forthcoming challenges surrounding our water resource availability in relatively sensitive environments (where we have committed to environmental destinations in our WRMP), • An evolving maturity in our production asset maintenance planning, requiring improved frequency and quality of data; and • The advancement of programme intelligence to interpret weather predictions, historical demand patterns and throughput flow needs of our operations. We are committed to achieving efficient improvements for our customers and we have therefore started to develop the required improvements in a similar manner to our success across the distribution network.
Optioneering	Initial development and trials throughout AMP7 have led to our assessment that the following two complementary activities require implementation as part of this investment: • Roll out of 'Aquasuite OPIR', a smart tool that has been developed to accurately predict demand within a supply zone – optimising abstraction, pumping, treatment and storage regimes in order to meet demand efficiently and effectively. We successfully completed a 30-day trial without manual intervention in July 2024, and we are now in a position to expand this beyond our trial WTW site. • Enhance the capabilities of our current computerised maintenance management system (CMMS) to include the installation of next generation sensors across our WTW sites and pumping stations. This will continuously monitor the health of critical assets to ensure maintenance and investment programmes are as efficient as possible, ultimately reducing plant failures When preparing our LTDS and PR24 Business Plan, this enhancement was selected across each of the common reference scenarios. The following alternatives were therefore considered when developing the specific options we could proceed with: • Option a – Maintain our existing AMP7 coverage, requiring manual interventions;

	• Option b – Undertake a 'faster' rollout of the 'Aquasuite OPIR' and CMMS upgrade programmes, over five years (to the end of AMP8); and • Option c – Undertake a 'slower' rollout of 'Aquasuite OPIR' and CMMS upgrade programmes, over ten years (to the end of AMP9). Analysis outlined that Option (b) delivered the best value for our customers, despite the fact we considered risks relating our unplanned outage and water supply interruptions PCs as part of the assessment.
Enhancement value	£0.46 million The costs for this investment were assessed through a combination of using unit costs incurred from our iDMA activity and the scale-up of our current OPIR trial to the balance of our production operations. We therefore consider the costs to be representative and efficient.
Table CW3 reference and description of changes	There has been no change to Table CW3.118 or CW3.119

E. Resilience enhancements that have received an unworkable efficiency challenge

18. Two areas of our resilience enhancement funding that have been included in Ofwat's draft determinations have been subject to a 20% efficiency adjustment. Our representation to the enhancement efficiency challenge (Appendix SES110) sets out our case for why Ofwat should reduce the level of challenge in its final determinations.

19. This section is therefore included to support that representation with respect to the resilience enhancements. We provide further information to the work we have done in developing the following activities, thereby demonstrating why our costs are already efficient and reasonable.

20. Again, we follow the same reporting framework as for the climate change related activities in Section C.

Non climate change resilience activity 3 – SEMD security requirements

SEMD security requirements (as required by our DWI Undertaking)	
Ofwat classification	SEMD
Overview	A programme of activities required to meet SEMD obligations, as supported by the DWI[8] and included in our Drinking Water Safety Plan. These planned schemes have been transferred into formal Undertakings legally binding us into completing the works to an agreed timeframe and with specified outputs.
Need	To ensure our water treatment works and other assets that are involved in the abstraction, treatment and distribution of water are secure and meet new regulatory requirements and guidance under the SEMD regulations, we conducted an SEMD gap analysis assessment and identified various SEMD related improvements. We requested support from the DWI for 77 separate proposals that would ensure compliance to the updated regulations. The 77 schemes have been grouped by the DWI in to four groups, comprising: • 20 treatment works schemes, • 31 reservoir schemes, • Eight pumping station schemes, and • 18 borehole schemes The schemes comprise of five key areas of investment: • Alternative water provision, • Intruder detection systems (IDS) installations, • Physical security uplift, • Cyber, and • Fencing replacements.
Optioneering	From the SEMD gap analysis assessment, we developed improvement plans and engaged with competent third-party support to independently assess all sites from a security perspective. Security risk assessments and operational requirements for all sites (including

