DROUGHT PLAN 2027

Main report
March 2026

ESSEX&SUFFOLK WATER *living water*

DOCUMENT CONTROL SHEET

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Reviewed by	Katie Davis	21/03/2026	Head of Water Service Planning
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Essex & Suffolk Water is a trading division of Northumbrian Water Limited which is a group company of Northumbrian Water Group

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NON-TECHNICAL SUMMARY

We have prepared a summary of this Drought Plan which explains in non-technical language how we respond to a drought and summarises the main triggers and actions in our Drought Plan. This can be found on our website:

www.nwg.co.uk/droughtplan

Additionally, Defra has prepared the following document which summarises how water companies plan for dry weather and drought to make sure they can supply water and protect the environment:

www.gov.uk/government/publications/drought-managing-water-supply

EXCLUSIONS ON THE GROUNDS OF NATIONAL SECURITY

Northumbrian Water Limited has not excluded any information from this plan on the grounds that the information would be contrary to the interests of national security.

Under Section 37B(10)(b) of the Water Industry Act 1991, as amended by the Water Act 2003 ("the Act"), the Secretary of State can direct the company to exclude any information from the published Plan on the grounds that it appears to him that its publication would be contrary to the interests of national security.

CONTENTS

1 INTRODUCTION

1.1 Purpose of this Drought Plan

This document is our Essex & Suffolk Water (ESW) Drought Plan 2027. It is an operational tactical plan that details the actions we will take during a drought. Our Drought Plan identifies how we intend to manage droughts, what trigger levels will be used to identify when action is required, and what measures are available to support supplies when levels of service are compromised. Our Drought Plan also outlines how the effects of a drought and drought actions will be communicated to customers and takes account of the need to undertake environmental monitoring at those sites potentially affected by the implementation of drought actions.

This Drought Plan builds on our previous Drought Plan 2022, incorporates our experience of managing droughts, particularly those in the 1990s and more recently during the summers of 2022 and 2025, and has been prepared following the Environment Agency's updated Drought Plan Guidance (March, 2025).

1.2 What is drought?

We live in a changing climate where hot weather and droughts are becoming increasingly likely. Our ESW supply area is particularly prone to drought, being located within one of the driest parts of the UK. Droughts are natural events that cannot be defined, as every drought is different. Whilst they are all caused by a shortage of rainfall, the characteristics (including timing, duration, impacts on people, the environment, agriculture and business) can vary.

Some droughts are short and intense, caused by a hot, dry summer. Others are long and take time to develop over multiple seasons due to prolonged low rainfall.

The main types of drought, which may occur separately or together, are:

Agricultural drought	When there isn't enough rainfall and moisture in soils to support crop production or farming practices such as spray irrigation.
Environmental drought	When lack of rainfall has a detrimental impact on the environment and ecology.
Water supply drought	When a lack of rainfall leads to concerns from water companies about supplies for their customers.

This Drought Plan sets out how we will manage our water supplies during a water supply drought. We also have a responsibility to protect the environment and support agricultural users through droughts that impact them.

The Environment Agency monitors various indicators (such as rainfall, river flows, groundwater levels, reservoir storage, ecology, public water supplies) and will decide the level of drought an area is in. It uses four stages to describe and manage their response:

Prolonged dry weather	Characterised by a period of dry weather that is impacting on river flows, groundwater levels and water levels in lakes and reservoirs.
Drought	Characterised by further deterioration to the environment and impacting agriculture, people and businesses.
Severe drought	Resulting in extensive, lasting effects on the environment, farming, people, communities, and the economy. The lack of water leads to serious water shortages and widespread impacts across sectors. It's when the lack of water begins to disrupt daily life and the environment in major ways.
Recovering from drought	Drought impacts are reducing and returning towards normal ranges for the time of year.

1.3 Water supply drought or peak demand?

There is a difference between a water supply drought and a peak demand period. In a water supply drought water storage levels (e.g. reservoirs) are running low and abstraction from the environment is limited. We will use our demand and supply side drought actions to maintain customer supply through a drought.

A peak demand period can occur when water storage levels are healthy, but the supply system doesn't have the capacity to process and output the water quickly enough to meet customer demand. Under these circumstances, we may ask our customers to consider their water use. More information on peak demand during a drought can be found in Appendix 1.

1.4 Regulatory Framework

We are required to prepare a drought plan under Section 39B of the Water Industry Act 1991, as amended by the Water Act 2003. A full list of the guidance and legislation that we have followed in preparing this Drought Plan is included in Appendix 2.

The drought planning process is regulated by the Secretary of State and the Environment Agency. The Secretary of State set out its expectations in *The Drought Plan (England) Direction 2025*, and the accompanying *Government expectations for water company drought plans* (22 July, 2025).

This drought plan complements our Water Resources Management Plan 2024 (WRMP24), which forecasts water demand for the period April 2025 to March 2050 and assesses the vulnerability of our water supply systems to dry weather and droughts. Our WRMP24 sets out our preferred strategic solutions to address any supply and demand shortfalls. In contrast, this drought plan considers what measures can be implemented in the short term to address temporary shortages of water resources during drought conditions.

1.5 Pre-consultation

We recognise the value of early communication with the many stakeholders potentially affected by and involved in the drought management process. We have pre-consulted with key stakeholders including other water companies, the Environment Agency, Natural England, and our Customer Challenge Group, known as the Water Forum and have taken account of their responses in the development of this Drought Plan.

We wrote to our drought plan consultees on 17 December 2024 and asked for their views on our current Drought Plan and on any wider aspects they would like us to consider when developing this Drought Plan 2027. We received comments back from the Environment Agency, Natural England, Historic England, Anglian Water, Southend Council and Suffolk Resilience Forum, and have taken account of them in the preparation of this Drought Plan.

1.6 Draft Drought Plan Public Consultation

Following direction by the Secretary of State, the public consultation for this draft Drought Plan will take place over a ten week period starting on 20 May 2026 and closing on 29 July 2026. During this time, we will publish this drought plan on our website at www.nwg.co.uk/droughtplan.

The Statutory Consultees are:

- Defra Secretary of State
- Ofwat
- Environment Agency
- Natural England
- Historic England
- Consumer Council for Water
- Local Authorities within the company's supply area
- National Park Authority
- Navigation Authorities

Your comments (written representation) on this drought plan should be emailed to the Secretary of State for the Department of Environment Food and Rural Affairs (Defra) at water.resources@defra.gov.uk.

The Secretary of State will forward copies of any comments received to us for review at the end of the consultation period. We will publish on our website a statement of response to the representations we receive. This will confirm how we have taken account of each response in our final Drought Plan.

2 ESSEX & SUFFOLK WATER INFORMATION

2.1 Overview

This section provides a high-level summary of our supply area, infrastructure and Water Resource Zones (WRZs), the latter of which are our Drought Management Areas and will be referred to throughout this drought plan.

The ESW operating area is split into two geographically separate supply areas known as the Essex Supply Area and the Suffolk Supply Area, which are outlined in red in Figure 1.

We supply water to around 1.76 million customers in the Essex Supply Area and around 0.28 million customers in the Suffolk Supply Area.

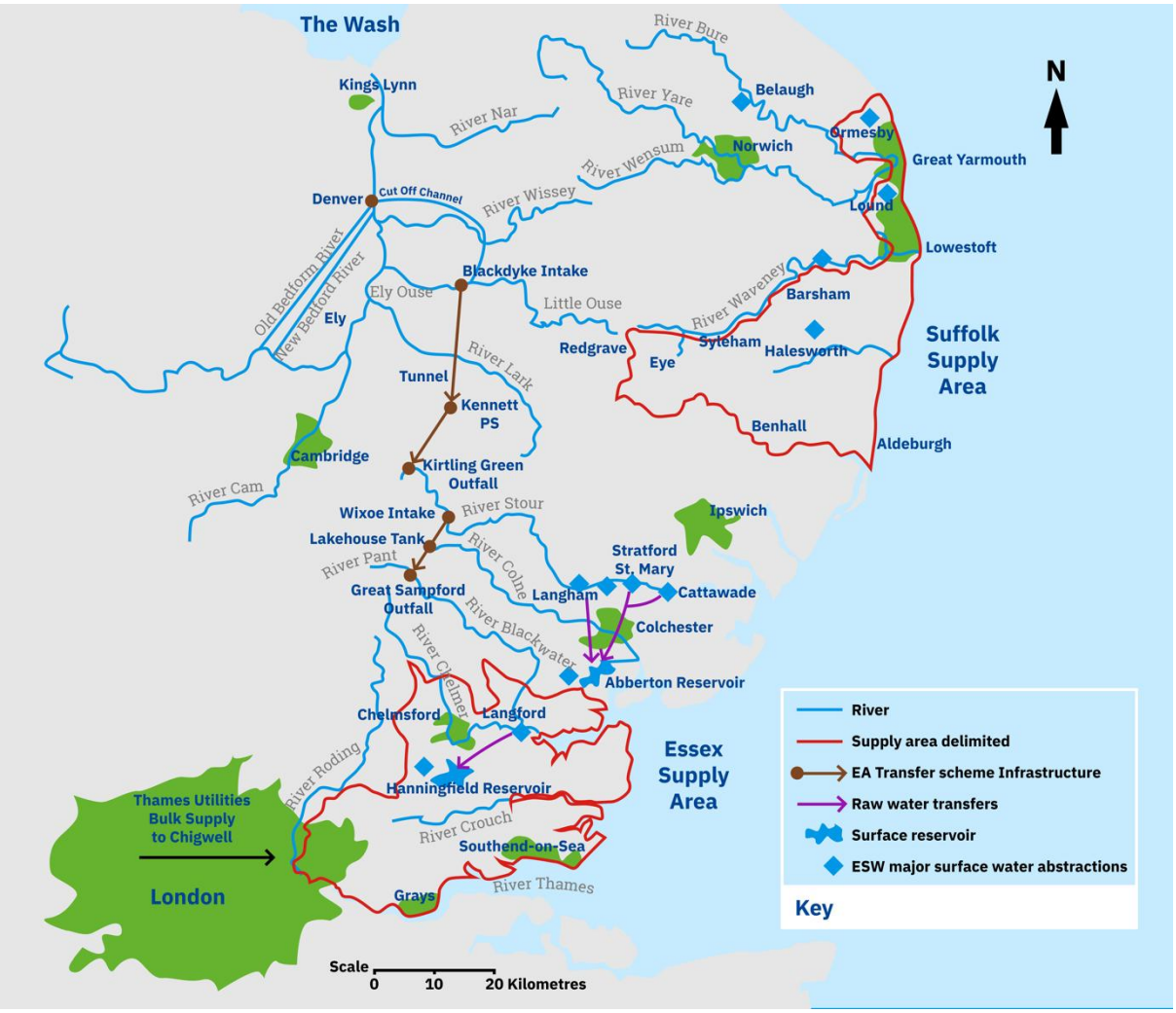


Figure 1: Essex & Suffolk Water Supply Areas

2.2 Water Resource Zones (WRZ)

We undertake water resources planning at a WRZ level. A WRZ is defined as the largest possible zone in which all resources, including external transfers, can be shared and is the zone in which all customers experience the same risk of supply failure from a resource shortfall.

Our Essex & Suffolk Water supply area comprises four WRZs. Our Essex Supply Area, shown in Figure 2, is a single WRZ. Our Suffolk Supply Area comprises three WRZs known as Hartismere, Blyth and Northern Central. The Suffolk WRZs and associated infrastructure is shown in Figure 3.

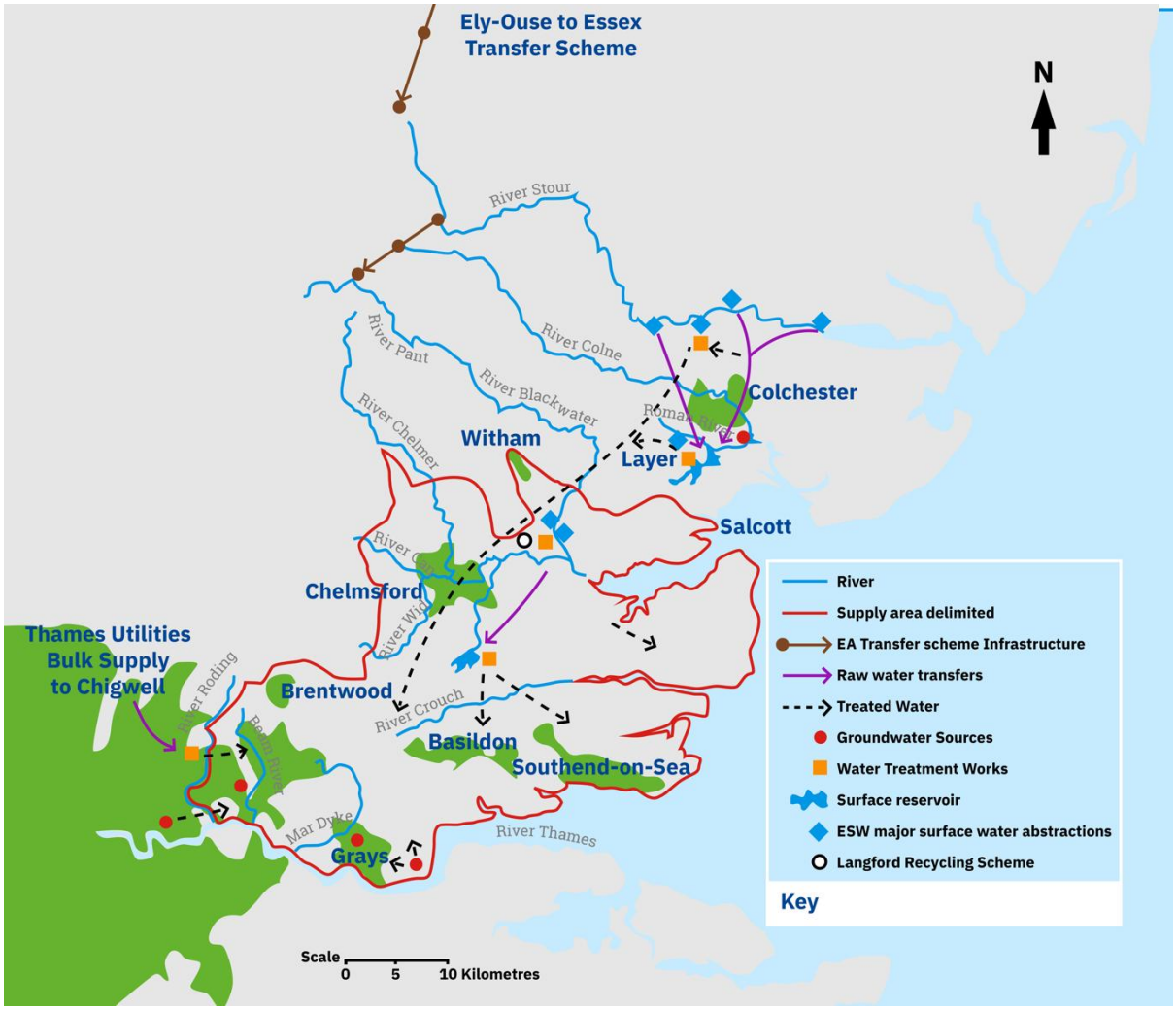


Figure 2: Essex Water Resource Zone

Figure 3: Suffolk Water Resource Zones

We will apply all supply-side drought actions at a Water Resource Zone (WRZ) level. For demand side drought actions, these will be applied at the level of Supply Area (i.e., Essex or Suffolk Supply Areas). As of WRMP24, our Essex and Suffolk supply areas have different Levels of Service, and therefore we can implement demand side restrictions in Essex and Suffolk independently.

A description of each Water Resource Zone is provided in the following sections.

2.2.1 Essex Water Resource Zone

The Essex WRZ is bounded by the Thames Estuary in the south, the Essex coastline as far north as Salcott in the east, Silver End in the north, and the London Boroughs of Redbridge, Barking and Havering in the west. The area includes the towns of Southend-on-Sea, Chelmsford, Witham, Brentwood, Billericay, Basildon, Grays, Dagenham and Romford (Figure 2).

In a drought year, only around half of the water supplied within the Essex Supply Area is sourced from within it, with the rest being transferred in from outside the area. This is because the water abstracted from our local rivers and the bulk raw water supply from Thames Water is insufficient to meet demand.

The water sources within the Essex Supply Area include the River Chelmer, River Blackwater, River Stour, the Roman River and Sandon Brook, which are used to fill pumped storage reservoirs at Hanningfield and Abberton, and supply our water treatment works at Langham and Layer de la Haye in north Essex, and Langford and Hanningfield in south Essex. The remaining water sourced from inside the supply area (approximately 2% of total water supplied) is derived from groundwater via Chalk well and adit sources in the south and south west of the zone at Roding and Stifford, each with on-site treatment.

In a drought year up to a third of the water abstracted from the Essex rivers is supported by the Ely Ouse to Essex Transfer Scheme (EOETS). This is owned and operated by the Environment Agency and transfers water, when control rules are met, via pipelines and pumping stations from Denver in Norfolk to the headwaters of the River Stour and the River Blackwater (Figure 2).

The EOETS, the Essex rivers, and their associated intakes, the pumped storage reservoirs at Abberton and Hanningfield and associated raw water transfer pipes, pumping stations and treatment works are collectively known as the ‘Essex System’. This reflects the nature of the water resource zone supporting the Essex Supply Area, which is a fully integrated with great flexibility for moving drinking water around to where it is required.

In a drought year, a further 15% of water in the Essex Supply Area is provided via a raw water bulk transfer provided by Thames Water Utilities from the Lee Valley reservoirs. The raw water is pumped directly to our treatment works at Chigwell for treatment and then into supply.

Since 2003, the Essex Supply Area has benefited from an innovative effluent recycling scheme near Maldon. The scheme intercepts effluent from Chelmsford Sewage Treatment Works (STW) and treats it to a very high standard at a purpose-built treatment plant. Once treated the water is pumped 3km upstream into the River Chelmer where it augments the natural river flow and is available for re-abstraction via existing intakes, supporting a nearby Water Treatment Works (WTW) and storage in Hanningfield Reservoir. During dry periods, the scheme can provide up to an additional 20 megalitres per day (Ml/d) (April to November) of water for use within the Essex Supply Area.

The completion of the Abberton Scheme in 2014, which included increasing the capacity of Abberton Reservoir by 58%, achieved a surplus of water across the full

planning horizon of our previous Water Resources Management Plan 2019 (WRMP19). However, we are now required to plan for our water supply to be resilient through even more severe droughts - those expected to occur on average once every 500 years. When we reviewed the Essex WRZ supply demand balance during the preparation of our current Water Resources Management Plan 2024 (WRMP24), this requirement, alongside increasing customer demand and the impact of climate change on our resources, resulted in the need for us to make additional investment to increase water available for use by 2030. This is further detailed in Section 2.5.3.

2.2.2 Hartismere Water Resource Zone

The Hartismere WRZ (Figure 3) is bounded to the north by the River Waveney (from its source at Redgrave in the west to Mendham in the east), to the west as far as Rickinghall and Wyverstone Street, and to the south as far as Mendlesham Green and Aspall. This WRZ includes the market town of Eye, which is situated on the River Dove, a major tributary of the River Waveney. This WRZ was predominantly rural in nature and characterised by arable farming. However, there has been significant expansion of Eye Industrial Estate, particularly over the last five years, including many businesses with a high non-domestic water requirement.

All the water supplied within the Hartismere WRZ is abstracted from boreholes constructed into the Chalk and Crag aquifers (water bearing rock).

The Hartismere WRZ was particularly affected by the last major drought in Suffolk between 1995 and 1997. Consequently, following the drought we made significant investments including infrastructure enhancement to enable transfer of water more easily around the WRZ, and the successful development of two new groundwater sources to address security of supply concerns.

