2027 DRAFT Drought Plan

Appendix R

Lessons learnt from the 2025 Drought

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Introduction

During summer 2025 drought impacted areas across England, and the southeast of England experienced six months of below average rainfall between March and August. Over this period, the Thames Valley received only approximately 50% of its long-term average rainfall and as a result groundwater levels receded quickly, river flows fell, and soil moisture deficits increased dramatically. The Cotswold Oolites were the hardest hit, experiencing 'extremely low' groundwater levels which reduced baseflow to the River Thames and impacted river flows. Measures were taken to address the impact of the drought, including media campaigns and a regional Temporary Use Ban (TUB), also known as a 'hosepipe ban', was introduced in our Swindon and Oxfordshire (SWOX) water resource zone on 22 July 2025.

The Environment Agency initially moved our supply area into the '*prolonged dry weather'* category. Due to the prolonged period of rain shortfall, the EA then upgraded all of England to a "*nationally significant incident*". The drought ended in November following recovery of groundwater levels across the region.

We have reviewed our management of the drought event through internal post event review sessions covering communications, TUB implementation, Drought Plan effectiveness and operational response. We also worked with the wider industry including other water companies, the Environment Agency, Defra and other regulators to understand whether lessons could be learnt and whether our Drought Plan needed to be updated as a result. This review resulted in some updates to our plan, including updating our Drought Permit options, updating our TUB implementation timeline to reflect what was achieved in 2025 and including more flexibility to allow for the use of TUBs in periods of high demands.

This appendix outlines these learnings and the actions we have taken to update draft Drought Plan in 2026.

R1. Drought Event and Measures Implemented

Hydrological conditions across South East England, including the Thames catchment, were generally above average by the end of Winter 2024/5, reflecting a sustained period of wet weather. Rainfall totals were significantly above the long-term average, contributing to fully wetted soils and enhanced recharge conditions. River flows across the region were predominantly normal to above normal, with the River Thames itself remaining within the normal range for the time of year. Groundwater levels in key chalk aquifers were largely normal to above normal, with some sites reaching notably or exceptionally high levels following prolonged recharge. Reservoir storage was similarly strong, with stocks above average overall despite some local variability. In summary, the overall water resources position was healthy entering 2025.

We received below average rainfall from March to September, averaging at 49%, as shown in Figure 1. In March and April, rainfall dropped to an average of 27% of LTA, soils dried quickly, and early signs of groundwater stress emerged in the Cotswold Oolite aquifers. These aquifers respond rapidly to rainfall deficits. London did not respond as quickly due to healthier chalk groundwater levels and strong reservoir storage, though planned outages kept storage slightly below average

Through April and May, we moved from Business As Usual (BAU) to Drought Event Level 1 (DEL1) across all WRZs. At this point we implemented enhanced customer and stakeholder engagement to raise awareness of the drought conditions across our supply area and encouraged water efficiency.

By July, the difference in response between SWOX and the rest of our WRZs was becoming more pronounced. SWOX escalated to DEL2, driven by Notably Low groundwater levels in the Oolites, declining reservoir storage, and deteriorating river flows. High summer demand due to warmer than average temperatures were recorded from mid June to mid July. The Environment Agency reclassified Thames' dry weather/drought status from Normal to Prolonged Dry Weather on July 3rd[1]. A TUB was implemented in our SWOX WRZ on July 22nd. To support this, comprehensive plans were established and implemented for both demand reduction and customer engagement activities. These activities included planned smart metering and water efficiency programmes, plus enhanced and new customer / stakeholder engagement to raise awareness of the water resource situation and TUB restrictions. A fortnightly email was sent to all TUB customers to maintain awareness and drive demand reduction messages.

Through August to October, SWOX remained in DEL2 as groundwater continued to fall, river flows stayed below average, and SWOX_0006 storage declined although it did not fall as quickly as in 2022 due to careful management of abstractions in relation to the Hands off Flow (HoF).