[8] Further details were captured in our PR24 Business Plan submission, Appendix SES011 *DWI Letters of Support (UV Installation and SEMD).* This is not available on the public domain but was securely provided to Ofwat.

	abstraction, water treatment and treated water storage) were completed. Due to the nature of this topic, we developed our security strategy and have received specific challenge and scrutiny from our Board before they confirmed support to the strategy. We have prepared our uplift programme on a risk-based approach. Investment covers new intruder detection at operational sites and fence replacement, alternative water provision and physical security uplifts at 30% of our sites including the replacement of doors, window bars and kiosks in order to achieve SEMD compliance. We will seek best available technology during our replacements, installing systems that will last and limiting built in obsolescence. We will also continue to maintain systems using competent internal resource.
Enhancement value	£1.66 million Costs for this investment were assessed by our external security consultancy and advisory partner, AQT. Whilst the full package of work forming part of our core pathway totals £2.16m, we plan to deliver £0.5m of improvements from our base expenditure which extends across our planned maintenance/BAU. The value contained in the enhancement therefore only relates to the enhancement element of the SEMD programme and comprises a detailed scope of works developed and costed by a respected industry partner. The scale of efficiency challenge applied by Ofwat therefore feels disproportionate and we continue to seek the level of funding as originally proposed in our Business Plan.
Table CW3 reference and description of changes	There has been no change to Table CW3.121 or CW3.122

Non climate change resilience activity 4 – SEMD security requirement (Cyber)

SEMD security requirement (relating to Cyber)	
Ofwat classification	Cyber
Overview	[redacted]
Need	[redacted]

[redacted]

Optioneering

[redacted]

	[redacted]
Enhancement value	[redacted]
Table CW3 reference and description of changes	[redacted]

F. Activities that did not provide sufficient evidence to justify why they require enhancement expenditure support

21. There were two further activities that were either discounted by Ofwat or received a significant reduction in the funding in the draft determination. In both instances we believe the activities should have enhancement funding and we endeavour to provide further detail in this section to justify the enhancement and level of investment required.

22. Again, we follow the same reporting framework as for the climate change related activities in Section C.

Non climate change resilience activity 5 – Inter-zonal resilience

Inter-zonal resilience	
Ofwat classification	Resilience – interconnection
Overview	This investment covers a refined programme of network improvements (strategic connections) to improve the resilience of several service reservoirs. Our risk exposure centres around concentrated population, critical national infrastructure (CNI) and strategic operability of assets.
Need	We have maintained the need to complement our resilience programme (based on connecting all our customers to more than one WTW site) with a relatively smaller package that improves inter-zonal resilience. We currently have limited ability to provide a proficient level of zonal resilience in the event of a supply interruption affecting our service reservoirs.
Optioneering	Following feedback and challenge from previous Price Review cycles, we have investigated the critical areas requiring resilience improvements so that we can demonstrate a prioritised approach. From this work, we have identified three critical sites that we consider should be targeted in AMP8 to resolve specific resilience issues. These cover our [redacted] reservoir zones, and the prioritised rationale arises from the level of population supplied, demand from CNI and their strategic location within our network that enable us to transfer water from one region to another when required. To develop this activity in the context of our LTDS and PR24 Business Plan submission further, we considered: • Option a – the installation of bypasses at all our sites, • Option b – resubmitting a component of our PR19 Business Plan aiming to deliver all inter-zonal resilience needs, and • Option c – a reduced (prioritised) programme of our most critical sites that would cause significant disruption if removed from serviceability. Option (c) was selected as the best value and has therefore been included in our enhancement case.
Enhancement value	£0.5 million The current level of funding we have received from the draft determination (beyond the efficiency challenge) puts this programme of inter-zonal improvements at risk. On this basis we would need to further prioritise our investment to choose our customer population, CNI or strategic operability – not all three sites can be delivered based on the level of funding challenge we face.

Table CW3 reference and description of changes	There has been no change to Table CW3.118. We are aware of the submission requirement for ADD21, however, we have a concern that this table may align more closely with connectors that are required for supply resilience, and forming a part of company WRMPs. We consider our enhancement is a direct need within the zones referenced to ensure network resilience, and this perhaps should be more accurately referred to as intra-zonal connections. We are seeking clarity from Ofwat (through the query process) to understand the best means to provide information that can be accurately interpreted by Ofwat.