However, during the preparation of our WRMP24, we identified a supply demand balance deficit in the Hartismere WRZ across the whole 25 year planning horizon due to the increasing non-household demand described above, and Environment Agency planned reductions to our abstraction licences resulting from:

1. The delivery of currently agreed outcomes from our AMP7 WINEP investigations.
2. Licence changes (caps) to prevent the risk of Water Framework Directive deterioration of waterbodies.
3. Licence changes to meet the requirements of the Habitats Regulations in the Broads Special Area of Conservation (SAC) and Waveney and Little Ouse Valley Fens SAC.
4. Licence reductions driven by Environmental Destination[1].

[1] The Environment Agency's policy document 'Meeting our Future Water Needs: A National Framework for Water Resources' (2020) (the 'National Framework') identifies that a step change is required in order to improve the water environment and address unsustainable abstractions from it, in order to improve resilience to drought, climate change and increase environmental protection, by 2050. Licence changes aiming to leave more water in the environment to achieve this are known as Environmental Destination Sustainability Reductions.

To resolve this deficit we are planning to construct a new potable water transfer pipeline from Barsham WTW in our Northern Central WRZ, so that additional supplies can be brought into the Hartismere WRZ (see Section 2.5.3). In order to safeguard existing household and non-household supplies while new supply schemes are delivered, we have implemented a non-domestic moratorium. This approach ensures that current customers continue to receive a reliable supply until the necessary infrastructure enhancements are constructed.

2.2.3 Blyth Water Resource Zone

The Blyth WRZ is bounded by the Suffolk coastline in the east (between Aldeburgh in the south and Walberswick in the north), in the west by Earl Soham, and in the north at Chediston. This WRZ includes the towns and villages of Saxmundham, Leiston, Framlingham, Peasenhall and the southern side of Halesworth. Similarly, to Hartismere, the Blyth WRZ is predominantly rural in nature.

All the water supplied within the Blyth WRZ is abstracted from seven groundwater sources.

During the preparation of our WRMP24, we identified a supply demand balance deficit in the Blyth WRZ after the first year and for the remainder of the 25 year planning horizon due to Environment Agency planned reductions to our abstraction licences resulting from:

1. The delivery of currently agreed outcomes from our AMP7 WINEP investigations.
2. Licence changes (caps) to prevent the risk of Water Framework Directive deterioration of waterbodies.
3. Licence reductions driven by Environmental Destination.

To resolve this deficit we are planning to construct a new potable water transfer pipeline from Barsham WTW in our Northern Central WRZ, so that additional supplies can be brought into the Blyth WRZ. This is further detailed in Section 2.5.3.

2.2.4 Northern Central Water Resource Zone

The Northern Central WRZ is bounded by the River Waveney and River Bure to the west, and the Suffolk coastline from Southwold to Winterton-on-Sea in the east. This WRZ includes the towns of Lowestoft, Great Yarmouth, north Halesworth, Bungay and Beccles. Demand in the WRZ is heavily influenced by the large population centres in Lowestoft and Great Yarmouth. The transient holiday population in Great Yarmouth during the summer can have a notable seasonal effect on demand.

Water supplied in the Northern Central WRZ is predominantly sourced from surface water, with a smaller proportion from groundwater in the south of the WRZ. Surface water is provided via four sources including the River Waveney, the River Bure, and groundwater fed lakes at Ormesby, Lound and Fritton. A smaller component of raw water can be sourced from remote Chalk boreholes in the north of the WRZ. Larger quantities of groundwater produced in the south of the WRZ are abstracted from eight groundwater sources.

Our WRMP24 supply demand balance for the Northern Central WRZ shows a small surplus until 2031/32 but a deficit thereafter, driven by:

1. Increases in non-household demand.
2. Abstraction licence changes (caps on annual licensed quantities) to prevent the deterioration of waterbodies as required by the Water Framework Directive Regulations.
3. Abstraction licence reductions and/or stricter Hands off Flow / Level conditions to meet the requirements of the Habitats Regulations in the Broads Special Area of Conservation (SAC) and Waveney and Little Ouse Valley Fens SAC.
4. Abstraction licence reductions driven by long-term Environmental Destination.

To resolve the Northern Central WRZ deficit, and the deficit in Hartismere and Blyth WRZs via the new potable water transfer pipelines, we are planning to construct a number of new supply schemes, which are detailed in Section 2.5.3.

2.3 Restrictions on water use and our Levels of Service

2.3.1 Overview

During long or very intense droughts we may need to place some restrictions on customer water use to ensure we are always able to maintain reliable supplies should the dry weather turn into a drought.

The frequency of these restrictions (our Levels of Service) were agreed with our customers and stakeholders during the development of our published Water Resources Management Plan 2024. They are reviewed every five years as part of the Water Resources Management Planning process.

Our current planned Levels of Service for our Essex and Suffolk supply areas are summarised in Table 1 and Table 2. Our Levels of Service are presented as both a return period (e.g., 1 in 10 years) and as a percentage (e.g., 10% chance in any one year). For example, our Level of Service for an Appeal for Restraint is 1 in 10 years on average, or a 10% chance. This does not mean that an Appeal for Restraint will be made with such regularity. For example, a 1 in 10 year drought event may occur twice in 10 years and then not again for another 10 years.

The Level of Service for Level 4 Emergency drought actions is included for completeness. These actions form part of our company Emergency Plan for Drought.

We are meeting all our levels of service and have never needed to introduce Level 3 or 4 restrictions. The last time we introduced a Level 2 Temporary Use Ban (referred to as a hosepipe ban at the time) was during the 1996-98 drought.

Our planned frequency of level 1 and 2 customer restrictions is currently greater in our Suffolk supply area than our Essex supply area, whilst we are delivering our planned demand management activity to reduce customer demand, and our new supply schemes, as detailed in Section 2.5.3.

Table 1: Essex Supply Area Planned Levels of Service

Level of Restriction	Frequency of restriction	Annual chance of restriction
Level 1: Appeal for restraint	1 in 10 years	10% probability in any one year
Level 2: Temporary Use Ban	1 in 20 years	5% probability in any one year
Level 3: Non-Essential Use Ban	1 in 50 years	2% probability in any one year
Level 4: Emergency drought actions	**2025/26 to 2030/31:** 1 in 200 years **2031/32 onwards:** 1 in 500 years	**2025/26 to 2030/31:** 0.5% probability in any one year **2031/32 onwards:** 0.2% probability in any one year

Table 2: Suffolk Supply Area Planned Levels of Service

Level of Restriction	Frequency of restriction	Annual chance of restriction
Level 1: Appeal for restraint	1 in 5 years	20% probability in any one year
Level 2: Temporary Use Ban	1 in 10 years	10% probability in any one year
Level 3: Non-Essential Use Ban	1 in 50 years	2% probability in any one year
Level 4: Emergency drought actions	**2025/26 to 2032/33:** 1 in 200 years **2033/34 onwards:** 1 in 500 years	**2025/26 to 2032/33:** 0.5% probability in any one year **2033/34 onwards:** 0.2% probability in any one year

2.3.2 Level 1 Appeal for Restraint

Some droughts, typically those of short duration, do not require us to place restrictions on the use of water. However, we always ask our customers to use water wisely. However, as a period of prolonged dry weather develops, we may need to implement a Level 1 Appeal for Restraint. We would use all of our communication channels (e.g. social media and press releases) to ask our customers to Use Water Wisely.

2.3.3 Level 2 Temporary Use Ban

As a drought develops, a Level 2 Temporary Use Ban (TUB) might be required (see Section 7.3.1 for more details). This would, for example, allow us to restrict the use of hosepipes for garden watering. Therefore, TUBs will still be rare and only implemented when there is a real need.

2.3.4 Level 3 Non-Essential Use Ban

During severe droughts we may need to implement a Level 3 Non-Essential Use Ban (NEUB), sometimes referred to as a Drought Order Ban. This would allow us to place wider restrictions on the use of water including:

- Watering outdoor plants on commercial premises;

- Filling or maintaining a non-domestic swimming or paddling pool;
- Filling or maintaining a pond;
- Operating a mechanical vehicle-washer;
- Cleaning any vehicle, boat, aircraft or railway rolling stock;
- Cleaning non-domestic premises;
- Cleaning a window of a non-domestic building;
- Cleaning industrial plant;
- Suppressing dust; and
- Operating cisterns.

Restrictions would never be placed on the use of water for firefighting and our procedures for protecting vulnerable customers would come into force.

2.3.5 Level 4 Emergency Drought Actions

During an unprecedented drought, we might need to implement a Level 4 restriction to introduce rota cuts. This can only be done by applying for an emergency drought order. However, this is an emergency action and falls within the scope of our Emergency Plan and not this Drought Plan.

2.4 Fire Service

Water companies have duties under Part 5 of the 2004 Fire and Rescue Services Act with regard to the provision of water for firefighting.

During minor and moderate droughts (i.e. those requiring Level 1, 2 or 3 drought actions to be implemented) we would never place restrictions on the use of water for firefighting. However, during unprecedented extreme droughts, the most severe of our Drought Plan actions is to reduce pressure within our network below the minimum level of service. This could affect the flow rate from hydrants used by the Fire Service for firefighting. Nevertheless, we would take all reasonable measures to provide adequate supplies of water for the Fire Service's use in firefighting and pressure could be increased again temporarily to support any significant fire incidents. In the very unlikely event that network pressure reduction was required we would provide the Fire Service with as much warning as possible (a minimum of 7 days) and we would formally notify the relevant Emergency Planning Authorities.

2.5 Links to Other Plans

2.5.1 Overview

Our drought plan has been developed with reference to the follow other plans:

- National Drought Framework for England and Environment Agency Area Drought Plans.
- Our Water Resources Management Plan (WRMP).
- Our Emergency Plan for drought.
- Regional water resources plans.

These are outlined in more detail in the following sections. Figure 4 summarises how our WRMP, drought plan and emergency plan for drought work together to support drought management.

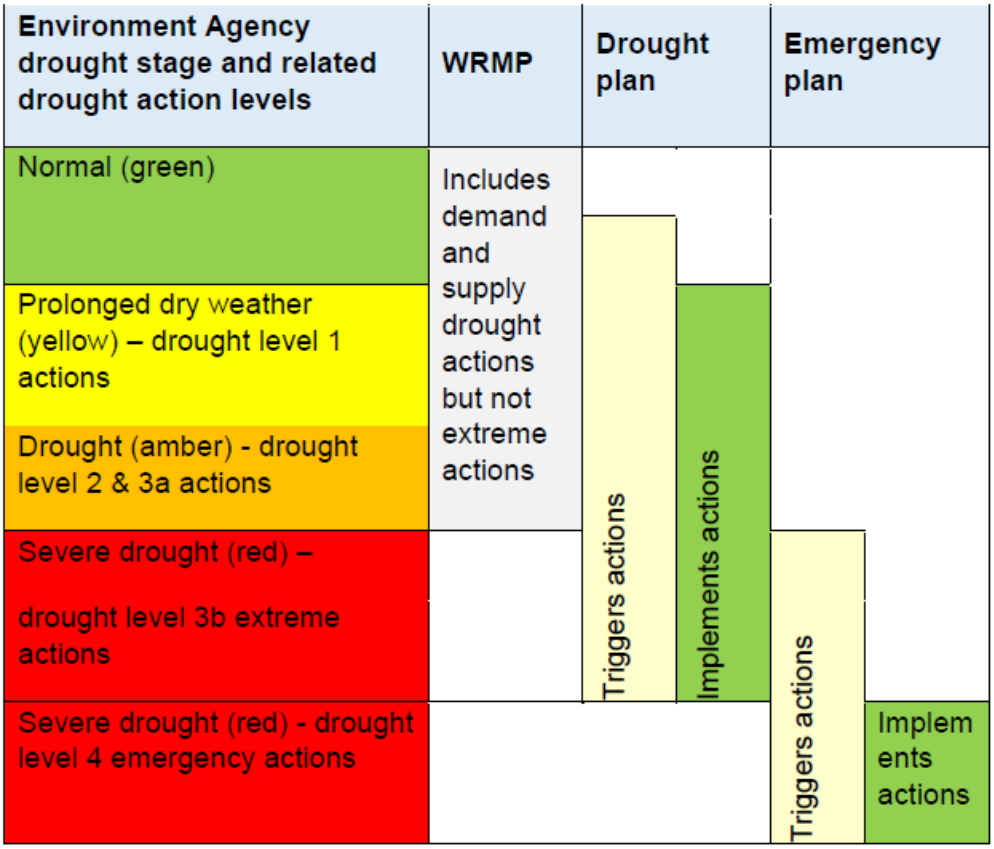


Figure 4: How our plans work together to support drought management (EA, 2025)

2.5.2 National Drought Framework for England and Environment Agency Area Drought Plans

The UK Government publishes its policy entitled, 'Drought: how it is managed in England', which was last updated in September 2025 and can be accessed at: https://www.gov.uk/government/publications/drought-management-for-england .

The policy explains how the Environment Agency works with government, water companies and others to manage water resources during a drought in England, and sets out:

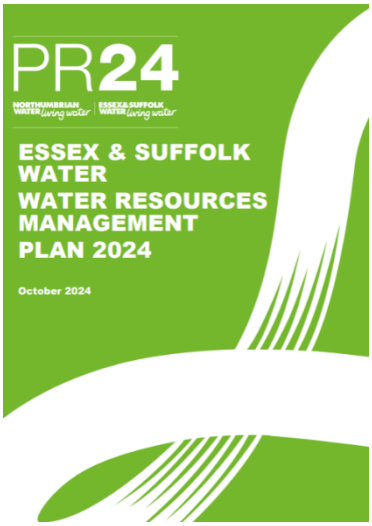
- the impacts of drought in England
- who is involved in planning, managing and responding and how they work together
- the actions they and others take to effectively manage droughts
- how they report on drought and communicate with others
- their role in recovery and learning from drought events

The Environment Agency also has its own area drought plans which set out the metrics for determining drought status, the actions it will take during a drought and its communications plans.

We will always work closely with the Environment Agency during a drought and will continue to:

- share monitoring data;
- consider the various stages of drought with regard to our own Drought Plan;
- provide regular water resource updates;
- work closely with the Environment Agency's communications teams and where appropriate issue joint communications with the Environment Agency and other stakeholders.

2.5.3 Water Resources Management Plan



We assess supply and demand in our Water Resources Management Plan (www.nwg.co.uk/wrmp) which sets out how we will provide a reliable and sustainable supply of water to our customers and is refreshed every 5 years.

Our latest plan called Water Resources Management Plan 2024 (WRMP24) covers the period from 2025 to 2050 and was prepared in line with the Water Resources Management Plan Regulations 2007 and Water Resources Management Plan Direction 2022.

WRMP24 forecasts how much water we will have available to supply our customers, taking account of future droughts, climate change and the need to protect the environment. It also forecasts how much water our customers will need taking account of future population growth. The forecasts are worst case in the sense that dry weather demands are measured against source yields defined by worse droughts on record. The Environment Agency requires that by 2039 all water companies must be able to maintain supply during a 1 in 500 year drought (i.e., without needing to implement Level 4 drought actions). Therefore, we also tested out plan against plausible, synthetic droughts that are more impactful than historic droughts (in terms of severity and duration) with a return period of 1 in 500 years.

Our WRMP24 supply and demand forecasts show that we have supply deficits in all our ESW Water Resource Zones, that are driven by:

- increases in household and non-household demand;
- the impact of climate change on deployable output following a move from using CP09 to the CP18 projections;
- the need to be resilient to a 1 in 500-year drought (i.e. without needing to implement Level 4 drought actions) by 2039;
- a change in the method of assessing source and system deployable output using stochastic drought rainfall sequences; and
- abstraction sustainability reductions to annual licensed quantities and/or stricter Hands-off Flow conditions to leave more water in the environment.

Consequently, we are taking a twin-track approach to resolving these deficits whereby our WRMP24 final preferred plan will allow us to meet national targets for leakage and demand reduction as well as setting out our planned new supply schemes required to restore supply headroom in all our WRZs. Our WRMP24 Best Value plan is outlined in Table 3.

While our Water Resources Management Plans are long term plans, by contrast, drought planning is essentially a prepared response to sustained dry weather (drought) conditions that have the potential to detrimentally affect public water supplies. This Drought Plan is an operational tactical plan and sets out the actions we will take to manage water supplies in a drought and includes worked examples.

There are direct linkages between longer term water resources planning and drought planning in terms of the calculation of all elements relating to the Supply Demand balance, which for the purposes of this document can be assumed to be consistent.

It should be recognised that the frequency of drought may increase in the future due to the impact of climate change.

Our levels of service for each of our Level 1, 2, and 3 Drought Actions are the same for both our Water Resources Management Plan and this Drought Plan.

Table 3: WRMP24 Best Value Plan

WRMP24 BEST VALUE PLAN COMPONENT		DESCRIPTION
Demand Reduction	Leakage Reduction	40% reduction by 2050.
	Compulsory Metering	We have committed to compulsory meter all Suffolk customers by 2030/31.
	Smart Metering	All household and non-household properties to have smart meters by 2035.
	Water Efficiency Programme	Water efficiency programme to support meeting national household water consumption and business demand reduction targets.
Essex Supply Schemes	Linford New WTW	A new 10Ml/d WTW along with one or more new groundwater boreholes.
	Abberton Raw Water Pumping Station & Langford Clarifiers	Scheme to allow full benefit from the Layer WTW to Langford WTW raw water pipeline constructed in AMP7.
	Langford Nitrate Scheme	Scheme to reduce unplanned outage due to elevated raw water nitrate concentrations.
	Langford UV	Scheme to reduce unplanned outage due to cryptosporidium in raw water.
	Langham Nitrate Scheme	Scheme to reduce unplanned outage due to elevated raw water nitrate concentrations.
Suffolk Supply Schemes	Suffolk Strategic Network including: - Barsham WTW to Saxmundham Tower - Holton to Eye	Potable water pipelines from Barsham WTW in our Northern Central WRZ, to Saxmundham Tower in our Blyth WRZ and to Eye in our Hartismere WRZ, along with two new service reservoirs and local network enhancements.
	Lowestoft Water Reuse to Ellingham Mill and Transfer	A water recycling scheme, which uses treated effluent from Anglian Water's Lowestoft Sewage Treatment works, treats it to a high standard and is then discharged 1km upstream of our existing river intake on the River Waveney at Barsham WTW.
	North Suffolk Reservoir and Transfer	New raw water storage reservoir taking water from the River Waveney in the winter when flows are high, along with a new WTW.
	Barsham Nitrate Scheme	New scheme to reduce unplanned outage due to elevated raw water nitrate concentrations
	Bungay wells to Broome WTW transfer and Broome to Barsham WTW transfer	A raw water transfer main from our existing groundwater sources at Bungay and Broome to our existing Barsham WTW.
	Caister Reuse Scheme	Selected in our Habs Regs Adaptive Programme. OFWAT granted us funding in PR24 to start the detailed design phase for this water recycling scheme, which uses treated effluent from Anglian Water's Caister Sewage Treatment Works, treats it to a high standard to be used as a resource for our existing WTW at Ormesby.

2.5.4 ESW Business Plan

In our Price Review 2024 (PR24) Business Plan, which covers the period from 1 April 2025 to 31 March 2030 we included schemes covering:-

- All schemes in our AMP8 Water Industry National Environment Programme (WINEP).
- Our metering, leakage and water efficiency strategies
- New supply schemes identified in our WRMP24, detailed in Section 2.5.3.

2.5.5 ESW Emergency Plan

Our Business Continuity Team is responsible for developing and maintaining our Emergency Plans and for ensuring that our obligations are met under the Security and Emergency Measures Direction (SEMD) 2024.

Our Business Continuity Team is represented on our Drought Management Group and would oversee implementation of Level 4 drought actions (standpipes and rota cuts) in the very unlikely event that they are needed.

2.5.6 Regional Water Resources Groups

Overview

Our local regional Water Resources Group is Water Resources East (www.wre.org) of which we are a core member. WRE published their first regional Water Resources Plan in December 2023. WRE does not have any dry weather or drought actions that affect our supply area. However, we will take account of any future actions that might be developed.