We kept the TUB in place throughout this period, lifting it on 27th November 2025. This was possible as we received four consecutive months of above average rainfall from September. By November, groundwater levels at Ampney Crucis had recovered to Exceptionally High, river flows improved, and reservoir storage strengthened, allowing SWOX to return to DEL0 due to the significant reduction in risk.

London stayed at DEL1, with reservoir storage consistently below average and some chalk sites, particularly Chipstead, dropping from Notably Low to Exceptionally Low groundwater levels. London's recovery lagged due to slower reservoir refill, and returned to DEL0 in February 2026.

As the drought progressed, we began preparations for Drought Permit applications in SWOX. The available Drought Permit options were reviewed and prioritised based on the drought and operational conditions. Preparation for application of the highest priority permit options commenced in July 2025 focussing on SWOX_0006, SWOX_0007, SWOX_0010, SWOX_0009, SWOX_0002, SWOX_0001 and SWOX_0011. This included pre-drought monitoring, updates to Environmental Assessment reports to ensure they were application-ready, drafting of a Statement of Reasons and justification of exceptional shortage of rainfall. We also commenced pre-application discussions with the Environment Agency. Although no formal applications were submitted learnings on the structure of the pre-application consultations, further development of the Drought Permit options and mitigation measures were all beneficial and will be available to support any future Drought Permit applications.

[1] Environment Agency (2025) *Dry weather and drought briefing, 3 July 2025*. Available as: 20250703 EA dry weather and drought briefing External.pdf