Non climate change resilience activity 6 – regional planning

Regional planning	
Overview	Together with the regional companies forming a part of Water Resource South East (WRSE) we have developed a suite of tools that deliver: fully aligned forecasting methodologies and outputs; integrated adaptive planning and consistent best value assessments.
Need	We consider that WRSE and the regional companies have been at the forefront of delivering integrated and adaptive plans as part of the national framework for water resources. We believe this contributes to a greater output than our WRMP, significantly contributing to: • regional cohesion across various statutory planning functions, • resolving the significant environmental challenges faced in our area, • our combined climate adaptation and improved management of natural resources, and • improved working with stakeholders across the industry, including other sectors with significant water needs. Plans for WRMP29 are set to have a greater level of ambition, aiming to deliver greater connectivity within the regional simulator models and investment modelling, developing options across the region to better contend with the level of supply and environmental challenge we face, and ultimately streamline the public water supply (PWS) plan needs with sectors and industries operating in the region. Whilst the deliverables have been developed across the companies, and there will be evolution over the coming years, we are cognisant that our systems need to mature to effectively feed into this process. This centres around: • defining known uncertainties presented from environmental destinations in areas of population growth and fully assessing our future resilience needs (from 2030) to maintain supply, and • developing options beyond our current (and favourable) ratio when compared to supply needs. This is on account of a proportion of our constrained options being in areas that are likely to become less favourable to include (owing to environmental challenges) and related changes to best value scoring.
Optioneering	We have included our proportion of the WRSE 2025/26 to 2029/30 budget in the enhancement activity as this has been assessed by WRSE and challenged by the companies. Whilst some of the activities will be covered by our base expenditure, we will need to

	utilise a proportion of this assessment for our own enhancement needs to fully equip ourselves in contributing to the regional planning activities in knowledge of the challenges we will face.
Enhancement value	£0.6 million
Table CW3 reference and description of changes	The costs associated with this enhancement have not changed. However, when submitting our PR24 Business Plan in October 2023, Table CW3.133 referenced costs associated with a separate activity due to a misalignment. This has been resolved and Table CW3.133 no longer includes unrelated enhancement costs.

G. Conclusion

23. In this Appendix we have provided an overview of our interpretation to Ofwat's analysis across our resilience enhancements. We consider Ofwat's step to make a sector-wide assessment of climate change resilience enhancements demonstrates its understanding of the uncertainties we face, and the positive steps being made to address these risks.

24. We believe there is continued opportunity to better understand the company specific needs relating to climate change resilience and, importantly for us, where resilience enhancements are required outside of climate-related constraints. We have provided concise yet sufficiently detailed information to support our operational resilience activities – demonstrating through our industry-leading successes so far that we are best-placed to take these enhancements forward.

25. This includes securing £3.73m for required enhancement activities to build sufficient resilience to climate change related challenges, and £3.64m for our non-climate operational resilience needs; all forming the first phase (AMP8) of our core pathway.

26. Using our value framework decision support tool, Copperleaf, we have defined our no/low regret needs across the common reference scenarios, and objectively considered the best value enhancements across a range of alternative options that would fulfil our resilience needs.

27. With these investments forming a vital contribution to our core pathway, we consider our resilience related enhancements will substantively influence the initial success criteria of our LTDS. Initiating these activities in AMP8, rather than leaving elements (or all of) to future AMPs, will not only enable us to address the resilience pressures we face, but allow us to start mitigating issues that will otherwise be at the centre of prolonged funding constraints and intergenerational unfairness.

28. Since submitting our PR24 Business Plan, we have initiated the implementation of Copperleaf across the business. This will provide ongoing monitoring of our expenditure and delivery progress as we embark on our AMP8 activities, as well as refine our base activities that will arise throughout the period.

29. We have also added further insight to development of our enhancement values, whilst being transparent across those where there are uncertainties or unproven technologies. We endeavour to demonstrate our costs assessments are robust, with input from supply chain partners, industry experts and market engagement.