We have had pre-consultation drought plan discussions with neighbouring water companies including Anglian Water in the WRE region and Thames Water and Affinity Water in the Water Resources South East (WRSE) region.

We have a bulk raw water supply agreement with Thames Water. The details of this bulk supply and how it will be managed during drought are presented in Section 8.5.1.

Additionally, we have a number of small potable water exports to Anglian Water and Affinity Water. For the purposes of developing this Drought Plan we have assumed that the maximum quantities set out in the respective agreements will be available during drought.

We would consider any request to increase an export during drought on a first come first served basis and on a case by case basis, taking account of our own water resources position. We would not agree to increasing an export if it compromised our own levels of service or overall water supply resilience.

In an emergency situation, where customers of a neighbouring water company are at risk of a supply failure, we would look to support that company through the existing WaterUK mutual aid process where possible.

There might be occasions where we can operate our sources differently to benefit other water users during drought, while minimising the risk to supply. We will consider such requests on a case by case basis via waterresources@nwl.co.uk.

Regional Alignment

As part of WRE, we recognise that effective drought management requires coordinated communications and action across all sectors that depend on water resources. WRE has produced a Statement of Intent (SoI), which describes their approach to regional drought management, collaboration and planning. This SoI is summarised below, can be found in full in Appendix 3 and on the WRE website at WRE Drought Group - Water Resources East.

The SoI provides information on the WRE multi-sector Drought Group, including the structure and group membership and how it will serve as a regional forum to facilitate collaboration between sector groups (i.e. public water supply, agriculture, energy and navigation), regulators and wider stakeholders to enhance regional preparedness for periods of prolonged dry weather and drought events.

The SoI also describes the regional's groups commitment to considering environmental and social needs during drought management activities.

We will work collaboratively with other regional water companies, the Environment Agency and other sectors to ensure that dry weather and drought communications are consistent and do not contradict each other. This will cover the environmental and water resources position, water efficiency messaging and the implementation of and communication around customer restrictions where there is a common water resources drought.

We will use language that is consistent across neighbouring water companies and seek to work collaboratively at a regional level, especially when imposing customer restrictions.

We have categorised our drought plan drought actions using the Level 1 to 3 definitions and will be consistent in our language around Temporary Use Bans (TUBs) and possible exemptions. For TUBs (see Section 7.3.1 and Appendix 4) and Non-Essential Use Bans (NEUBs) (see Section 7.4) we have agreed common text in this Drought Plan which covers, among other aspects, TUB and NEUB exemptions.

2.5.7 River Basin Management Plan

River Basin Management Plans (RBMPs) set out how organisations, stakeholders and communities will work together to improve the water environment and include a series of objectives to support water bodies reaching good status.

We have supply side drought actions in our Drought Plan which would require a drought permit. We have agreed monitoring and mitigation plans for each drought permit action which could cause a lasting deterioration in Water Framework Directive (WFD) status.

In our Water Resources Management Plan 2024 we describe how the annual licensed quantity on a number of our groundwater abstraction licences will be reduced (known as a sustainability reduction) to protect the water bodies we abstract from in the Anglian region river basin from deterioration in ecological status. The reduction in deployable output resulting from these sustainability reductions is being addressed through new demand and supply schemes that we are delivering through our WRMP24 and PR24 Business Plan. The sustainability reductions will be applied to our abstraction licences after the new demand and supply schemes have been implemented between 2025 and 2033.

In the meantime, we will aim to keep abstraction below an agreed baseline level. A consequence of this is that in our Hartismere WRZ, we are currently unable to agree to:

- increase non-domestic supplies via an existing connection to non-household customers; or
- provide a new connection to new non-household customers requiring a non-domestic supply.

2.5.8 Other Water Company Drought Plans

In our pre-consultation discussions, we met with our neighbouring water companies Anglian Water, Thames Water and Affinity Water, to ensure that our drought planning is consistent in terms of assumptions regarding water imports and exports, and communications (as detailed in Section 2.5.6).

2.6 Agreements and arrangements for bulk supplies and transfers

2.6.1 Potable Water imports and exports

We have a number of potable water imports and exports, please see Appendix 5 for details. For the purposes of this Drought Plan, we have assumed that the full quantity outlined in our water supply agreements will be available during a drought. Requests to increase transfers (within the capacity of the transfer mains) will be considered against our own water resources position and would only be supported if our modelling confirmed no significant increase in risk to our own customers' water supplies.

2.6.2 Raw Water Bulk Supply

Thames Water provides a bulk supply of raw water from its reservoirs in the Lee Valley (King George V and William Girling), which are in the London Water Resource Zone (WRZ), to Essex & Suffolk Water's Essex WRZ. This water is transferred by Lower Hall Pumping Station, which is operated by Essex & Suffolk Water, and then

treated by Essex & Suffolk Water at their Chigwell Water Treatment Works (WTW) (Figure 5).

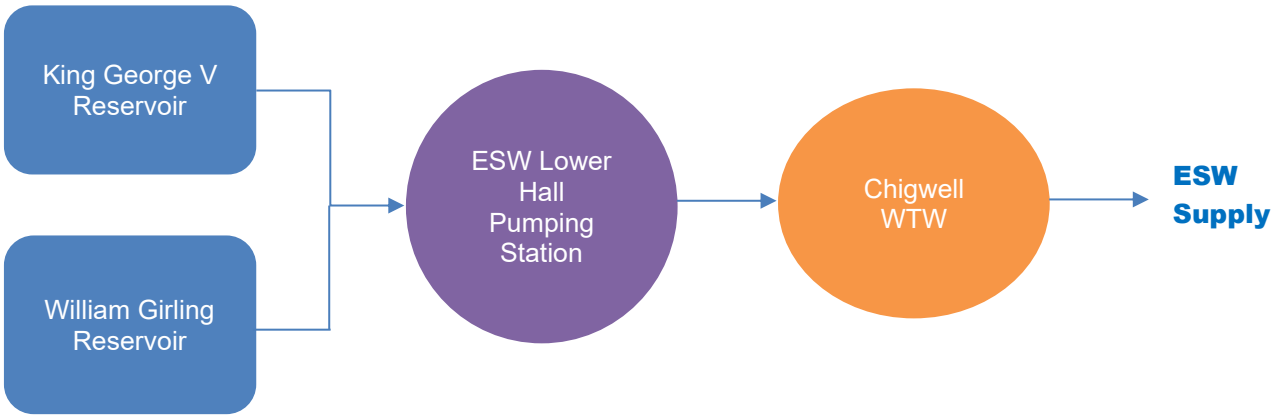


Figure 5: Thames Water Raw Water Bulk Supply.

1963 Bulk Supply Agreement

This bulk supply has been in operation since 1965 following an agreement made in 1963 between the Metropolitan Water Board (now Thames Water) and the South Essex Waterworks Company (now Northumbrian Water trading as Essex & Suffolk Water). The origin of the transfer relates to the construction of the Wraysbury Reservoir in West London.

The agreement states that Thames Water should supply up to 90.92 Ml/d of raw water to Essex & Suffolk Water, and that the maximum daily quantity provided should not exceed 130% of the maximum average daily quantity permitted to be taken in a year (118.20 Ml/d). The agreement exists in perpetuity.

This 1963 agreement sets out how the bulk supply from Thames Water to Essex & Suffolk Water may be impacted by drought. It states that the transfer may be reduced by 25%, if Thames Water has a Temporary Use Ban (TUB) in place in their London WRZ, but Essex & Suffolk Water does not have a TUB in place in their Essex WRZ.

If both Thames Water and Essex & Suffolk Water impose a TUB, then the agreement states that Thames Water shall supply the volume that represents a "*fair apportionment of the water available having regard to the obligations"* of both companies.

Fair apportionment will not be pre-emptively defined as the circumstances of each particular drought differ spatially and temporally (evidenced by 1995/97 and 2005/06) and will be considered at the time that customer restrictions are required. However, it is proposed that the apportionment will be derived from the relative shortfall in deployable output or available supplies that each company is experiencing, as determined by water resource system forecast modelling using assumptions agreed by both companies. Each company's modelling will align on the following key assumptions:

- The time period of the model runs.
- The rainfall scenarios used to derive river flows.
- Only once the Level 4 drought trigger is reached, will reservoir emergency storage be utilised.

Once modelling has determined the forecasted number of days of supply remaining before each company's Level 3 drought trigger is reached, the bulk supply provision will be apportioned so that each company share the same timing and level of risk of reaching their respective Level 3 and level 4 triggers.

The process for implementation of this provision involves dialogue between companies in the period running up to and after the implementation of a TUB by Thames Water. When Thames Water identify the potential need to impose a TUB in their London Zone, they will inform Essex & Suffolk Water. Thames Water will then continue to keep them informed of the likely date of imposition of the TUB and confirm if and when the bulk supply will be reduced by 25%, if Essex & Suffolk Water have not imposed a TUB in their supply area. Thames Water will also keep Essex & Suffolk Water appraised of the likely date of lifting of the TUB and will confirm that the reduction in the bulk supply can be lifted as soon as the TUB has been lifted. If Essex & Suffolk Water has not imposed a TUB but Thames Water have, then Essex & Suffolk Water will keep Thames Water informed on the likely date of introducing a TUB, should one be required.

2014 Water Sharing Agreement

In 2014, following the enlargement of Essex & Suffolk Water's Abberton Reservoir, a subsequent water trading agreement was made between Thames Water and Essex & Suffolk Water. This agreement, subject to the required notice being provided, allows Thames Water to reduce the average quarterly quantity of water supplied to the volumes listed in Table 4, resulting in an average transfer of 71 Ml/d.

Thames Water may enact this agreement when they deem it "*necessary in order to deal with operational conditions that may affect its ability to supply water to its own customers*". This, for example, may occur during a drought (although the agreement does not specifically reference drought) or in the event of an operational outage. The agreement expires on 31 March 2035, after which the transfer shall revert to the 1963 agreement of 91 Ml/d on average.

Table 4: Thames Water to Essex & Suffolk Water, reduced (drought) transfer volumes according to 2014 water trading agreement.

Bulk supply volume (Ml/d)	January-March	April-June	July-September	October-December	Annual Average
Quarterly average	60	75	75	75	71.25

3 DROUGHT MANAGEMENT STRATEGY AND PROCESS

3.1 Overview

This section of our Drought Plan sets out our strategy and the process we will follow when responding to drought.

3.2 Drought Management Objectives

The overall objectives of our Drought Management Strategy are:

- To expedite the process of implementing a drought action;
- To identify potential drought measures that may be required in response to a range of drought conditions;
- To provide a comprehensive package of information and procedures that mean we can respond quickly to drought conditions, including collecting the information necessary for a drought permit or drought order application;
- To enable early discussion with regulators, customers and other stakeholders on our proposed response to a drought; and
- To ensure that senior leaders within our business will be provided with detailed, relevant and reliable information on which to make decisions.

3.3 Internal Management

Our Drought Management process begins with the formation of our Drought Management Group (DMG). The trigger for forming the DMG is based on supply and demand conditions and will be particularly influenced by when resource monitoring starts to indicate a potential worsening of hydrological conditions. Our key drought indicators are raw water reservoir storage and groundwater levels in the aquifers from which we abstract. These indicators, discussed further in Section 4, are reviewed and reported to all levels of management on a weekly basis outside of drought conditions by our Water Resources team.

The decision to form the DMG will be made by our Head of Water Service Planning and our Water Director. A number of factors could trigger the formation of the DMG:

- Raw water availability and operational constraints.
- Our weekly water resource trend forecasts.
- Environment Agency Drought Prospects reporting results.
- Environment Agency Drought Status for our operational area.

Our Head of Water Service Planning will assume the role of Drought Manager and will chair the DMG. A DMG secretary will also be appointed and will be responsible for taking, circulating and tracking meeting actions.

The DMG will be formed from individuals representing both affected departments and/or those able to provide the necessary expertise in relation to the various areas of drought management, as shown in Table 5. All of the roles included in Table 5 will attend the Drought Management Group from the date it is formed with the exception of the Asset

Investment Programme Manager and Emergency Planning Advisor who will only attend when Level 3 actions are being considered. The frequency DMG meets depend on the drought level, as set out in Table 6.

Table 5: Drought Management Group structure.

Area of Responsibility		Job Title
Overall Management	Leadership and Accountability	Water Director
Drought Manager (Chair)	Chair - responsible for timely implementation of drought actions in line with this Drought Plan.	Head of Water Service Planning
Environment Agency Liaison	To update the EA on latest supply/demand situation and to consult the EA on drought actions.	Water Resources & Supply Strategy Manager
Resource and Environmental Monitoring	To ensure monitoring is undertaken and reported.	Water Resources Team Manager; and WINEP & Permitting Team Manager
Hydrology and Modelling	To undertake water resources system modelling and to provide advice on surface water abstraction.	Senior Technical Advisor – Water Resources & Hydrology
Hydrogeology	To undertake groundwater modelling and to provide advice on groundwater abstraction.	Hydrogeologist
Water Supply	To operate Water Treatment Works as directed by the DMG, and to inform DMG of any Water Supply constraints.	Head of Water Supply
Distribution and Leakage	To operate the water network as directed by the DMG. To inform DMG of any Water network constraints. To ensure appropriate resources are available to undertake enhanced leakage find and fix.	Head of Water Networks
Water quality	To advise the Water Directorate and the DMG on any water quality issues with the potential to impact customer supplies that may arise as a drought develops.	Water Quality Manager
Demand	Reporting of customer demand.	Demand Planning Team Manager
Water Efficiency	To support dry weather messaging and Appeals for Restraint.	Water Demand Strategy Manager
Customer Services	To ensure customers are kept informed as and when Level drought actions are implemented.	Head of Customer Operations
Public Relations Lead	To ensure key stakeholders are informed of drought conditions and proposed drought actions.	Corporate Communications Manager
Communications Lead	To ensure all dry weather messaging and Appeals for restraint are actioned to agreed deadlines.	Head of External Communications
Maintenance	To continue with proactive maintenance. As a drought deepens, to ensure reactive maintenance is fast tracked.	Regional Maintenance Manager
Asset Delivery	To ensure the timely delivery of any new assets.	Head of Capital Delivery / Head of

		Integrated Delivery Services
Emergency Planning	Co-ordination of Emergency Plan for drought and Level 4 drought actions.	Business Continuity & Emergency Planning Manager

Table 6: Drought Management Group (DMG) meeting frequency.

Drought Action Level	Frequency of Drought Management Group (DMG) Meetings
Level 1	Fortnightly
Level 2	Weekly
Level 3	Daily
Level 4	Continuous in Emergency Meeting Room

Drought actions will be identified and implemented before a major resource difficulty occurs. Such actions will be reviewed on a regular basis in response to daily reporting of the resource situation.

Our drought strategy is to reduce demand in the early stages of drought, initially through enhanced leakage control, water efficiency interventions, pressure management and enhanced dry weather messaging through our respective media channels, followed by a formal appeal for restraint. This approach will reduce the likelihood of needing drought permit actions to address supply issues should the drought worsen.

As a drought develops the DMG will continue to review our supply demand situation and will implement drought actions as prioritised in Section 6. We will liaise with the Environment Agency throughout a drought, as detailed in Section 10.

3.4 Drought Management Process

3.4.1 Overview

The DMG will make decisions on the potential implementation of drought actions following the process summarised in Figure 6.

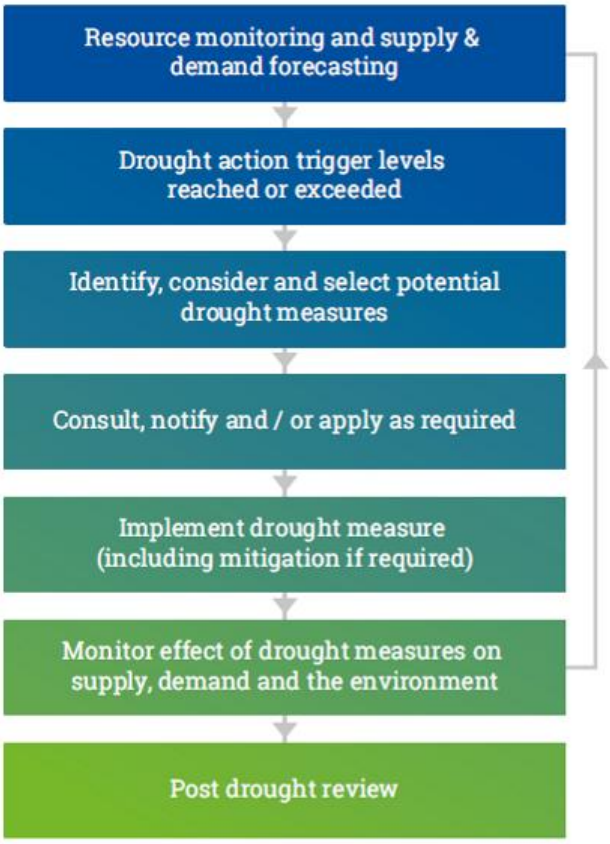


Figure 6: Drought Management Process

The arrows in Figure 6 denote lines of communication both internally and externally which are covered in Section 10.

The key elements of the above process are represented in the various chapters in this Drought Plan.

3.4.2 Stage 1: Resource Monitoring and supply & demand forecasting

During this stage we undertake our business as usual water resource monitoring (e.g., rainfall, reservoir levels and groundwater levels) as well as water supply and customer demand forecasting which confirms whether we are entering a period of prolonged dry weather or not. This informs the likely need for transfers of water via the Ely Ouse to Essex Transfer Scheme (EOETS), our Langford Water Reuse Scheme and other river support schemes as required by the conditions on a number of our abstraction licences.

3.4.3 Stage 2: Drought Action Trigger levels reached or exceeded

The monitoring data from Stage 1 will tell us when the trigger level has been reached for implementing a drought action. The very first trigger is the formation of the DMG. As a drought intensifies, the DMG will brief our Executive Leadership Team and Board with increased frequency.

3.4.4 Stage 3: Identify, Consider and Select Potential Drought Actions

This is when the DMG will review the drought measures in our Drought Plan and assess which ones to implement. The final decision on implementing formal drought actions, such as a Level 1 Appeal for Restraint, lies with our Executive Leadership Team. Section 6 summarises the types of drought actions and the order in which they will be implemented. We will always implement those actions to reduce demand before applying for Level 3 Drought Permit actions.

3.4.5 Stage 4: Consult, Notify and Apply for Selected Drought Actions

For all of our drought actions, we will need to engage with a range of stakeholders (see Section 10) including but not limited to neighbouring water companies, retailers and NAVs, Consumer Council for Water (CCW), Water Resources East, the Environment Agency, Natural England, the National Farmers Union (NFU) and CLA. This will ensure that:

- we are sharing our water resources position early; and
- that we can agree consistent messaging where other stakeholders are also ramping up their drought communications.

For Level 2 Temporary Use Bans (see Section 7.3) which restrict certain water use we are required to consult our customers and regulators.

For our Level 2 supply side actions (see Section 8.4), we will need to make an application for a drought permit or drought order.

3.4.6 Stage 5: Implement Drought Actions

Following completion of Stage 4, we will then implement the drought action. In the case of supply side drought actions (See Section 8), we will also implement any mitigation measures (see Section 11.9) to reduce the impact a drought action might have on the environment.

3.4.7 Stage 6: Monitor Effect of Drought Actions on Supply, Demand and the Environment

Once a drought action has been implemented, we will monitor its performance and confirm the effect it has on customer demand, water supply, and in the case of supply side drought acions, the impact on the environment (see Section 11). This stage will continue to monitor the recovery from drought until the end of drought is reached.

3.4.8 Stage 7: Post Drought Review

Once our monitoring data has confirmed a drought has ended and drought actions have been withdrawn, we will then undertake a post drought review (see Section 14.2) to identify lessons learnt and to review and improve our drought plan process.