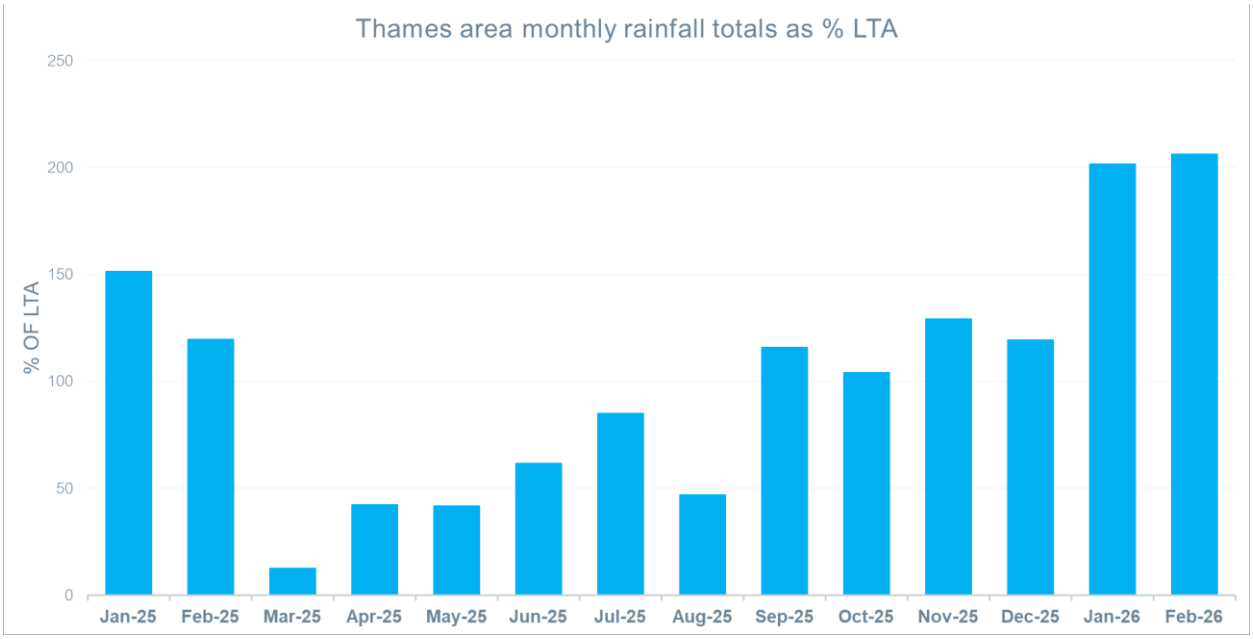

Figure 1 Thames area monthly LTA rainfall

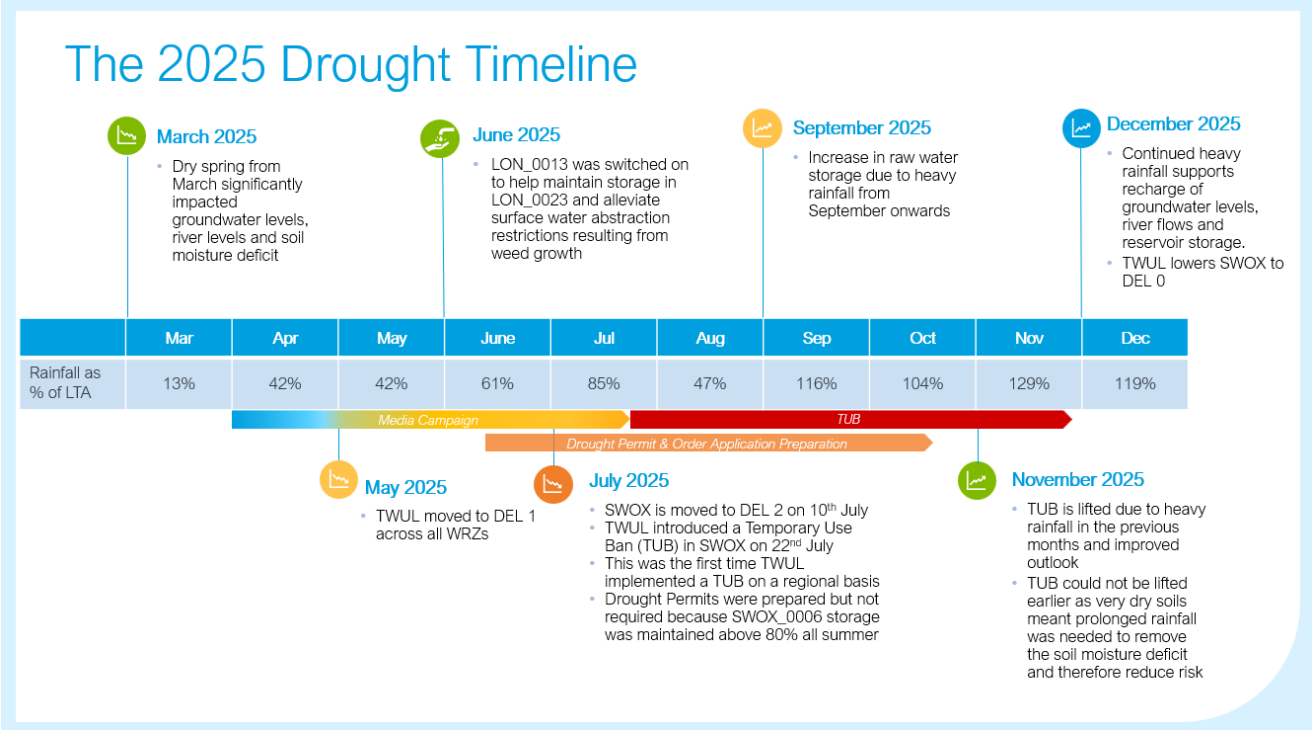

Figure 2 The 2025 Drought Timeline

R2. Lessons Learned from the 2025 Drought

Following the drought of 2025, we completed a range of review sessions to capture views on our response to the drought event. This included feeding into the National Drought Group on any cross-company learnings and workshops with the Environment Agency looking at our operational response and work on Drought Permit applications. We also completed a series of internal workshops to review our operational response and what lessons we needed to capture to inform our Drought Plan update. Alongside this we also reviewed the 2022 drought learnings to ensure they were captured in our Plan update.