3.5 External Stakeholders

Understanding the context of drought outside of our own supply area is essential. The Water Industry's previous experience of drought confirms the importance of water companies, regulators and Defra working in a collaborative, fully informed manner. Following the formation of our DMG, we intend to work closely with Defra, the Environment Agency, CCW, Water Resources East, other water companies, other sectors such as agriculture, retailers and NAVs and the National Drought Communications Group to ensure our messages are aligned. Coordination of the timing and content of messages to our customers helps considerably in removing confusion about what is happening, and what we need our customers to do.

3.6 Decisions & Consultation in a Drought

The final decision for selecting and implementing a drought action lies with our Executive Leadership Team (ELT). As a drought intensifies, the DMG will brief our ELT with increased frequency. When a trigger level is reached, the ELT will already be fully briefed and aware of its implications. They will therefore be able to grant immediate approval.

Once an action has been selected we will consult with the Environment Agency and other consultees including the CCW before notice of the application is made. We will also engage when required with affected areas of the Fire Service in order to ensure that any implications for operational fire-fighting have been adequately considered. This will be particularly important in the context of restrictions on water use.

4 RESOURCE MONITORING & DROUGHT INDICATORS

4.1 Overview

An important requirement of our Drought Plan is to regularly monitor the status of key drought indicators including rainfall, soil moisture deficit, reservoir levels and groundwater levels. This monitoring informs:

- our water resources position in terms of whether normal condition prevail or whether we are entering or in a period prolonged dry weather or drought;
- when to form our Drought Management Group (see Section 3); and
- when drought action triggers are reached and when to implement drought actions (see Section 5).

Section 4.3 below provides a summary of each drought indicator and where appropriate confirms the type and length of the monitoring record. A description of how monitoring data can be analysed and used in support of a drought application is outlined in Section 4.4.

4.2 Water Resources Situation Reporting

During dry weather we produce a monthly Drought Management Report which is shared with the DMG. This report includes:

- Forecast weather in each region
- Distribution Input data (comprises customer demand and leakage)
- Current national drought position
- Essex and Suffolk Water specific updates comprising:
    - Rainfall in each WRZ
    - 3, 6, 9 and 12 month rainfall deficits
    - Soil Moisture Deficit (SMD) in each supply area
    - Raw water reservoir storage levels
    - Natural lake water levels
    - River flows (as reported by the Environment Agency)
    - Groundwater Levels
- Drought actions in each region.

The monthly report compares the monthly outturn for each parameter against the long-term average for that month.

The report narrative confirms whether a Water Resource Zone or Region is entering a period of prolonged dry weather or not and the likelihood of licence condition constraints, needing any of our support schemes and/or activating drought actions.

4.3 Drought Indicators & Monitoring

We have grouped our drought indicators into two categories:

- Hydrological and meteorological indicators that measure the direct effect on the hydrological cycle. These include rainfall (total and effective), soil moisture deficit, temperature, weather patterns, groundwater (levels and recharge / drawdown trends), river flow, reservoir inflows, reservoir storage and abstractable quantities
- Customer demand and consumption.

Drought indicators that historically have been of the greatest value in Essex and Suffolk are rainfall, reservoir storage, groundwater levels, river flows and customer demand and continue to be favoured in this Drought Plan. Both internal and external (Environment Agency) data sources are utilised where appropriate.

4.3.1 Rainfall

Rainfall is a primary indicator of drought severity. It has a direct effect on many hydrological parameters (soil moisture deficit, river flows and groundwater recharge) and can therefore directly impact on the quantities of water available for abstraction. Consequently, we will use rainfall to inform our drought status and to justify any restrictions on customers use of water. We measure rainfall at the Water Treatment Works shown in Table 7.

Table 7: Essex and Suffolk WTW monitored rain gauges

Essex	Suffolk	Norfolk
Hanningfield: 1960 onwards	Barsham: 1983 onwards	Ormesby: 1992 onwards
Chigwell: 2006 onwards	Lound: 1998 onwards	
Layer: 1949 onwards	Benhall: 2006 onwards	
Langford: 1929 onwards	Bedingfield: 2005 onwards	
Langham: 2006 onwards	Redgrave: 2006 onwards	
	Walpole: 2005 onwards	

During normal (non-drought) conditions, daily rainfall data is sent to our Water Resource team at the end of each month. During prolonged dry weather and drought, daily rainfall figures can be obtained directly as required.

Monthly rainfall data is also provided by the Environment Agency within a wider 'Hydrometric Bulletin' provided by East Anglia area, and a 'Hydrological Summary' provided by Thames area.

The East Anglia area bulletin includes average monthly rainfall figures for Essex, Suffolk and Norfolk. The Thames area summary includes average monthly rainfall figures for the River Lee Chalk catchment of the northeast part of the area. More local rainfall data is available on request from the Environment Agency for most of the Essex and Suffolk water catchments.

4.3.2 Soil Moisture Deficit

Soil Moisture Deficit (SMD) is the amount of water required to raise a soil to field capacity. As a soil approaches field capacity, infiltration and ultimately aquifer recharge can potentially occur. The largest SMDs are found in the summer when rainfall is low and ambient air temperatures and evapotranspiration rates are high. Aquifer recharge usually starts around late September/October when SMDs reach a critical threshold.

The monthly SMD dataset we use for reporting is acquired from MORECS for the East Anglian region that Essex & Suffolk Water operate. As with rainfall, monthly SMD figures are also quoted in the Environment Agency's monthly bulletins and area summaries.

4.3.3 Groundwater Levels

The monitoring of groundwater levels is of greatest importance in our Suffolk supply area, particularly in the groundwater-dominated Hartismere and Blyth Water Resource Zones.

Groundwater levels in our pumped boreholes are automatically recorded every 15 minutes. Manual groundwater level measurements using a dip meter are taken

weekly by our Water Supply team and sent to our Water Resources team for validation. Additionally, we monitor groundwater levels in a number of monitoring boreholes as required under various abstraction licence conditions.

We also monitor groundwater levels in three observation boreholes that are not influenced by nearby abstractions to give an indication of background groundwater levels in our Suffolk WRZs. We review this groundwater level data to understand current water resource position, forecast groundwater trends under different scenarios and use triggers to perform a number of drought actions set out in our drought plan.

As with rainfall and SMD, monthly average groundwater levels are reported in the Environment Agency's monthly bulletins and are summarised on a groundwater unit basis (e.g. Suffolk Chalk, Suffolk Crag, Essex Chalk, Essex Gravels).

4.3.4 River Flows

We have installed telemetry at a number of the Environment Agency's gauging stations on the Rivers Chelmer, Blackwater, Stour, Waveney and Bure with 15 minute flow data being stored on our internal systems. Hydrographs for each of these rivers (and other rivers within our supply area) are also provided in the Environment Agency's monthly bulletins and summaries.

Longer records for key gauging stations are already held in electronic format and are used for water resources system modelling and statistical analysis.

4.3.5 Reservoir and Lake Levels

We have two large, pumped storage reservoirs in Essex: Hanningfield Reservoir and Abberton Reservoir. Their storage capacities are 26,075 Ml and 41,375 Ml respectively.

To increase security of supply and the resilience of the Essex Water Resource Zone to drought, we increased the storage capacity of Abberton reservoir by 60% by raising the dam (the Abberton Scheme) between 2010 and 2014. We have further increased the resilience of the Essex Water Resource Zone through a new scheme called the Abberton Reservoir to Langford Pipeline. The pipeline allows us to balance the storage of Abberton and Hanningfield reservoir however, the pipeline will not be used to its full capacity until 2030 when we have upgraded our Langford Water Treatment Works.

Reservoir water levels and reservoir storage are a critical element of monitoring the Essex Water Resource Zone and are plotted against reservoir control curves (triggers) for implementing our drought actions (see Section 5.2). Essex reservoir storage is calculated on a weekly basis using both a level method (converting it to volume using look up tables) and a water balance method (comparing what goes in the reservoirs with what comes out). Reservoir storage levels are widely circulated both internally and to external organisations including the Environment Agency and Essex Wildlife Trust.

Lake storage is recorded daily at Fritton Lake and Ormesby Broad in our Suffolk Northern/Central zone by converting level to volume using look up tables.

Both reservoir and lake levels are graphically presented to compare current levels with historic minimum, mean and maximum levels.

4.3.5 Weather Forecasts

We have access to Met Office weather forecasts and will review short, medium and long term weather forecasts more regularly as we enter a period of prolonged dry weather and / or drought.

We took part in an Ofwat Innovation Fund project with the Met Office and other water companies to trial the Met Office's sub-seasonal demand model to aid operational decision making. In essence this sub-seasonal demand model is based on the Met Office's forecast of weather systems to give us early warning (up to 6 weeks in advance) of weather that would significantly increase demand (for example through high customer demand from drought conditions). The aim of the model would be to give an earlier warning than currently available to help many teams in the business with planning and decision making. Information and results from the project can be found in Appendix 6.

4.3.6 Operational Reporting

Internal Operational Reporting

We monitor, record and report daily water availability, supply and demand figures for both the Essex and Suffolk supply areas in our "Daily Report". This report is available to all teams, managers and directors involved in water resources management. During a period of prolonged dry weather, this report assists in optimising all our abstractions and treatment works for dry weather conditions.

Ely Ouse to Essex Transfer Scheme Operation

We hold quarterly meetings with the Environment Agency about the EOETS and cover the following issues:

- an update on the region's current water resource situation, including river flows, reservoir storage and groundwater levels;
- raw water quality issues;
- water availability at Denver;
- the operational status of the transfer scheme, treatment works and pumping station infrastructure, including planned maintenance downtime;
- current and predicted customer demand;
- likelihood of needing to run the EOETS to support storage in our Abberton and Hanningfield reservoirs; and
- likelihood of needing to run groundwater river support schemes.

4.4 Reporting and Analysis of Drought Conditions

Every drought in the UK has a unique spatial and temporal signature. Droughts are also unique in their duration and severity, as well as their individual hydrological and consequential characteristics. It is important therefore to ensure that reporting and

analysis of a drought situation takes account of the wide range of factors that potentially define it. Historical data can be used to demonstrate:

- a period of prolonged dry weather;
- an exceptional shortage of rainfall;
- whether a shortage of rain is affecting key surface and groundwater sources; and
- how our drought and resource position compare with neighbouring water companies and at a national level.

Our Water Resources Team maintains the historical data and is responsible for its validation, analysis and reporting during a drought. During a drought we update and report weekly so that our Drought Management Group is kept updated on ambient drought conditions and drought action decisions can be made in a timely manner.

Our Drought Management Reports cover the following elements:

- comparison of recent rainfall data against long term mean and minima for each water resource zone;
- comparison of rainfall trends, groundwater levels and river flows to assess the impact of low rainfall on sources (surface and groundwater);
- assessment of trends in soil moisture deficit and groundwater levels and their impact on river baseflows and prospects for recharge;
- assessment of refill for Abberton and Hanningfield reservoirs; and
- comparison of relevant hydrometric data against applicable drought measure trigger levels.

4.5 Historical Prolonged Dry Weather

Monthly rainfall totals from the Environment Agency's Daily Rainfall Tool (DRT) together with monthly data from the Met Office HadUK dataset v.1.3.1.0 were used to calculate 3-month, 6-month, 12-month, 18-month and 24-month Standard Precipitation Index (SPI) for Essex and Suffolk. The results of this SPI analysis were used to understand the intensity and severity of droughts that we have experienced in the region, see Figure 7.

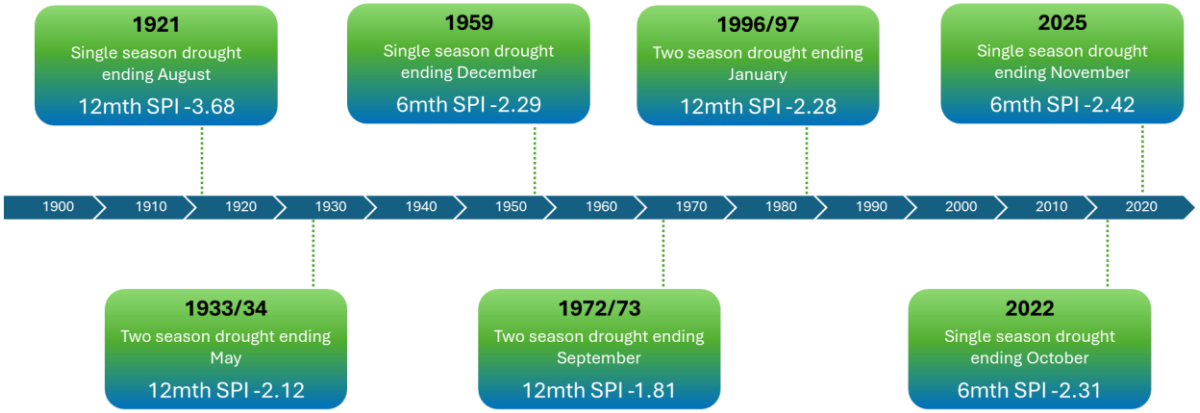


Figure 7. Historic droughts in Essex and Suffolk with 12 month or 6 month SPI

We have used historic inflows, from a selection of the drought events identified, to model historic periods of prolonged dry weather and droughts with our current water

resource network to observe the effect of these on our river levels and reservoir stocks. The results of this modelling and the actions required are detailed in Appendix 7.

4.5 Dry Years

Plotting rainfall and temperature data in quadrants can graphically represent the weather conditions and show if a year would be classified as 'dry', 'normal' or 'wet'. The graphs in Figure 8 and Figure 9 demonstrate what years have been classed as 'dry' (bottom right quadrant) in the Essex and Suffolk regions since 1987. There are 5 years that are classed as dry in Essex and 4 in Suffolk.

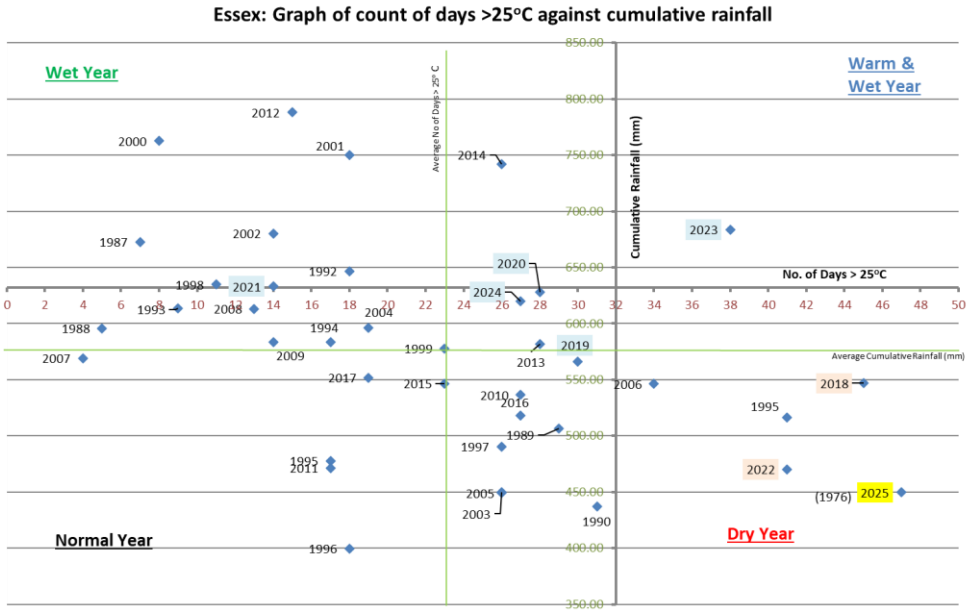


Figure 8: Quadrant graph for Essex showing number of days with temperature greater than 25°C against cumulative rainfall.

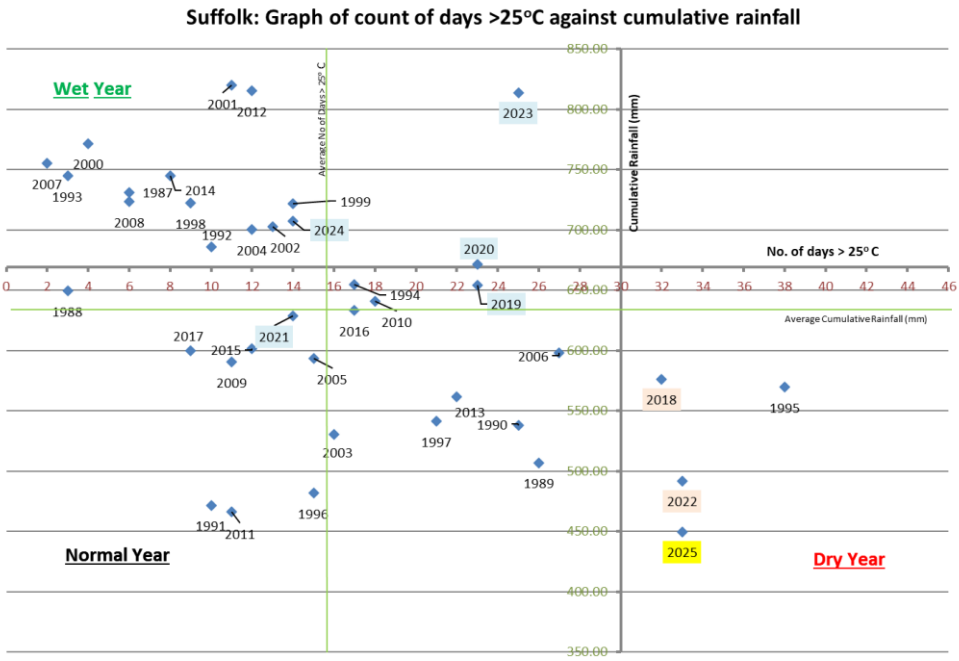


Figure 9: Quadrant graph for Suffolk showing number of days with temperature greater than 25°C against cumulative rainfall

5 DROUGHT TRIGGERS

5.1 Overview

An important tool in assisting the Drought Management Group (DMG) in deciding whether to implement potential drought actions is the use of trigger levels, defined for key surface and groundwater sources. This section of our Drought Plan presents the drought indicators and drought action triggers for each of our Water Resource Zones.

The triggers take account of our previous experience of droughts and also our assessment of drought vulnerability to different types of drought events using the UKWIR 'Drought vulnerability framework' (17/WR/02/12). The outputs of these assessments are shown in Appendix 8 of this Drought Plan. This assessment has now been conducted using the preferred stochastic modelling approach. The results of which will be available for inclusion in our final Drought Plan.

In our Essex WRZ, the trigger for our drought actions is when reservoir storage in our pumped storage reservoirs at Hanningfield and Abberton falls below a series of reservoir storage control curves. In our Suffolk WRZs, the trigger for our groundwater drought actions is when groundwater levels fall below a series of groundwater trigger levels. Additionally, prescribed flows measured at relevant gauging stations form the Rivers Bure and Waveney triggers.

These triggers confirm when we need to take action at all stages during a drought. The same control curves and trigger levels are used for the end of a drought event, i.e., drought actions are withdrawn once reservoir storage or groundwater levels rise above the control curve/trigger level.

Worked examples have been produced (see Appendix 7) demonstrating the implementation of these trigger levels against droughts used in our baseline planning assumptions for WRMP24, and additionally against plausible more extreme droughts using the results of our Drought Vulnerability Framework Assessment and 1 in 500-year return period drought groundwater modelling. These examples show how we will introduce drought actions in a timely manner, allowing an appropriate lead-in time, for example when introducing water restrictions or applying for a drought permit or drought order.

5.2 Essex Water Resources Zone – Surface Water Sources

The Essex WRZ drought triggers are in the form of control curves which are used to inform decisions as to when to implement drought measures in response to storage in the Essex reservoirs. The first trigger is a set of operational control curves that are used to call upon the Ely Ouse to Essex Transfer Scheme (EOETS) to support refill of Abberton and Hanningfield reservoirs. The second operational control curve triggers the call upon the Stour Augmentation Groundwater Scheme (SAGS)/Great Ouse Groundwater Scheme (GOGWS). These control curves are reviewed and agreed with the Environment Agency.

The construction of the Layer to Langford Pipeline as set out in our WRMP24 has created an operational change at our reservoirs and as such, we have designed two sets of EOETS and SAGS/GOGWS control curves in our Essex WRZ as shown in Figure 10, Figure 11 and Figure 12. Hanningfield Reservoir is supplied by abstractions from both the River Chelmer and the River Blackwater. Langford Water Treatment Works (WTW), at the confluence of the Chelmer and Blackwater is also supplied by both rivers but predominantly the river Blackwater. The operation of the pipeline will allow Layer WTW, which is supplied by Abberton Reservoir, to support Langford WTW directly.

This means that the Blackwater abstraction can continue being directed to Hanningfield reservoir for longer. Consequently, Abberton reservoir can now be used to simultaneously supply water to north and south Essex, and support the same rate of drawdown in both reservoirs effectively treating Abberton and Hanningfield as a single storage unit. The first set of control curves will operate from Present to 2030 (Figure 10 and Figure 11), whereby the Layer to Langford Pipeline is only operational at 5Ml/d. The second set of control curves have been designed for post-2030 when the Layer to Langford pipeline is planned to be operational at full capacity (Figure 12).

The areas between control curves define discreet zones that indicate what level of support should potentially be implemented. Reservoir storage above the EOETS control curve reflect an ‘ideal’ situation whereby storage stays within acceptable limits throughout the year, and natural river flows are enough to maintain these levels. Below the EOETS control curve reflects where storage has fallen to such that operation of the EOETS should be initiated. Furthermore, when reservoir storage drops below the Stour Augmentation Groundwater Scheme SAGS/GOGWS control curve then SAGS/GOGWS should be initiated in addition to the EOETS.

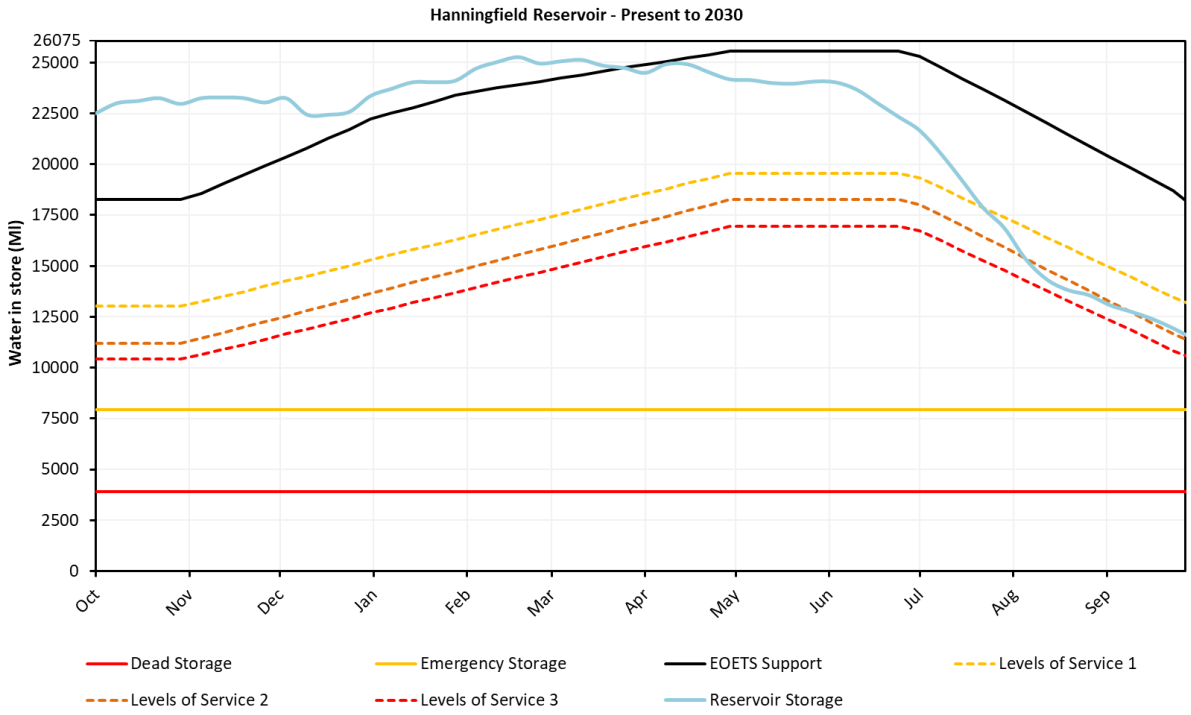


Figure 10: Hanningfield reservoir displaying the Ely Ouse Transfer curve, Levels of Service 1, 2 and 3 curves, Emergency Storage and Dead Storage.

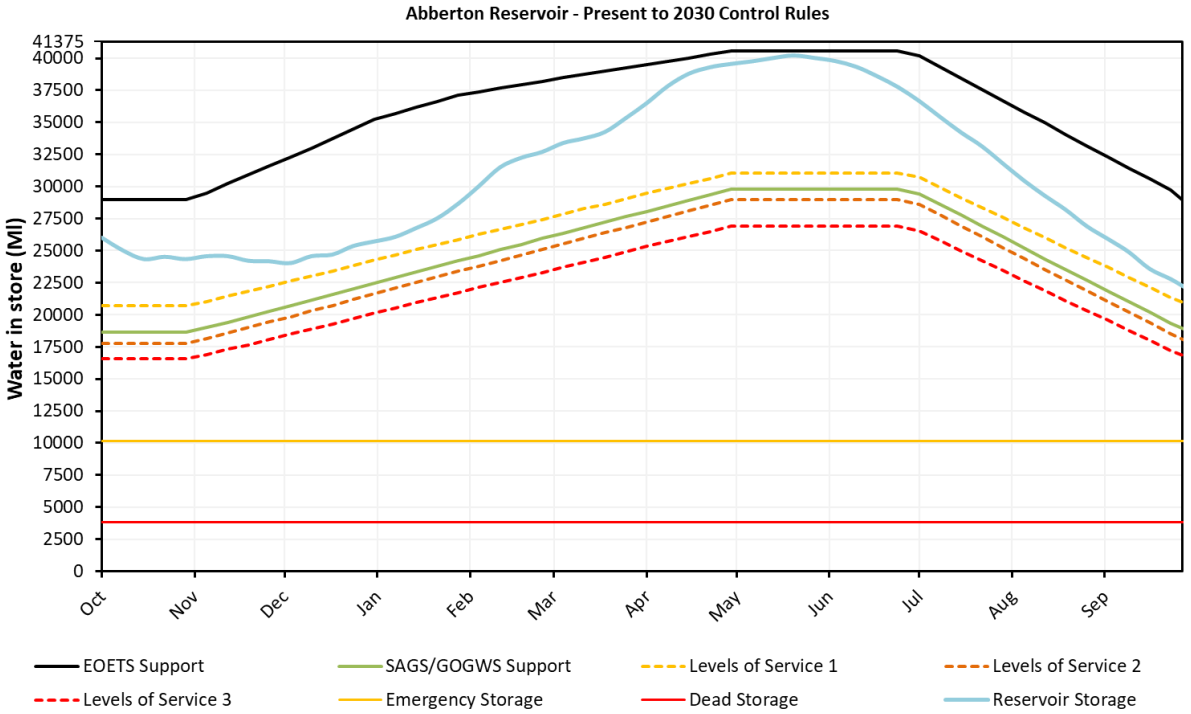


Figure 11: Abberton reservoir displaying the Ely Ouse Transfer curve, Stour Augmentation Groundwater Scheme/Great Ouse Groundwater Scheme, Levels of Service 1, 2 and 3 curves, Emergency Storage and Dead Storage.

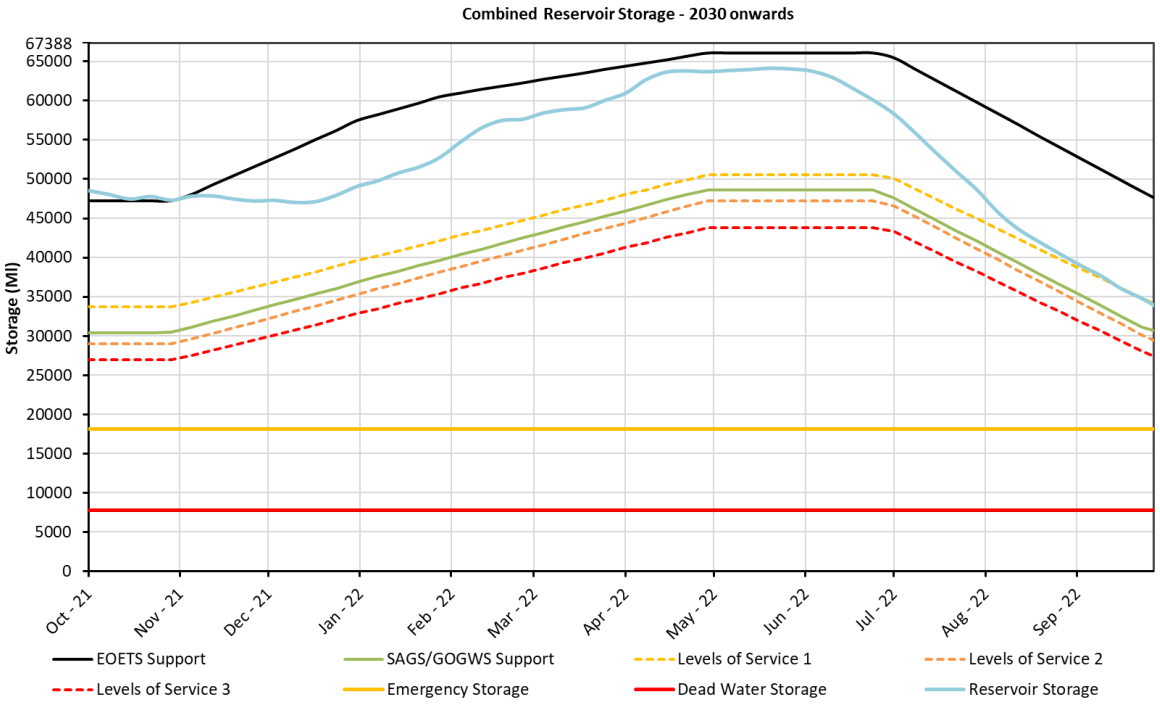


Figure 12: Combined reservoir storage displaying the Ely Ouse Transfer curve, Stour Augmentation Groundwater Scheme/Great Ouse Groundwater Scheme, Levels of Service 1, 2 and 3 curves, Emergency Storage and Dead Storage

For water resources planning, a further set of control curves for Levels of Service (LoS) 1 (Appeal for Restraint), LoS 2 (Temporary Use Ban), LoS 3 (Non-essential Use Ban) restrictions are incorporated into the Essex reservoir monitoring. These rules are plotted up in our worked examples in Appendix 7. When modelled combined Essex reservoir storage falls below each control curve, a demand saving is triggered in the model. During a real drought, a comparison of actual combined reservoir storage against the control curves can be used by our Drought Management Group as an indicator as to when restrictions should be implemented.

The reservoir control curves are continuously being assessed with updates to our system modelling and through experiencing droughts. As such the control curves are frequently reviewed as part of the EOETS quarterly meetings with the Environment Agency. If any changes to the control curves are required, we must first agree them with the Environment Agency before they can be used operationally. The trigger level tools are not designed to be used in a prescriptive manner due to the inherent nature and variability of droughts. Rather, they are used as a guide for management decisions.

5.3 Suffolk Supply Area – Groundwater Source Triggers

5.3.1 Overview

Operational experience from droughts in the 1990s demonstrated that our groundwater sources are very resilient to drought. This is further supported by our Water Resources Management Plan 2024 1:200-year and 1:500-year groundwater modelling which showed that nearly all groundwater sources were resilient to the drought scenarios with only one exception in our Northern Central Water Resource Zone. However, we must still consider operational adjustments during droughts to

ensure operational constraints, high demand and other factors do not restrict our supply to customers.

5.3.2 Groundwater Triggers

We have developed Level 1, 2 and 3 drought action groundwater triggers in our Suffolk Water Resource Zones, with a worked example presented in Appendix 7. Although, the majority of our groundwater sources are drought resilient, they can still be constrained in a drought when groundwater level is close to the deepest advisable pumped water level (DAPWL), a limitation set on all our sources whereby further drawdown of water in a borehole may damage the pump or structure of the borehole itself.

However, each borehole and DAPWL is unique in its response and timing in a drought and thus having a set of triggers for each individual groundwater source is impractical and difficult to link to planned levels of service triggers. Therefore, for this drought plan we have developed our groundwater triggers for three observation boreholes that will represent our groundwater resource position due to their location within similar geology and sufficient distance to any nearby factors that may artificially influence the boreholes natural response to the hydrometric system (Figure 13, Figure 14 and Figure 15).

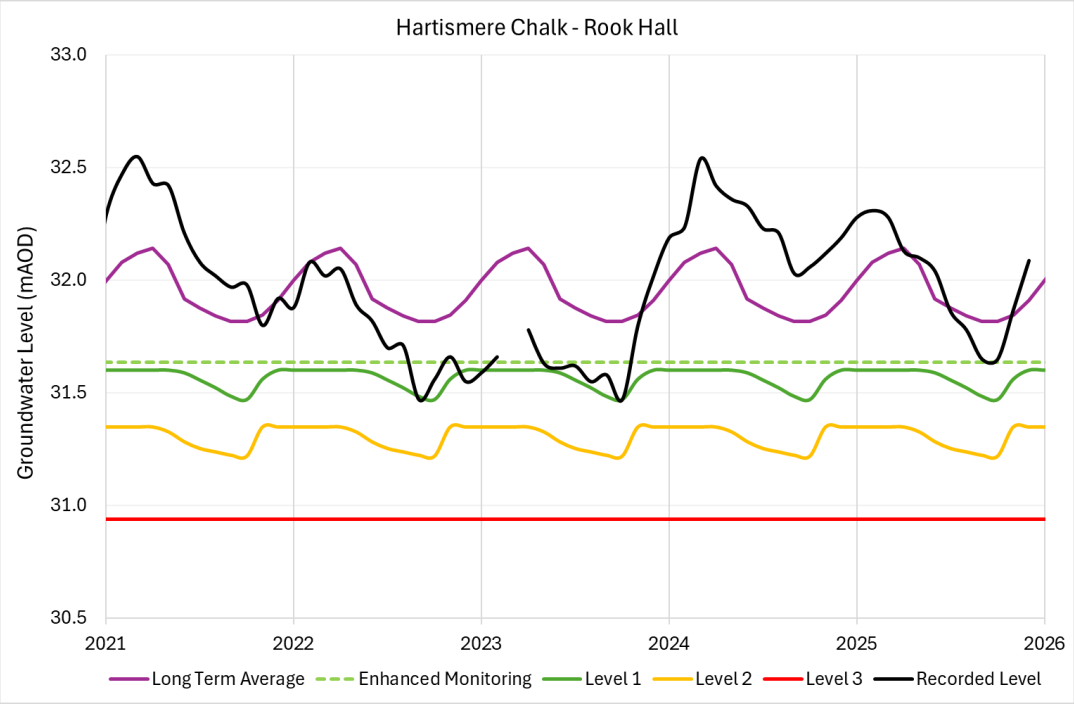


Figure 13: Rook Hall drought monitoring observation borehole displaying recorded groundwater level, long term average groundwater levels and Enhanced Monitoring, Level 1, Level 2 and Level 3 triggers.

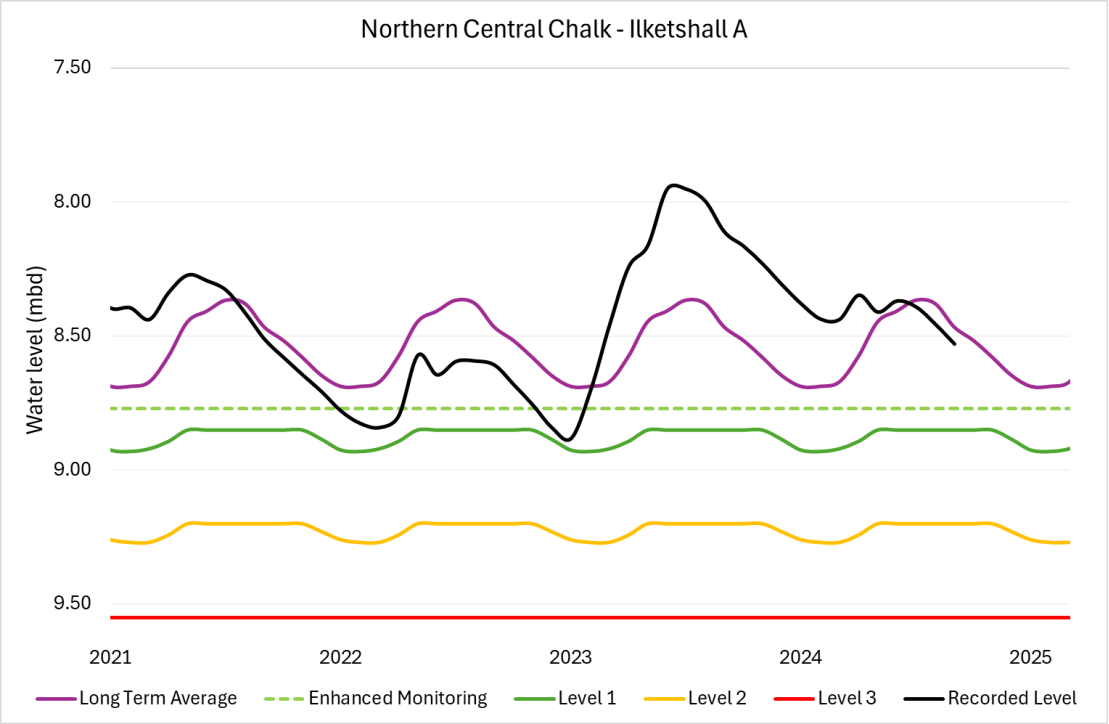


Figure 14: Ilketshall A - drought monitoring observation borehole displaying recorded groundwater level, long term average groundwater levels and Enhanced Monitoring, Level 1, Level 2 and Level 3 triggers.

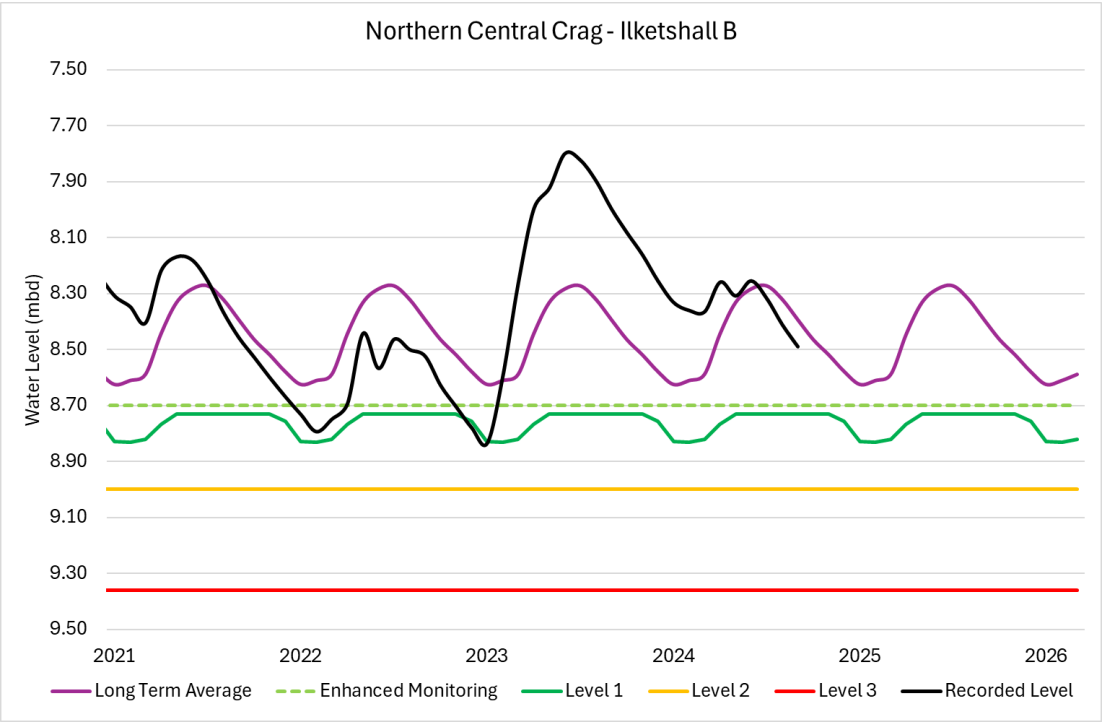


Figure 15. Ilketshall B - drought monitoring observation borehole displaying recorded groundwater level, long term average groundwater levels and Enhanced Monitoring, Level 1, Level 2 and Level 3 triggers.