The key areas where lessons were learnt from the drought in 2025 were:

- Rapid implementation of measures
- Drought team set up
- Drought Communications
- TUB implementation
- Drought Sourcing strategy
- Close working with the Environment Agency for river management
- Drought Permits

Useful lessons were learnt in relation to the benefits of early implementation of drought measures on a regional basis, notably in SWOX where groundwater recession can be very fast. The early implementation of the TUB ensured the risk was communicated to customers and stakeholders and was well received by the Environment Agency and Government.

The following sections build in more detail on the key areas of learning from the 2025 drought and how we have built this into our Drought Plan and our on-going work. Finally we conclude with some elements of our future programme of work.

R2.1 Rapid implementation of drought measures

One of the key learnings from the 2022 drought was how quickly the drought situation can change and the need for drought measures to be introduced rapidly once triggered. In 2025 we moved to DEL1 early May which was perhaps slightly ahead of the trigger in our plan and a more precautionary approach than we have taken previously. This decision was based on a comprehensive risk assessment building on our existing drought methodology, and consideration of the wider regional and national water resources situation and the potential for prolonged hot weather

The rapid response meant we were able to maximise the benefits of our drought measures to support our operations during the 2025 drought. This approach was successful and well received by regulators. It has also helped us to refine our potential triggers for a Drought Permit application and implementation in relation to the combination of SWOX_0006 reservoir storage, Cotswolds Oolite groundwater levels and River Thames flows. It confirmed the need for us to be agile with our response depending on how and where in our region the drought is developing.

R2.2 Drought Team set up

A drought event team was set up in accordance with our drought event management structure. The working team for the drought was established at two levels; the Drought Management team who provided oversight and strategic direction across the drought event and was responsible for non-operational deliverables, and the Operational Drought Management team to support operational activity in accordance with our incident management process.