Both ESW and the Environment Agency actively monitor the groundwater level in these observation boreholes and we undertake monthly manual readings to confirm the accuracy of our monitoring equipment. We plot recorded groundwater levels against the groundwater triggers and long term average groundwater level. Where groundwater levels fall below the drought triggers, we will determine the cause (i.e. is

it due to drought) and use this information to determine whether drought actions need to be brought forward should groundwater levels in our indicator boreholes remain above drought action trigger levels. Additionally, we will closely monitor groundwater levels in other Environment Agency monitored boreholes as reported in their monthly Hydrological Summary reports to support our drought position.

The Enhanced Monitoring trigger is based on groundwater levels approaching the DAPWL at a number of our boreholes and would therefore need close monitoring. Level 1, 2 and 3 are closely associated with our WRMP Suffolk Levels of Service whereby drought triggers level 1, 2 and 3 reflect a return period of 1 in 5, 1 in 10 and 1 in 50 years respectfully. While drought level 1 and level 2 have a seasonal variation, due to limited historical data and experience, level 3 is defined by a constant value and will need further refinement as more data is recorded during these return periods.

When experiencing prolonged dry weather, we use forecasting tools to help determine when groundwater levels may reach one of our drought triggers. We would typically run a number of rainfall scenarios and assess how groundwater levels will react and when trigger levels may be reached. For this, we have developed lumped parameter models for each of our indicator boreholes to aid as a forecasting tool. This modelling is compared with historical observed data to ensure the model isn't predicting unrealistic outcomes. An example of how we use groundwater forecasting is shown in Appendix 7.

Both observed and forecasted information will provide an important reference for the DMG to consider in the event of the onset of a groundwater drought in the Suffolk Supply Area. During a drought, the DMG will review water levels at the company's groundwater sources on a regular basis. If these levels begin to approach or exceed the trigger levels, available drought measures will be discussed by the Group. Table 8 highlights the drought actions we may take during the drought and the likely DO impact each WRZ will experience at each level. As these groundwater triggers are based on historic levels and linked to return periods in our WRMP we will continue to review their effectiveness in monitoring drought and revise when necessary.

Table 8. Suffolk Water Resource Zone Groundwater drought trigger actions and impacts

Drought Trigger Level	Water Resource Zone (WRZ)	Operational Action	Possible Drought Action	Impact to WRZ DO (Ml/d)
Enhanced monitoring	**Hartismere** **Northern Central** **Blyth**	Enhanced monitoring of production boreholes	None	**<1**
1	**Hartismere** **Northern Central** **Blyth**	Limited constraint on sources. Operational changes more likely	Appeal for restraint	**<1**
2	**Hartismere**	Some sources may start to become constrained	Temporary Use Ban	**1 to 2**

	Northern Central	Limited constraint on sources. Operational changes more likely		
	Blyth	Limited constraint on sources. Operational changes more likely		
3	**Hartismere**	Sources start to be constraining limiting WRZ output	Drought Order Ban Coldfair Green Drought Permit	**>2**
	Northern Central	Further operational changes likely. Groundwater in the WRZ starts to become constrained		
	Blyth	Further operational changes likely. Groundwater in the WRZ starts to become constrained		

5.4 Suffolk Supply Area – Surface Water Source Triggers

5.4.1 River Waveney

Potential drought trigger levels for the River Waveney already exist in the form of prescribed flow and abstraction conditions within the abstraction licence. The licence conditions stipulate that when gauged flows in the River Waveney fall below 0.62 cumecs (cubic metres per second), the daily quantity of authorised abstraction reduces as summarised in Table 9.

Table 9. River Waveney Hands Off Flow Restrictions.

Gauged Flow at Ellingham Mill	Rates of Abstraction not to Exceed
0.62 cumecs	20.5Ml/d
0.53 cumecs	13.6Ml/d
0.45 cumecs	9.1Ml/d
0.40 cumecs	4.5Ml/d

A further condition allows for the Environment Agency's Waveney Augmentation Support Scheme (WAGS) to be run at rate which will augment rivers flows to a level that meets our forecasted abstraction requirement. The reliable yield of the WAGS is in excess of our forecasted abstraction requirements over the next five years.

5.4.2 River Bure

Potential drought trigger levels for the River Bure already exist in the form of prescribed flow and abstraction conditions within the abstraction licence. The licence conditions stipulate that when gauged flows in the River Bure fall below 0.45 cumecs, the daily quantity of authorised abstraction reduces as summarised in Table 10.

Table 10. River Bure Hands Off Flow Restrictions.

Gauged Flow at Ingworth (cumecs)	Rates of Abstraction not to Exceed (Ml/d)
> 0.45	27.2
0.450 to 0.420	22.73
0.420 to 0.385	20.45
<0.385	18.18

If demand, and therefore our abstraction requirement, is greater than 18.18 Ml/d, then we will manage the operation of our Northern Central Zone to provide additional support to the “Northern” part of the zone where possible. Ultimately this will result in an increase in abstraction from the River Waveney and a marginal increase in utilisation of the WAGS.

5.4.3 Ormesby Broad

Ormesby Broad is part of the wider Trinity Broads system and is a Natura 2000 protected site. Following the Environment Agency’s Review of Consents process, our abstraction licence was modified to include a level at which we must cease abstracting and an obligation to remove sediment to maintain water depths across the full extent of the Broads, including in shallow bays. The sediment removal was completed in 2017, after which the abstraction cessation level was enforced.

The abstraction cessation level was set at the lowest water level observed during the 1996/97 drought (Figure 16), which was deemed not have caused any permanent damage to the site’s designated features of interest. Now that the abstraction cessation level is in place it is important that abstraction from Ormesby Broad is managed to ensure that its full deployable output is maintained during drought years, and that when abstraction from the River Bure is restricted due to low river flows there is sufficient water in Ormesby Broad to meet customer demand. Consequently, the following dry weather control curves were developed and implemented.

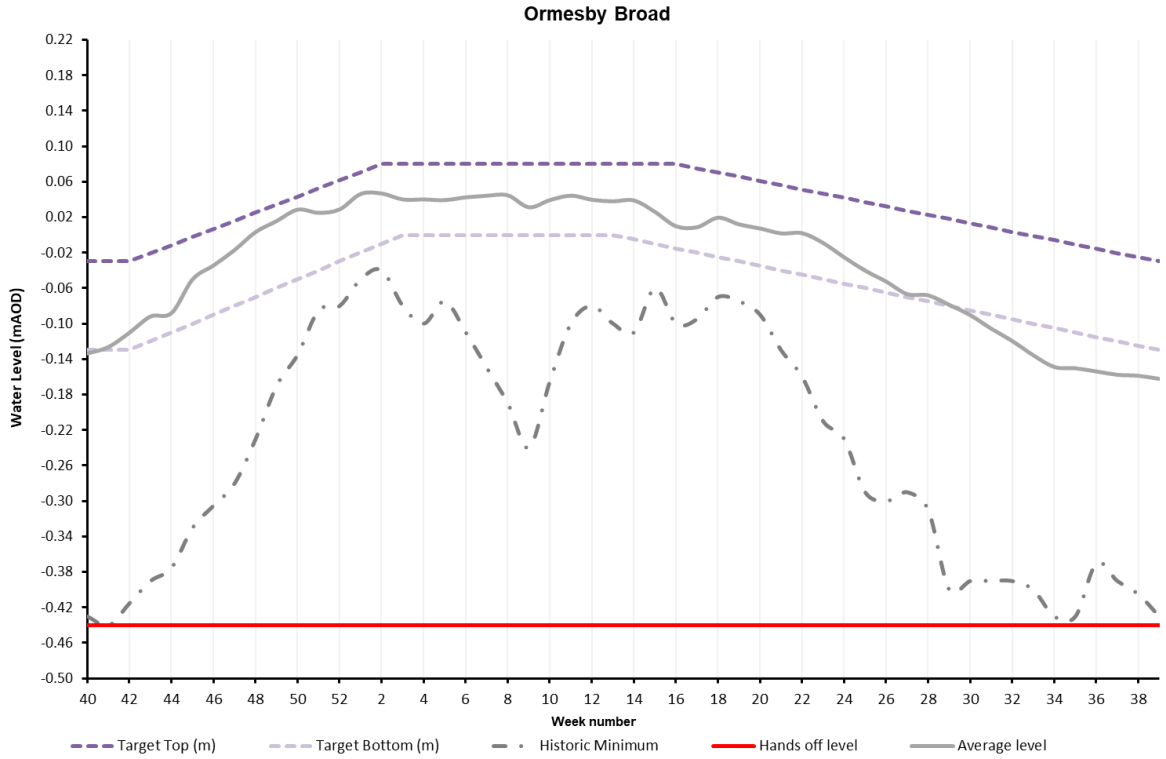


Figure 16. Ormesby Broad water level displaying top and bottom target, historic minimum and hands off level.

We aim to maintain Ormesby Broad water levels between the top and bottom target curves however, if water level falls below the target bottom trigger abstraction is reduced, with any deficit in meeting customer demand being met by the River Bure abstraction. However, if abstraction rates from the River Bure are constrained due to low river flows, then operational changes are made to provide additional support to the "Northern" section of the Northern Central WRZ as outlined in Section 5.4.2 above.

5.4.4 Lound and Fritton Lakes

From a water quantity perspective Lound and Fritton Lakes performed well during the 1990s droughts. This is largely because they have a significant groundwater inflow and the water level responds very quickly to rainfall events. However, algal blooms did constrain output. This issue was resolved soon after with the construction of a new front-end process called Dissolve Air Flotation (DAF), which removes all organic matter ensuring output on the subsequent primary and secondary processes are maintained.

Given the above points, detailed trigger levels for Lound and Fritton Lakes have not been defined. Only once the availability of these sources is tested in future droughts more extreme than those of the 1990s, we will have enough data to define meaningful trigger levels. Until then graphs of daily water levels compared to historic mean, minimum and maximum levels and monitoring of groundwater levels as detailed in Section 5.3.2 will be used as a tool by the DMG in consideration of the need to implement specific drought measures.

5.5 Additional triggers for Northern Central Water Resource Zone

The Northern Central WRZ is a complex system due to network restrictions, supply availability and licence constraints. Because of this, forecasting the water resource zone available deployable output (DO) against demand (Figure 17) provides an understanding of when the water resource zone may struggle to meet certain demand scenarios and as such we may choose to investigate with the DMG if operational changes and/or demand reduction measures may be required.

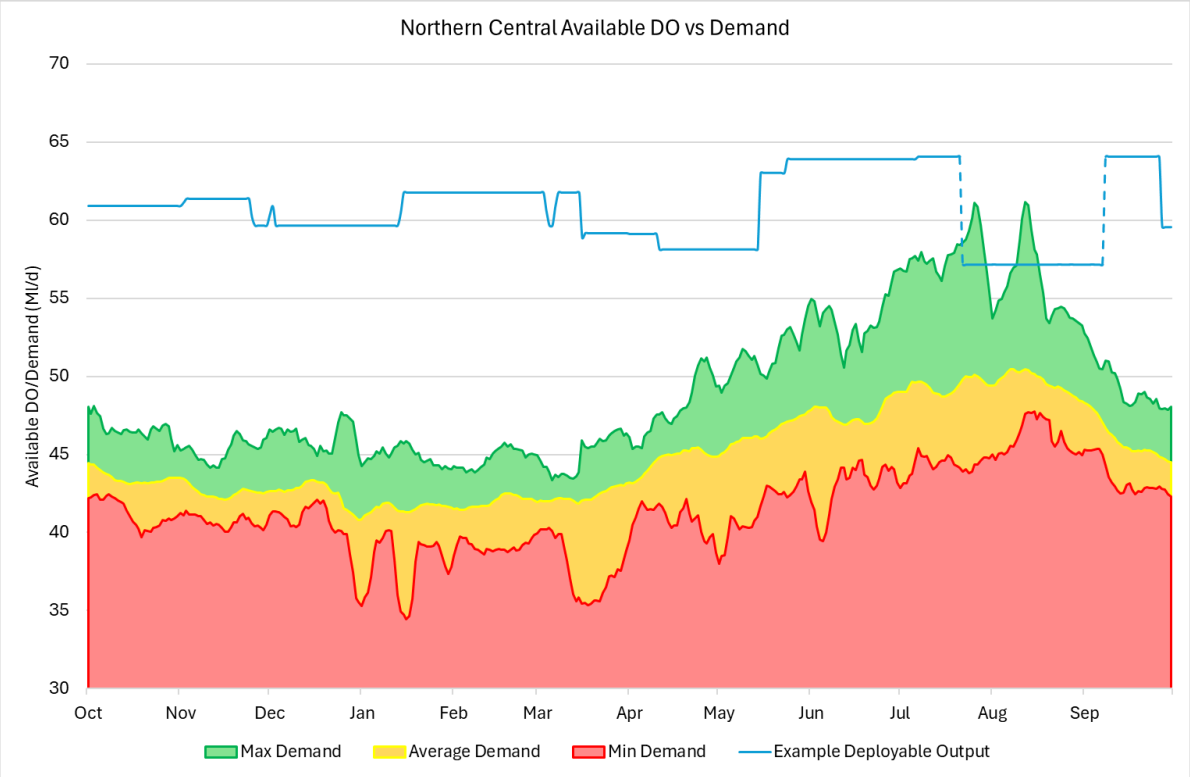


Figure 17. Northern Central Deployable Output from 2021/22 plotted with Maximum, Minimum and Average Demand.

To forecast DO we consider network and source outages, raw water availability, licence conditions, source capacity, water treatment work capacity and imports and exports. We then forecast changes in DO based on historic conditions and planned work that may alter our output. This is then plotted against minimum, maximum and average demand from 2009 to present to help us understand if the current and forecast DO can meet certain levels of demand. This tool can help us with planning and meeting demand during droughts. A worked example is presented in Appendix 7.

5.6 Triggers to Increase Annual Licence Conditions

We monitor the utilisation of our abstraction licences daily. For operational reasons one borehole may need to be taken out of supply and a neighbouring borehole within the same WRZ may take up the demand, using up its annual licence limit more quickly. However, this is acceptable as the demand can then be redistributed when the original source is back in supply. For this reason, we believe that an absolute trigger based on licence utilisation is not appropriate. Consequently, we will use an indicative trigger of 5% above target utilisation to invoke detailed discussions with our operational teams. These discussions will confirm whether licence utilisation can

be brought back within target though operational changes, or whether a recommendation to the Drought Management Group should be made to initiate enhanced dry weather messaging. We would not use this specific metric on its own to trigger Level 1 (Appeal for restraint), Level 2 (Temporary Use Ban – TUB) and Level 3 Non-essential use bans drought actions.

5.7 Demand Drought Triggers

5.7.1 Distribution Input

Plotting current DI with historic data clearly displays where current demand lies against previous maximum and minimum weekly averages. As well as where current demand sits against the WRMP dry year critical period forecast and previously reported DI. This can help identify if a period is on course to have higher than usual demand and identify a drought. Figure 18 shows current Suffolk DI against the different levels of DI previously experienced between 2018 and 2025. Minimum demand remains reasonably flat, but we see greater volatility in maximum demand. We can track values and other metrics (WRMP forecast and average DI) and compare this against current DI (dark blue line).

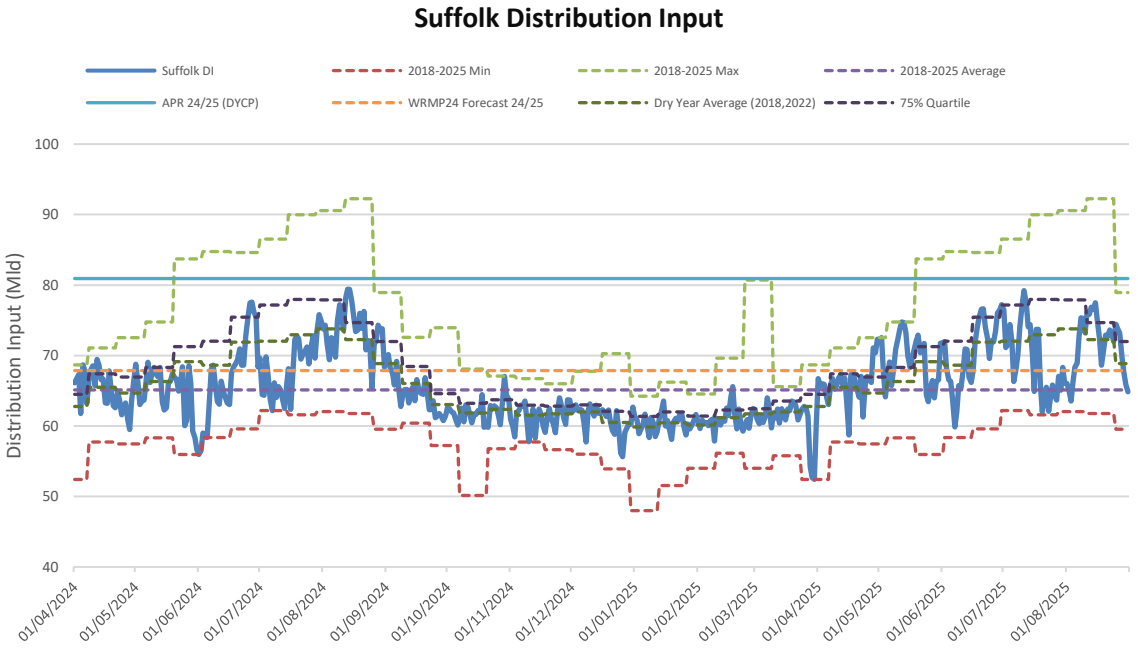
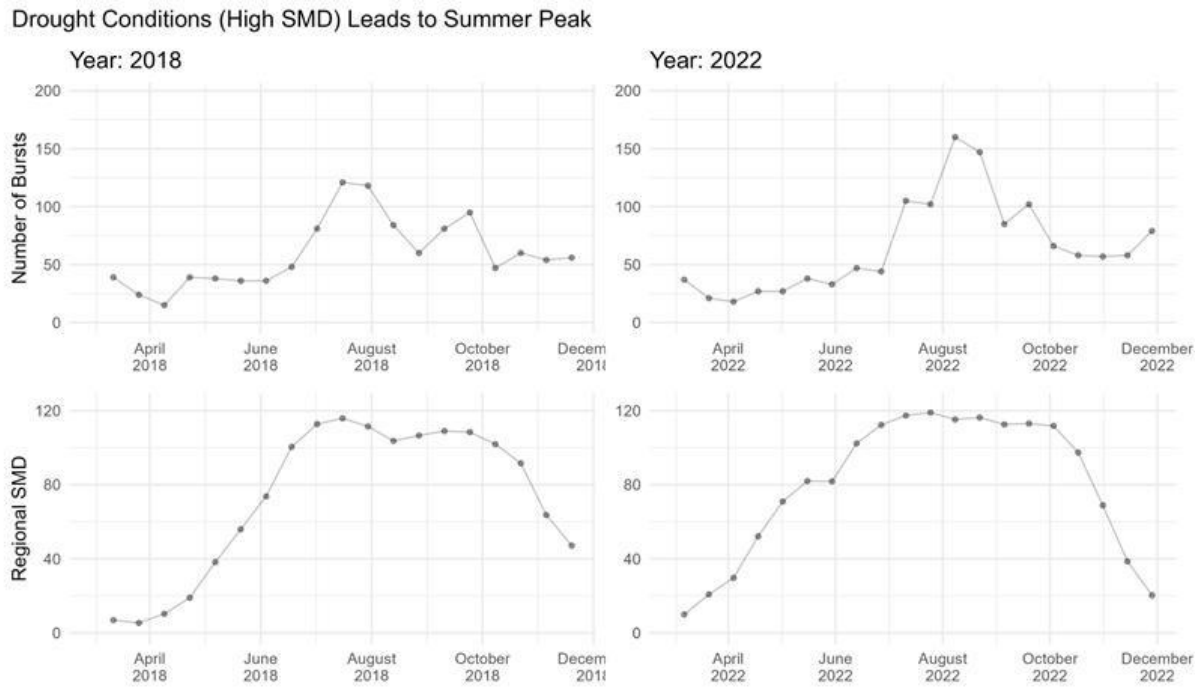


Figure 18 : Suffolk distribution input, with various demand levels including current year, forecasted, dry year, minimum and maximum between 2018-2025.