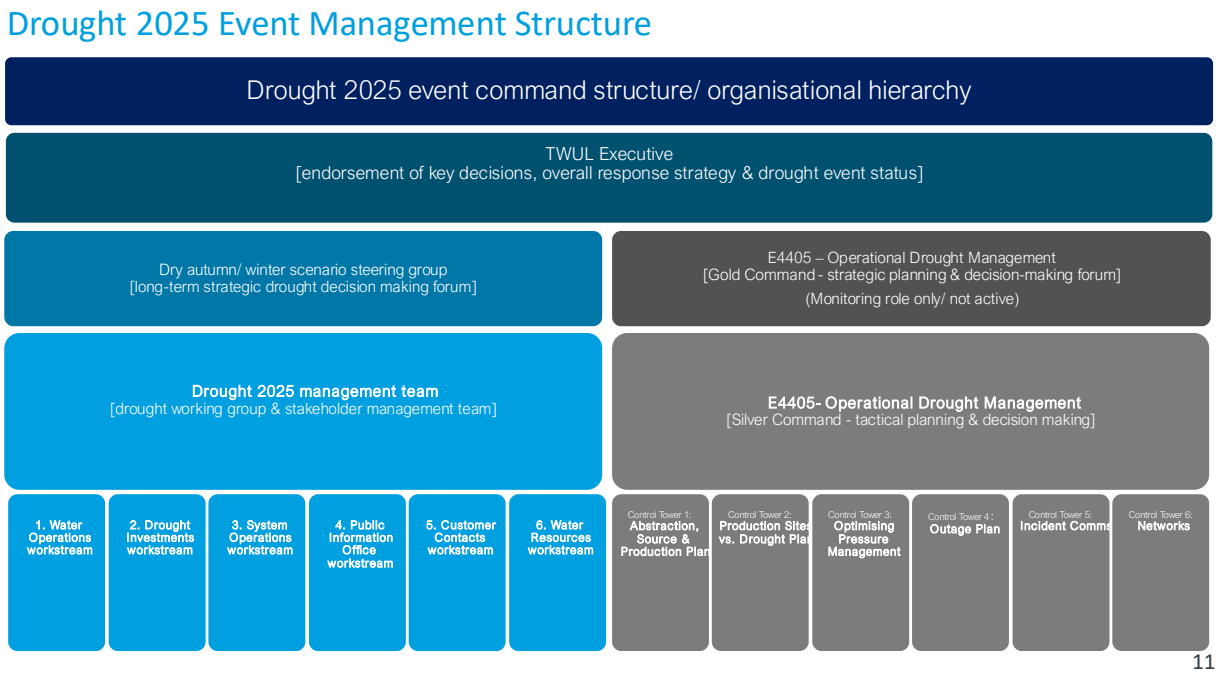

Figure 3 The Drought 2025 Event Management Structure

R2.3 Drought Communications

We carried out a significant programme of customer communications during the 2025 drought, building on what was learnt in 2022. A post-event review identified several key areas where our approach was effective, as well as opportunities to strengthen our communications further.

A key learning was the importance of timing and preparedness. The compressed nature of the event reinforced the need for earlier preparation of messaging, clearer trigger points and a more proactive approach to drought communications. The experience highlighted the value of early, clear and targeted messaging, particularly in higher-risk areas such as Swindon and Oxfordshire (SWOX), where communications supporting the Temporary Use Ban were effective in raising awareness and supporting compliant, and ensuring stakeholders and government, were kept informed.

The review also considered customer engagement approaches and effectiveness. Targeted communications proved most impactful, with localised messaging in affected areas, supported by stakeholder newsletters and direct customer emails, helping to make sure communications were relevant and proportionate. This reinforced the importance of tailoring communications to specific audiences and geographies, alongside broader regional activity.

However, the drought also highlighted limitations in our current approach. In particular, baseline customer understanding of water resources and the water system remains low, which can limit the effectiveness of drought messaging, particularly when combined with wider reputational challenges. This underlined the need for more consistent, always-on communications to build awareness and trust ahead of drought events, rather than relying primarily on reactive communications during periods of water stress.

The importance of data and insight was also highlighted. The 2025 TUB emphasized the value of improved data analytics, including water usage, leakage and customer behaviour, to better inform communications, targeting and decision-making.

In the non-household (NHH) market, the drought highlighted the complexity of communications across multiple parties, including NAVs and retailers. There was an opportunity to provide greater clarity around roles and responsibilities in relation to TUBs and associated customer communications. The current approach can lead to multiple communications being issued across the same area, which may reduce clarity and consistency for customers. This has identified an opportunity to strengthen coordination across wholesalers, NAVs and retailers to support more aligned and effective messaging.

Our engagement with stakeholders, including the Environment Agency, was also reviewed. While collaboration was effective in many areas, the drought highlighted opportunities to improve alignment on timing and coordination of messaging, particularly where environmental priorities and customer impact needs to be balanced and clearly communicated. There is also an opportunity for more consistent, timely national-level messaging, led by government and regulators, to support regional communications and reinforce key messages to customers. We welcome wider sector initiatives, such as the planned Ofwat campaign which have the potential to support this approach, although earlier deployment in the year would further strengthen their impact during periods of dry weather.

To reflect these learnings, we are strengthening our approach to drought communications by:

- Establishing a dedicated strategic communications resource for water resources, reflecting the increased priority of this area within the business
- Embedding more regular, business-as-usual stakeholder and partner engagement (including NAVs and retailers), building on activity undertaken during the drought
- Delivering broader catchment-level communications alongside targeted messaging in higher-risk areas
- Working more closely with partners, including regulators, other wholesalers, NAVs, and retailers, to support more aligned, coordinated and timely messaging across both household and non-household customers
- Increasing focus on customer education and behaviour change, including collaboration with behavioural science and data teams to better understand and influence water use, and enhanced use of digital and social channels, including deep dive educational videos on key topics like groundwater and reservoirs
- Continuing to enhance data, insight and segmentation to improve targeting effectiveness and evaluation of communications

These insights are informing how we continue to evolve our drought communications approach, with the aim of improving how we communicate risk, support customers in reducing water use and strengthen the overall effectiveness of our response.

R2.4 Drought sourcing strategy

The drought sourcing strategy that is implemented during a drought one of the key operational strategies available to protect reservoir storage. One of the key learnings from the 2022 drought was that we need to implement our drought sourcing strategy rapidly and consistently. Our strategy is to optimise the use of existing sources such that those that are most drought resilient are used in preference to those sources which are more vulnerable. In general, this means that in the conjunctive use WRZs of London and SWOX, full use of groundwater sources should be made, where practicable, to conserve reservoir storage. We implemented this strategy successfully in 2025 which led to improved reservoir management and storage when compared to 2022.

Under normal, non-drought conditions, our operational strategy is to draw reservoirs down together, allowing blended sourcing to the Water Treatment Works (WTWs). This reduces water quality and hydraulic risks at the WTWs. River flows reduce during droughts, meaning that abstraction rates can be constrained. At the same time storage can decline rapidly.

Another key learning from the 2022 drought event was that drawing several reservoirs down together increases the risk that individual WTWs will become hydraulically constrained.

A more resilient approach in drought is therefore to source from one reservoir at a time, typically within operational groups. The strategy is to draw one reservoir to its minimum operational level, by minimising abstraction into it, while keeping the next reservoir as full as possible with the available inflow. Once the first reservoir reaches its minimum operational level, sourcing switches to the next. This approach, whilst benefitting the management of the hydraulics within our reservoir chain and water quality, does result in single sourcing to treatment works. Within this management context we would also seek to maximise storage retention in the reservoirs furthest to the west that are filled from the intakes higher in the River Thames. This because these are likely to experience restricted abstraction due to low flows earlier in a drought event than those at the bottom of the system. This approach was successfully implemented in 2025. Our Drought Plan has been updated to include a summary of this approach for future droughts in London.

During recovery from drought poor water quality is a key concern, when raw water quality can be poor due to soils becoming saturated, leading to mobilisation of contaminants, following prolonged periods of dry weather. During 2025 we experienced poor water quality during the period of recovery from the drought as soils wetted up and groundwater levels recovered. This provided learning points for us and reinforced the need for careful abstraction management to minimise the amount of contaminated water that enters our reservoir system. This was particularly evident in the Lee Valley which experienced very high levels of nitrate requiring abstraction to be carefully balanced between the Lee and Thames systems.

R2.5 Temporary Use Bans

A Temporary Use Ban (TUB) was introduced in our SWOX WRZ only on 22 July in an effort to reduce demand and maintain reservoir storage in our SWOX_0006 reservoir. This was the first time we have implemented a TUB in a single WRZ rather than across our whole region. This was already an option in our Drought Plan and therefore didn't result in any need to change the plan. However, it gave us valuable information related to implementing a TUB in a single zone thereby allowing valuable comparison with customer water use in adjacent zones. It also provided useful information related to the timing to implement a TUB enabling us to prepare for quicker implementation in the future.

Our analysis of the Smart meter data collected during the TUB, suggests that it reduced total demand in SWOX zone by approximately 2%. On days that were 25°C or higher, which typically drives increased peak outdoor usage (aligned to the water use practices targeted by TUB restrictions), the TUB resulted in reductions in total demand in excess of 5.7%.

The greatest household consumption levels were recorded during four separate 'heatwave' events (max temp days 30-33°C). When comparing the average daily usage on these hot days for the three house types with outdoor / garden space (terrace, semi and detached), the TUB restrictions resulted in reductions in usage of between 13-23%.

Smart metered data across various household types, showed a significant reduction in outdoor discretionary usage in the SWOX WRZ following the TUB introduction. The TUB resulted in reducing most of the outdoor water use on households to levels that represent typical cooler weather periods.

Reductions in outdoor peak demand were also measured in non-TUB areas (London & Thames Valley), possibly as a consequence of wider customer engagement and media activity, however these household and total demand reductions were not as large as in the TUB restricted areas.