5.7.2 Soil Moisture Deficit (SMD) impact on Leakage

SMD data can be a good indicator of when we would expect to see a higher breakout of leakage on our network due to additional ground movement. Analysis of previous dry summers, in 2018 and 2022, show that when we get above an SMD value of 100, we see a significant increase in burst numbers. This seems to particularly affect mains in clay soils which are prevalent in parts of the Essex region.



5.7.3 Suffolk Tankering

During periods of peak demand between May and September, as a precautionary measure, we may need to tanker small volumes of water into parts of the rural Blyth and Hartismere WRZ's from the Northern Central WRZ.

The likely need to tanker is forecast on the previous week's demand and the forecast demand for the week ahead based on the latest weather forecast

5.8 Understanding the drought vulnerability of our supply systems

5.8.1 Essex Surface Water

We carried out an assessment of drought vulnerability using the principles of the UK Water Industry Research (UKWIR) 'Drought Vulnerability Framework' (17/WR/02/12), for our 2022 Drought Plan.

The Drought Vulnerability Framework assessment tested the resilience of the Essex system to droughts ending in October and to a range of durations (6, 12, 18, 25 and 36 months) and return periods (100, 200, 500 and 1000 years). The demand placed upon the system during the drought modelling was out-turn DI plus Target Headroom for 2018/19, the most recent Dry Year affecting the Essex WRZ.

The number of days of failure of the system were recorded for each drought, with a failure occurring either when the demand could not be met, or the emergency storage level of a reservoir was reached. The only drought scenario to cause failure of the Essex System was the December-ending 24-month 1000-year return period scenario, with 24 days of failure.

Since carrying out the drought vulnerability assessment we have published our WRMP24 that shows the Essex Water Resource Zone is forecasting baseline supply

deficits in our Essex and Suffolk supply areas so we have identified demand management and supply options to restore a supply surplus. For Essex, we are planning to provide 1 in 200 year drought resilience until 2030/31 and then 1 in 500 year drought resilience from 2031/32. Further information on our supply forecast can be found in our Water Resource Management Plan 2024. More information on our Essex Drought Vulnerability Assessment can be found in Appendix 8. We will review our drought vulnerability assessment as part of the WRMP29 process and provide an update within the WRMP29 report.

5.8.2 Suffolk Groundwater

In PR24 we assessed the resilience of our groundwater sources to 1 in 200 year and 1 in 500 year droughts as part of the Water Resources Planning Guideline (Agency, 2021). The approach included using a combination of operational and observed data and modelled scenarios to define drought curves and borehole response in a drought.

A new modelling approach was used for WRMP24 which involved using the Atkins stochastic rainfall and potential evapotranspiration (PET) dataset with 12 climate scenarios. Our consultant (Wood, 2022), then ran 12 scenarios through regional groundwater models representing the potential impacts of droughts and climate change on groundwater levels in Essex and Suffolk boreholes. The drought scenarios use pseudo-historic rainfall and PET timeseries which include representation of 1 in 200 year and 1 in 500 year droughts.

In summary, the groundwater modelling assessments identified all Essex and Suffolk groundwater sources to be resilient to a 1 in 200 year and a 1 in 500 year drought, with the exception of two boreholes, namely Alder Carr (Southwold) and Roding in Essex, as highlighted in Table 11.

Table 11. PR24, 1 in 200 year and 1 in 500 year groundwater modelling deployable output for Alder Carr (Southwold) and Roding Well.

Groundwater Source	PR24 Average Deployable Output (Ml/d)	1:200-yr Drought Scenario Deployable Output (Ml/d) (Pre-licence caps)	1:500-yr Drought Scenario Deployable Output (Ml/d) (Pre-licence caps)
Alder Carr (Southwold)	1.23	0.00	0.00
Roding	3.64	2.71	2.71

Additional information on the groundwater vulnerability assessment can be found in Appendix 8 and the WRMP24 technical note: Groundwater Deployable Output and Climate Change (Essex and Suffolk Water, 2024).

5.9 Testing our Drought Plan Triggers

We have tested the effectiveness of our drought plan triggers with respect to meeting our levels of service against:

- a selection of historic droughts in the region; and,

- more extreme droughts using the results of the stochastic modelling carried out for WRMP24.

The results of the testing, including worked examples, are presented in Appendix 7.

The worked examples:

- show how we would expect our drought plan to work under the drought scenarios;
- confirm what actions we would take; and
- demonstrate the expected time frames and durations for each action.
-

6 WHAT WE WILL DO IN A DROUGHT

6.1 Formation of Drought Management Group

The first action to be implemented in the lead up to a drought will be the formation of our Drought Management Group (DMG) as detailed in Section 2.6.2, which coordinates our drought management process. Drought actions will then be implemented in the order presented in Table 12 as determined by the DMG, and ratified by our Executive Leadership Team. The need for drought action implementation will be identified from monitoring of our drought indicators (see Section 4) in relation to our trigger levels (Section 5).

6.2 Drought Actions

Our drought actions are set out in Table 12. We have categorised our drought actions into demand-side and supply-side actions, aligned with drought severity Levels 1 to 3. Level 0 - Business as usual (BAU) dry weather actions are also included for completeness. Level 4 emergency actions for drought fall under our Emergency Plan and are therefore excluded. If needed, we will implement the drought actions in the order they appear in Table 12.

We will apply drought actions at an area appropriate to the action, as follows:

- Supply-side actions will be applied at Water Resource Zone level (see section 2.2).
- Level 1 demand side-actions will be applied at a Water Resource Zone level to align with Environment Agency drought areas (see Section 2.2).
- Level 2 and Level 3 demand-side actions will be applied at a Water Resource Zone level or by Local Authority Areas, as determined by the DMG, to minimise the number of customers under restrictions.

We will implement our demand side actions in a timely manner and will have them in place long enough to have a measurable impact on water demand, which we measure continuously and report daily. Our strategy is to prioritise actions to reduce demand, at each drought level, before implementing supply-side actions. Should drought permits or orders be required, we will include details of the demand measures we have used, and the demand savings made.

The supply-side actions with the least impact on the environment would be implemented first. Our prioritisation has been informed by the environmental assessment of our drought actions, as detailed in Section 11.

Our Demand-side actions are detailed in Section 7 and Appendix 9, along with information regarding unconstrained demand-side drought actions that were assessed for feasibility but were not taken forwards into our drought plan.

Our supply-side actions are detailed in Section 8. We have included summaries of each supply-side drought action in Appendix 10, which contain the following information:

- Drought Level
- WRZ and DrMA where action will be applied
- Summary of action
- Trigger
- Estimated benefit
- Barriers to implementation
- Environmental Impacts
- Implementation timescales
- Priority order for implementation

Appendix 10 also provides information regarding unconstrained supply-side drought actions that were assessed for feasibility but were not taken forwards into our drought plan.

6.3 Rejected Drought Actions

Appendices 9 and 10 contain details of our unconstrained demand-side and supply-side drought actions respectively, which we have considered but were found not to be viable to include in our drought plan, along with the rejection justification.

Table 12: Drought Actions included in Drought Plan 2027.

Drought Stage	Drought Level	Demand side actions	Supply side actions
Normal	Level 0 (BAU)	**All WRZs:** • Network optimisation to reduce output of Water Treatment Works (WTWs) which are supplied by a stressed water resource. • Customer communications • As per our WRMP24 demand management selected options: - Leakage detection and repair suite of options - Water efficiency activity (non-household and household) - Compulsory smart metering - Government Led Interventions	**All WRZs**: • Raw water and water treatment works optimisation. • Coordination Planning to minimise planned outage. **Essex WRZ:** • Operation of the Ely Ouse to Essex Transfer Scheme (EOETS) • Langford Recycling Plant operation to support River Chelmer flows for abstraction at Langford WTW. **Northern Central WRZ** • Operation of the Waveney Augmentation Groundwater Scheme (WAGS)
Prolonged dry weather	Level 1	**All WRZs: Appeal For Restraint** • Enhanced dry weather messaging • Additional resource for find & fix leakage teams • Encourage reporting of leaks • Stop proactive flushing • Optimising water supply and network to reduce output of WTWs which are supplied by a stressed water resource; as well as increased control over potable water storage levels. • High water use alerts to customers • Water saving calculator promotion • Target 15m head at the critical point in each pressure managed area.	**Essex WRZ:** • EA River Flow Augmentation Schemes: o Stour Augmentation Groundwater Scheme (SAGS) o Great Ouse Groundwater Scheme (GOGS) **Hartismere WRZ:** • Road tankering potable water from Carlton Colville Pumping Station to Bedingfield and Eye.
Drought	Level 2	**All WRZs**: **Temporary Use Bans (TUBs)** • Further additional resource to find & fix leaks • Offer to repair the highest volume customer-side leaks (CSLs). • Challenge illegal use • Water Efficiency Home Audits to targeted areas • Education workshops - community and schools • Community Outreach & business funding • Tourism support	**Essex WRZ:** • Denver Drought Order to apply to temporarily reduce Hands off Flow on the Denver Licence for the period of 1st March to the 30th April.
	Level 3a	**All WRZs: Non-Essential Use Bans (NEUBs)** • Minimise WTWs outflows at all water stressed sourced WTWs and maximise elsewhere • Manage the network to use potable water stored as resilience for changeable demands, managing our network storage levels at low levels, increasing risk of maintaining supply to customers. • Hard hitting communications • Target 10m head at the critical point in each pressure managed area. • Installation of flow regulators to households (HHs) • Shower device offering • Flow restrictors to non-households (NHHs)	**Essex WRZ:** • Bulk raw water transfer from Thames Water to Chigwell WTW – fair apportionment of water clause enacted when both companies implement a TUB. Note that this could **reduce** the volume of raw water transferred compared to normal operation.
Severe Drought	Level 3b	**All WRZs:** • Reduce Ships Watering • Removal of Statutory Exceptions on TUBs and NEUBs • Manage Strategic Operational Plan (SOP) storage to low-low alarm levels increasing risk of maintaining supply to customers. • Seasonal Tariffs for smarted customers	**Blyth WRZ**: • Coldfair Green groundwater abstraction licence drought permit to increase groundwater abstraction and reduce compensation flow.

7 DEMAND SIDE DROUGHT ACTIONS

This section of our Drought Plan describes the demand side drought actions that we may employ to address potential water supply shortages during a drought. The actions fall into three categories; water efficiency, leakage and networks and other demand side actions.

Table 13 gives a summary of all the demand side drought actions. It is split between actions that are already included in our current plan and new actions we are proposing for this plan and includes the average saving per action at the respective drought level.

Figure 19 provides the process flow for initiating demand side drought actions through the levels of drought.

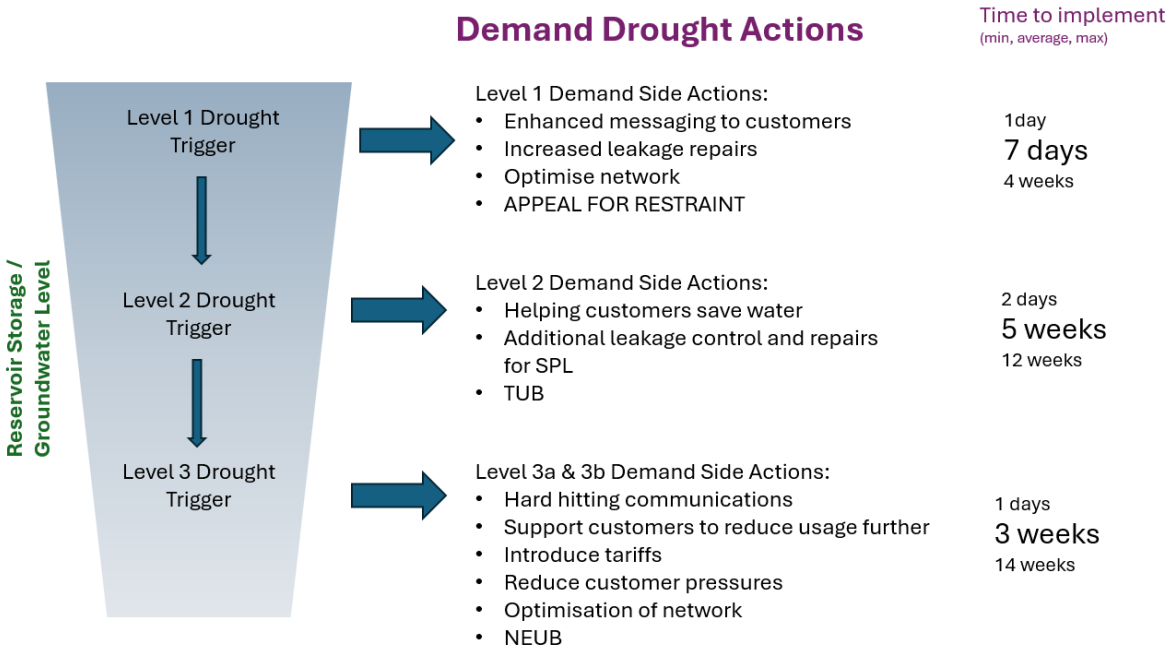


Figure 19: Demand side actions process flow

Our demand side drought actions are assigned to the different levels of drought and an estimated saving and time to implement is assigned to each action along with a risk assessment, how to track effectiveness of the action and options to fast track.

It is important to recognise that all droughts are different and therefore the impact of demand measures will vary between droughts.

Please refer to Appendix 9 for detailed information on the individual drought actions, including estimated savings, implementation timetables, tracking effectiveness, fast-track options and risk assessments for the demand side actions.

Table 13: Demand Side Drought Actions – Summary Table

Drought Stage	Drought Level	DP22 Demand-side actions	New actions for DP27	Average Saving per action in drought level Ml/d
Normal	Level 0 (BAU)	**BAU** Network optimisation to reduce output of Water Treatment Works (WTWs) which are supplied by a stressed water resource Customer communications As per our WRMP24 demand management selected options: • Leakage detection and repair suite of options • Water efficiency activity (non-household and household) • Smart metering installations • Government led interventions		**Please see WRMP24**
Prolonged dry weather	Level 1	**APPEAL FOR RESTRAINT** Enhanced dry weather messaging Additional resource for find & fix leakage teams Encourage reporting of leaks Stop proactive flushing Optimising water supply and network to reduce output of Water Treatment Works (WTWs) which are supplied by a stressed water resource; as well as increased control over potable water storage levels.	High water use alerts to customers Water saving calculator promotion Target 15m head at the critical point in each pressure managed area	**1.17**
Drought	Level 2	**TUB** Further additional resource to find and fix leaks Offer to repair the highest volume customer-side leaks (CSLs).	Challenge illegal use Water Efficiency Home Audits to targeted areas Education workshops - community and schools Community Outreach & business funding Tourism support	**1.68**
	Level 3a	**NEUB** Minimise WTWs outflows at all water stressed sourced WTWs and maximise elsewhere Manage the network to use potable water stored as resilience for changeable demands, managing our network storage levels at low levels, increasing risk of maintaining supply to customers.	Hard hitting communications Target 10m head at the critical point in each pressure managed area Installation of flow regulators to Household's (HHs) Shower device offering Flow restrictors to Non-Households (NHHs)	**2.42**
Severe drought	Level 3b	**EXTREME DROUGHT ACTIONS** Reduce Ships Watering Removal of Statutory Exceptions on TUBs and NEUBs Manage Strategic Operational Plan (SOP) storage to low-low alarm levels, increasing risk of maintaining supply to customers.	Seasonal Tariffs for smart metered customers	**0.28**

7.1 Level 0 Demand Drought Actions

The demand-side measures we implement during typical dry weather conditions are outlined in our Water Resources Management Plan 2024 (WRMP24). These measures represent our business-as-usual activities and encompass leakage reduction, network performance improvements, customer engagement, water efficiency initiatives, and our metering programme. For further details, including estimated water savings, please refer to the WRMP24. An update on our metering programme can be found in Appendix 12.

7.2 Level 1 Demand Drought Actions

During prolonged dry weather our demand side drought actions will focus on encouraging our customers to use water wisely. For more information on communications with our customers please see section 10. We will also support our customers in using water wisely through promoting our online water saving calculator and high-water use alerts for customers on a smart meter (both household and non-household).

In a Level 1 drought, we will consider stopping proactive mains flushing and other planned work to focus on finding and fixing leaks. We will also encourage our customers to proactively look for and report visible leaks through our online leakage portal.

We can optimise our water network and manage storage to below normal target levels and target 15 meters at the high point in each pressure managed area.

The time to implement a level 1 demand drought action varies between 1 day and 4 weeks, with an average water saving of 1.17 Ml/d achieved through these measures. The estimated total savings for drought actions across each WRZ are detailed in Table 14.

Table 14: Level 1 demand side actions total saving per WRZ in Ml/d

Drought Level	Drought Severity	Demand Actions	Essex	Blyth	Hartismere	Northern Central
1	Prolonged dry weather	Appeal For Restraint	6.86	0.19	0.16	0.83
		Water Efficiency Drought Actions	7.18	0.21	0.58	1.06
		Leakage & Network Drought Actions	8.70	0.34	0.25	1.40
		Demand (Other) Actions	2.27	0.06	0.04	0.33
		SUM Ml/d	**25.02**	**0.81**	**1.03**	**3.62**

7.2.1 Appeal for Restraint

As a period of prolonged dry weather develops, we may need to implement a formal Appeal for Restraint. We would use all of our communication channels (e.g. social media and press releases) to formally ask our customers to use water wisely. Examples of messages are detailed in our Communications Plan (see section 10) and include 'having a shorter shower – we recommend 4 minutes' and 'use a water butt to collect and store rainwater'.

We would expect to be able to implement this within five days as part of the Communications Plan. The estimated saving is set at 1.7% as per the latest UKWIR report findings from the 2022 drought on level 1 actions[2]. The effectiveness of the formal appeal can be tracked through a reduction in daily DI.

7.3 Level 2 Demand Drought Actions

As a drought develops our demand actions will build on Level 1 actions and include helping our customers to save water through water efficiency home audits, education workshops, community outreach and funding water saving projects in businesses.

Additional technicians, sniffer dogs (who can detect chlorinated water), satellite surveys and noise logger surveys will be mobilised through our contract partners to support more leak detection. And additional crews will be contracted to support increasing leak repair activities. We will also consider a temporary change to our policy to offer free repairs for the highest volume customer supply pipe leaks. More employees could be deployed to challenge suspicious illegal connections across the region.

The time to implement level 2 demand drought actions ranges from 2 days to 12 weeks. The average saving for a level 2 demand drought action (excluding a TUB) is 0.1 Ml/d. The Table 15 shows the estimated total saving for drought actions per WRZ.