The key lessons we learned from the TUB implemented in 2025 include:

Time to implement a TUB

- We were able to implement the TUB in our SWOX region more quickly that our 2022 Drought Plan previously assumed. This rapid response is beneficial in Zones like SWOX where the situation can change quickly. We have therefore reduced the expected time it would take to implement at TUB from 3 weeks to 1-3 weeks.

Zonal TUBS are effective but can be harder to implement so preparation is essential

- The 2025 drought was the first time we have applied a TUB in a single WRZ. We learned that targeted communication is important as applying a TUB in his way can cause confusion for customers as they may not know which zone they are in and may not understand (or agree) with the decision for a TUB to be implemented for them but not for other customers in our region.

The importance of Smart meters and data analytics

- The TUB in SWOX highlights the benefits of the large amount of data related to customer demand that we are now generating through increased smart metering. The insights we have been able to draw from the TUB data have informed our implementation strategy and our customer communications. We are in the process of recruiting a dedicated data analyst to enhance the business's capability for household and non-household usage analytics.

The effectiveness TUBs as a demand reduction measure

- Our smart meter data collected during the TUB shows average daily usage across all house types to be consistent when maximum daily temperatures are 20°C or lower. Given that TUB restrictions target discretionary outdoor / garden water use practices, the effectiveness of implementing a TUB is likely to be limited to months / weeks when temperatures are forecast to be more than 20°C, with the majority of demand management benefits happening on days with temperatures of 25°C and above.

- Analysis of our smart meter data suggests that the demand savings achieved from our 2025 TUB in SWOX are potentially lower than we have previously assumed. An UKWIR project was set up to understand the demand benefits that the TUBs delivered, and under what conditions. We will be working with the WRSE companies to review the findings and determine how to incorporate them into planning assumptions for drought plans and water resource management plans within the southeast. We will use this information to update our assumptions once the work has concluded.

R2.6 Working with the EA

One of the key lessons learned from the 2022 drought was the importance of maintaining a close working relationship with the Environment Agency. Throughout the drought event of 2025 successfully implemented this learning, working and consulting with the Environment Agency. The proactive management of the River Thames, both around SWOX_0006 and in the Lower reaches, to support navigation, the environment and abstraction was closely discussed and monitored regularly.

Working closely together with the EA we were able to maximise abstraction and target environmental protection of the sensitive Oxford Watercourses, particularly on the Seacourt Stream which has recently had a new fish pass installed.

We were also able to identify and discuss any issues in the Lower Thames allowing the issues to be resolved quickly.

Structured meetings included:

- Daily control – River Thames control calls
- Bi weekly – Environment Agency / Thames Water River Thames operational meetings
- Bi weekly water situation updates
- EA/TW Drought preparedness meeting – monthly

This approach to meetings to manage the drought built on what was implemented in 2022 and found to be effective providing a key learning point for the future, and this effectiveness was reinforced in 2025. The positive relationship and open discussions throughout facilitated improved abstraction management and subsequently reservoir storage when compared to the 2022 drought.

R2.7 Drought Permits

A review of all our Drought Permit options was completed across operational and asset planning teams within Thames. The review identified that the majority of our Drought Permit options remain appropriate for inclusion in our Plan. It also identified some potential new Drought Permit options that are operationally viable and would increase the flexibility available within our Drought Plan, supporting our drought response in London and Guildford WRZs. This resulted in the development of four new Drought Permit options and updates to some existing options, which help to increase our resilience to future droughts. The four new Drought Permit options are listed in *Table 1* below. More details can be found in our Drought Plan and Appendix C.

EARs for these permit options are currently being developed and will be available to accompany our revised Draft Plan following consultation on the draft Plan. A full list of Drought Permit options can be found in Appendix C.

Table 1 New Drought Permit Options

Permit option	Water Resource Zone	Yield (Ml/d)
GUI_0004/GUI_0002/GUI_0003	Guildford	Up to 11
LON_0018	London	Up to 4
LON_0001 (removal of flow constraint)	London	Up to 4
LON_0009	London	Up to 6

The review of our Drought Permit options also resulting in three existing options being moved to More before Level 4 (MB4) due to the complexities of bringing them back into supply and potential environmental impact.

During 2025 we worked closely with the Environment Agency to improve understanding and clarity around the mitigation measures and permit conditions if we implemented a Drought Permit at SWOX_0006. This review provided an improved and optimised set of potential measures that could be implemented to mitigate the environmental impact from the Drought Permit. The updated mitigation measures focus on key sensitive distributaries, identifying required flow rates and locations for over-pumping to maintain minimum river flows in sensitive distributaries as well as

environmental monitoring requirements. This learning has been taken forward to the latest draft of the SWOX_0006 EAR.

R2.8 Back-pumping

A review of our back-pumping measures was completed during 2025. The review highlighted areas where additional clarity or understanding was needed to support developing and potentially using these options during a drought event. A programme of work was established to agree plans and specifications for the back pumping to support our SWOX_0006 and River Thames Drought Permit options. There are now plans in place to be enacted upon to deliver the following solutions:

- For the River Thames Back-pumping Scheme at LON_0027 there is a high-level overview of the likely process(es) that will need to be followed to ensure appropriate permissions are in place to achieve delivery of the scheme. We also have a detailed outline of locations of pumping and pipeline equipment that would be needed to undertake the pumping and we will continue to refine this and work on agreement to the details of the scheme with Environment Agency over the coming months.
- A review of SWOX_0006 back-pumping is also underway and will be used to inform future Drought Permit applications and environment assessments.

R3. Programme of future work

In our Drought Plan 2027 the environmental assessment of the drought options has been prepared using the EA's 2025 guidance; specifically, the EA's July 2025 'Environmental assessment for water company – drought planning supplementary guidance which includes recommendations for undertaking an Environmental Assessment of Drought Options, specifically Drought Permits and Drought Orders. The approach to environmental assessment and the bespoke assessment methodologies used have been developed and agreed in consultation with the EA and Natural England and are documented separately in the Methodology

We prepared EARs in 2022 which were updated in 2025 and currently inform the Drought Plan. The EARs will be periodically reviewed to ensure the conclusions and recommendations remain valid. Following the most recent review and the 2025 drought event we have identified four new Drought Permit options. These new Drought Permit options do not yet have EARs but will be produced between the development of the draft and final Drought Plan. Table 2 below details the EARs that require additional updates. More detail is also available in Appendix C.

Table 2 EAR update status

WRZ	DP option	Status of EAR
London	LON_0011	Update required - before final submission
London	LON_0021	Update required - before final submission

London	LON_0011 LTOA to 0	Update required - before final submission
Kennet	KEN_0004	Update required - before final submission
Kennet	KEN_0002	Update required - before final submission
Kennet	KEN_0003	Update required - before final submission
Kennet	KEN_0005	Update required - before final submission
SWA	SWA_0005	Update required - before final submission
Guildford	GUI_0006	Update required - before final submission
Guildford	GUI_0001	Update required - before final submission
Henley	HEN_0001 Agg HEN_0002	Update required - before final submission
SWOX	Back-pumping at KEN_0002	Update required - before final submission
Guildford	GUI_0004/GUI_0002/GUI_0003	New EAR required - before final submission
London	LON_0018	New EAR required - before final submission
London	LON_0001	New EAR required - before final submission
London	LON_0009	New EAR required - before final submission
SWA	SWA_0004	New EAR required (after 2030)
Kennet	KEN_0009	New EAR required (after 2030)
Guildford	GUI_0005	New EAR required (after 2030)
London	LON_0014	New EAR required (after 2030)

Following the 2025 drought, Atkins completed a review of our Drought Event Level Assessment for SWOX[2]. No reliable single suitable trigger was identified, indicating that the current approach of assigning a different weight to groundwater, river flow, and reservoir storage depending on the time of year is suitable. Further analysis is underway to review the weightings attributed to different groundwater sites as part of the assessment.

[2] Atkins (2025) *SWOX Drought Event Level Review*. Document ref: 100122265/OUT/004