Table 15: Level 2 demand side actions total saving per WRZ in Ml/d

Drought Level	Drought Severity	Demand Actions	Essex	Blyth	Hartismere	Northern Central
2	Drought	TUB	18.18	0.32	0.25	1.91
		Water Efficiency Drought Actions	0.63	0.04	0.04	0.14
		Leakage & Network Drought Actions	0.15	0.07	0.07	0.07
		Demand (Other) Actions	0.01	0.00	0.00	0.00
		SUM Ml/d	**18.98**	**0.42**	**0.36**	**2.11**

[2] UKWIR (2023) Review of the 2022 Drought demand management measured 23/WR/02/18

7.3.1 Temporary [Water] Use Bans (TUB)

Temporary Use Bans, commonly referred to as TUBs, are powers granted to water companies to impose restrictions on customers' water use. Previously these were referred to as 'hosepipe bans' but they were modified in 2010 under the Flood and Water Management Act to cover a wider range of restrictions.

TUBs can be introduced quickly, seven days after advertising in the affected area. They predominantly focus on water use by domestic customers because this provides the largest water saving and helps protect public services and the economy.

Following a review of the 2022 drought demand management measures[3],the introduction of a TUB produced a 3.34% reduction in DI and a 6.60% reduction in household demand and is deemed to have a significant impact on demand reduction. To maximise the effectiveness of TUBs, it is recommended that they are implemented early on in the Spring-Summer season.

When we need to introduce a TUB, we will take account of the WaterUK / UKWIR Code of Practice and Guidance on Water Use Restrictions. This provides guidance on the effective implementation of water use restrictions by way of Temporary Use Bans (TUBs) and Drought Orders (DO) to help manage demand during times of drought.

We will ensure that we implement a TUB in a proportionate manner, by considering the balance between any impact on an individual or group of customers and overall public interest. In line with the Code of Practice, we will consider among other aspects:

- the nature and seriousness of the water supply situation;
- the water savings from introducing the TUB;
- the feedback from stakeholders including neighbouring water companies and Water Resources East; and
- whether the restriction will impact on vulnerable customers or groups.

Detailed information regarding TUBs is presented in Appendix 13-15 including definitions, triggers and how we will introduce and withdraw a TUB in what we believe to be a proportionate and reasonable way.

7.4 Level 3a Demand Drought Actions

As we move into a severe drought our demand drought actions become more intense. Customers will be asked to significantly reduce their water use through high impact communications. We will support our customers in reducing their water use further through the installation of flow regulators, a digital device to reduce showering time and flow restrictions on non-household customers.

We will minimise water treatment works (WTWs) outflows at all water stressed sourced WTWs and maximise elsewhere. We will also change sections of the network to use potable water stored as resilience for changeable demands, managing our network

[3] UKWIR (2023) Review of the 2022 Drought demand management measured 23/WR/02/18

storage levels at low levels and target 10 meters at the high point in each pressure managed area.

The time to implement a level 3a demand drought action ranges from 1 day to 14 weeks. The average saving for a level 3a demand drought action (excluding a NEUB) is 1.63 Ml/d. Table 16 shows the estimated total saving for drought actions per WRZ.

Table 16: Level 3a demand side actions total saving per WRZ in Ml/d

Drought Level	Drought Severity	Demand Actions	Essex	Blyth	Hartismere	Northern Central
3a	Severe drought	NEUB	8.08	0.23	0.19	0.98
		Water Efficiency Drought Actions	0.01	0.00	0.00	0.00
		Leakage & Network Drought Actions	8.65	0.26	0.17	1.42
		Demand (Other) Actions	3.51	0.10	0.06	0.51
		SUM Ml/d	**20.25**	**0.59**	**0.42**	**2.91**

7.4.1 Non-Essential Use Ban (NEUB)

On average, once every 50 years, a drought and corresponding shortage of raw water may become so acute that we have to implement restrictions on the use of water that are more severe than those introduced in Level 2 under a Temporary Use Ban (TUB). These tougher restrictions are known as a Non-Essential Use Ban (NEUB).

NEUBs are a set of measures granted to water companies to impose further restrictions on the use of water as long as certain legislative test are met. These powers are sought by applying to the Secretary of State at Defra for a drought order.

It is very difficult to estimate the effect of this type of water use restriction on customer demand as there is very little data available. We have assumed that further restrictions on water use beyond that of a temporary use ban will yield an additional reduction in DI of 2% made up of a 9% reduction in NHH demand. This will bring the total demand saving (Appeal for Restraint +TUB + NEUB) to 10.3% reduction in DI.

Before applying for a Drought Order to restrict water use, water companies are expected to have made full use of their powers under the WIA 1991, as stated in the Explanatory Memorandum to the Water Use (Temporary Bans) Order 2010:

> *"By extending the water uses that water undertakers may prohibit under section 76(1) of the Act [WIA 1991], water undertakers may be able to delay or avoid the need for drought orders under the Water Resources Act 1991"*

The Drought Direction 2011 sets out the restrictions available under an Ordinary Drought Order, as allowed for under Section 73 of the Water Resources Act 1991 (WRA 1991). These are:

- Watering outdoor plants on commercial premises;
- Filling or maintaining a non-domestic swimming or paddling pool;
- Filling or maintaining a pond;
- Operating a mechanical vehicle-washer;
- Cleaning any vehicle, boat, aircraft or railway rolling stock;
- Cleaning non-domestic premises;
- Cleaning a window of a non-domestic building;
- Cleaning industrial plant;
- Suppressing dust; and
- Operating cisterns.

In order to grant a Drought Order under the WRA 1991 73(2), the Secretary of State must be satisfied that: "By reason of an exceptional shortage of rain (see Appendix 19), a serious deficiency of supplies of water in any area exists or is threatened."

The potential timescales for introducing restrictions by recourse to a Drought Order are significantly longer than those for Temporary Use Bans under the WIA 1991, and the Secretary of State would typically require a public inquiry or hearing to be held if an objection were received.

Under Schedule 8, paragraph 3(c) of the WRA 1991, we would be required to publish a notice of our application for a Drought Order to restrict water use, which would state that objections to the application may be made to the Secretary of State within seven days from the date on which it is served or published.

NEUB implementation, definitions and exceptions are found in Appendix 16-18.

8 SUPPLY SIDE DROUGHT ACTIONS

8.1 Overview

This section describes the supply side drought actions that we may implement to address potential water supply shortages during a drought. Level 0 - Business as usual (BAU) dry weather actions are also included for completeness. A summary table for each supply-side drought action is included in Appendix 10.

8.2 Level 0 (BAU) Supply Side Drought Actions

Level 0 drought actions are those which can be described as 'business as usual' (BAU) and refer to normal operation actions.

8.2.1 Raw water and water treatment works optimisation

Under normal conditions we move water around the potable distribution system in the most efficient manner possible to reduce the cost of treating water and network pumping. If the area is in prolonged dry weather or drought then we would switch our operation to ensure we are maximising water from non-stressed sources allowing the more-stressed sources to recover and/or be utilised for longer in a drought.

In Essex we would manage our raw water network by maximising abstraction from river sources in order to maintain reservoir storage and groundwater sources during the early stages of drought. We would then switch to predominantly reservoir and groundwater sources at the later stages of a drought when river flows are lower. In Suffolk, we would follow a similar rationale to Essex in our Northern Central Water Resource Zone (WRZ) with surface water taking precedence to maintain surface water reservoir storage and groundwater for use later in the drought. However, Blyth and Hartismere WRZs are predominantly groundwater sourced and as such we would manage operation through closely monitoring pumped water levels and optimise in accordance with our groundwater drought triggers.

8.2.2 Coordination planning to minimise planned outage

As part of our coordination planning process, all planned asset outages undergo a risk assessment with appropriate mitigation measures implemented to ensure the outage will not impact on security of supply to customers. Typically this means that no planned outages will take place during periods of prolonged dry weather unless they are required to maintain water treatment works output. We would also consider bringing forward planned asset improvement works if this had a positive effect on our water resource position.

From time to time we experience unplanned outage events (e.g., due to poor raw water quality or asset failure) at our water treatment works. This could result in a source of raw water being used more than is desirable during a drought in order to meet demand.

8.2.3 Ely Ouse to Essex Transfer Scheme

The Ely Ouse to Essex Transfer Scheme (EOETS) is an Environment Agency owned and operated scheme that transfers water from fenland rivers through a series of rivers, tunnels and pipelines to the headwaters of the River Stour on the Suffolk/Essex border. These transfers are used to support refill of our Abberton reservoir near Colchester. Additionally, water from the River Stour can be transferred to the River Pant which becomes the River Blackwater and used to support refill of our Hanningfield reservoir. We have agreed Abberton and Hanningfield reservoir control curves for calling on the EOETS and these are regularly reviewed as part of the EOETS quarterly meeting with the Environment Agency.

8.2.4 Langford Effluent Recycling Scheme

At our Langford Water Treatment Works (WTW) in Essex we have an effluent recycling scheme which provides support (up to 20 Ml/d) to the River Chelmer which is subsequently abstracted downstream at our River Chelmer intake that is used to refill Hanningfield reservoir. The Essex reservoir storage control curves used for calling on the EOETS are also used for calling on the effluent recycling scheme. We begin the process of operating the effluent recycling scheme when natural river flows alone cannot provide sufficient supply to Langford WTW/Hanningfield Reservoir.

8.2.5 River Waveney Augmentation Groundwater Scheme

The Waveney Augmentation Groundwater Scheme (WAGS) is an Environment Agency owned and operated scheme that is used to support flows in the River Waveney during dry weather / drought. When flows in the River Waveney fall below flow thresholds (as detailed in the ESW River Waveney abstraction licence), the WAGS scheme is run at a level that will meet our forecast demand and therefore abstraction requirement.

8.3 Level 1 Supply-side Drought Actions

Level 1 drought actions are those that we would consider implementing in prolonged dry weather. These actions are considered to have minor environmental impacts and include optimising existing sources and reducing outage.

To reduce the period of unplanned outage events during periods of prolonged dry weather or drought we have a Maintenance Team presence on site enabling any asset failures to be rectified at an enhanced pace compared to non-drought conditions.

8.3.1 Stour Augmentation Groundwater Scheme and Great Ouse Groundwater Scheme

The Stour Augmentation Groundwater Scheme (SAGS) is a series of boreholes located along the River Stour and in neighbouring catchments that provide additional support to the River Stour by augmenting river flow with groundwater. The Great Ouse Groundwater Scheme (GOGWS) acts in a similar manner to SAGS, augmenting flow in the Great Ouse, which can then support additional transfers through the EOETS. Both the SAGS and GOGWS are triggered by Abberton and Hanningfield reservoir storage control curves which have been agreed with the Environment Agency. These are regularly reviewed as part of the EOETS quarterly meeting with the Environment Agency.

8.3.2 Hartismere WRZ Road Tankering

The drought action is to transport water from areas with spare resource within our Suffolk Supply Area to areas of water shortage via road tanker.

It is possible to off-load road tankers at Water Treatment Works sites, service reservoir or tower storage sites and by direct injection into the water supply network.

Even when road tankering is carried out at full capacity, the volumes delivered remain limited. The primary purpose is to maintain treated water storage levels in water towers and reservoirs, rather than to increase overall supply.

Network storage, treatment works utilisation and water resource utilisation are routinely monitored. During high demand periods daily supply meetings are held with the operations and network analysis teams, and decisions are made whether to

deploy tankers, and to which discharge locations. Supply meetings are held in the morning and again later afternoon to review the effectiveness of operations.

Procedures for deployment

Standard operation procedures (SOPs) are in place for tanker deployment and these include:

- Discharging tankers into supply.
- Disinfecting filling hoses at the beginning of each day for emergency tankering purposes.
- Sampling procedures.
- Initial super-chlorination of new tanker barrel.

The infrastructure, strategy and processes for tanker deployment are summarised as follows:

- We have a purpose-built overhead filling gantry tanker filling facility at Carlton Coleville Reservoir in our Northern Central WRZ. This site has capacity to fill three tankers simultaneously, is suitably sized to accommodate tankers, and has a discharge lagoon and office building to facilitate operations. It is located centrally in our Suffolk Supply Area with good road networks heading southwest, south and north.
- Alternative facilities exist at Ormesby WTW, located in the north of our Suffolk Supply Area (which has two dedicated filling points), or Barsham WTW which is located more centrally (with two dedicated filling points).
- A Tanker Control Officer will be appointed to oversee the operation.
- The procurement contract is in place with a supplier to provide tankers and drivers on an emergency basis between the months of May and August. The contract service level agreement requires up to four road tankers to be provided within 24 hours. A secondary contract is in place with another supplier who can be used outside of the May to August contract period or to provide additional resource within this period.
- We have a pool of operational staff trained on procedures for preparation, filling, and off-loading of tankers. Provisional resource rotas are prepared ahead of any campaign period.

8.4 Level 2 Supply-side Drought Actions

Level 2 drought actions are those considered in a drought with minor environmental impacts.

8.4.1 Denver Drought Order amending Hands off Flow condition

Operation of the Ely Ouse to Essex Transfer Scheme (EOETS) is controlled by a variable Hands of Flow (HoF) condition at Denver as shown in Table 17. Historical flow analysis has highlighted that during March and April, the HoF can becoming

constraining in a drought and as such limits water available to support the EOETS. Therefore, this level 2 drought action is to implement a drought order whereby ESW request a temporary reduction of the HoF from 318.23 Ml/d to the lower licensed HoF of 113.65 Ml/d between 1 March and 30 April, allowing the EOETS to operate at a lower flow percentile.

The trigger for the Drought Management Group to decide on implementing this drought order is when reservoir storage reaches the SAGS control curves (equivalent to a 1 in 15 year return period) to allow lead in time for when/if the Level of Service 2 curve is reached. Further information and a worked example is presented in Appendix 7.

Table 17. Denver Hands off Flow period and flow condition

Period	Flow
1 January to 30 April inclusive	318.23 Ml/d
1 May to 31 August inclusive	113.65 Ml/d
1 September to 30 October inclusive	318.23 Ml/d
1 October to 31 December inclusive	113.65 Ml/d

8.5 Level 3a Supply Side Drought Actions

Level 3a drought actions are those considered in drought with a moderate to major environmental impact.

8.5.1 Thames Water Utilities bulk transfer

Within the bulk supply agreement is a statement that during an "unusual drought" Thames Water shall supply to ESW such quantities as shall represent “fair apportionment” of the water available. We have agreed with Thames Water that "unusual drought" will in future be defined as when Thames Water have entered their stage 3 drought restrictions (implemented powers from a non-essential use ban). Fair apportionment will not be pre-emptively defined as the circumstances of each particular drought differ spatially and temporally (evidenced by 1995/97 and 2005/06). It will be considered at the time that stage 3 restrictions are put in place. However, the apportionment will be derived from the relative shortfall in deployable output that each company is experiencing.

Further details on the agreement are presented in Section 2.6.2.

8.6 Other drought permits and drought orders

In the event a severe drought coincides with unforeseen and previously unexperienced operational circumstances which risk the loss of supply to customers, we may need to apply for drought permits or orders that have not been included in this drought plan. By assessing historical events and modelling a range of future scenarios, we have identified where we may feasibly require a drought permit or order and have included it in this drought plan. However, in extreme circumstances, other permits or orders may be required, in which case we would liaise with the

Environment Agency, Natural England and other key stakeholders, and add them to our drought plan.

8.7 Environmental Drought Actions

We will increase dry weather messaging during periods of prolonged dry weather, i.e. before an environmental drought. We will work closely with the Environment Agency to implement actions to mitigate an environmental drought. Actions would include continued enhanced dry weather messaging and the operation of compensation discharges as set out in our abstraction licences.

8.8 Drought Actions to support other sectors

Given our limited abstraction licence headroom, trading of abstraction licensed quantity is unlikely and would always be subject to discussion with and approval by the EA. However, we will consider proposals from non-public water supply sector abstractors on a case-by-case basis. Our assessment will consider:

- forecast utilisation (by ESW) of individual abstraction licence licensed quantities in the current reporting year and what headroom, if any, we have. In terms of groundwater abstraction, headroom would be assessed against the recent actual baseline; and
- the EA's current trading position (specifically with regard to the water body or catchment that the EA will consider trading within).

Given the potential for animal welfare issues, we will consider on a case by case basis how we can support livestock farmers without mains water (e.g. tankered water), should they have drought related issues with their private abstractions.

Homes with private domestic water supplies, predominantly in rural areas, may require support if their supplies fail. Where practicable, we will consider providing bowsers on a case-by-case basis to ensure a potable supply for domestic use. We will also work with the relevant local authorities to understand the scale and location of any potential supply issues.

9 EXTREME DROUGHT ACTIONS

9.1 Section Overview

This section identifies the drought actions we could implement during an extreme drought, after Level 3a restrictions such as non-essential use bans. These actions would further delay the need to implement our emergency plan for drought and Level 4 severe drought restrictions such as emergency drought orders that authorise standpipes or rota cuts. These actions are referred to as Level 3b extreme actions.

We have considered whether the actions are realistic and technically feasible. We have considered:

- Triggers with realistic lead-in times
- If an action is practical to implement during an extreme drought.
- Is likely to be temporary.
- Generally, does not result in permanent increases to deployable output i.e., usually distinct from WRMP options.

We have explored the full range of potential actions included within the ordinary drought order legislation (section 74(2) of the WRA 1991) when planning for an extreme drought. The options include applying to:

- take water from any source specified subject to conditions;
- prohibit or limit the use of water for any purpose specified;
- discharge water to any place specified subject to restrictions;
- prohibit or limit taking of water by an appropriate agency; and
- suspend or modify restrictions relating to abstraction, discharge, supply, filtration of water.

A summary of the Level 3b extreme drought measures we could implement is provided in Appendix 9 and 10 and includes:

- the type of action (supply or demand);
- the Water Resource Zone(s) in which it would apply;
- a description of the action and the likely trigger for implementing it;
- an indication of the likely benefit or saving;
- identification of significant barriers, and
- an indication of the timescale for implementation
- environmental impact.

In prioritising the implementation of these extreme measures, we will ensure that the demand actions are implemented before more extreme supply-side actions.

Table 18 summarises the extreme drought actions we have identified and presents them in priority order. The demand-side actions are further detailed in section 9.1 and the supply-side actions are further described in section 9.2

Table 18: Extreme drought actions

Type of action	Water Resource Zone	Summary of action	Trigger for action to be used	Likely benefit / saving	Risks	Environmental impacts	Timescales	Priority order
Demand	Essex Northern Central	Reduction in Ships Watering: Only supplying the minimum amount of water for a ship to get to it's next port.	Post Level 3a drought actions.	0.18 Ml/d	Advice unclear to ports - action not undertaken Customer complaints	N/A	7 days	1
Demand	ALL	Removal of Statutory Exceptions and Discretionary Universal Exceptions on TUBs and NEUBs	Post Level 3a drought actions.	0.75 Ml/d	No impact on demand reduction Customer do not adhere to ban Customers complain Advice is unclear leading to dissatisfied customers.	N/A	21 days	2
Supply	Hartismere	Emergency Treated Water Transfer from Anglian Water Services (AWS) to our Hartismere Water Resource Zone. This would be subject to Anglian Water having critical period supply headroom.	This would be implemented after all Level 3a actions have been implemented and then based on priority order in this table.	Benefit of up to 0.75 Ml/d peak	The network connection already exists. Operation of the transfer dependent on AWS's supply position and their approval as per AW / NWL agreement.	This option might require AWS to abstract above recent actual levels. The action would not be pursued if it required abstraction above their own licensed quantities.	2 weeks	3
Demand	ALL	Use Network Storage: Manage large size grouped area (SOP) storage to below normal target levels (low low alarm).	Post Level 3a drought actions.	0 Ml/d	Low stock levels would mean we are vulnerable to any issues on the network and potential interruption to supply	Water quality risk of running the reservoirs so low	24 hours	4
Demand	ALL	Introducing seasonal tariff for smart meter customers: For fully smart metered water resource zones introduce a seasonal tariff during the drought. For example; Anything above 110 litres per head per day is charged at a higher rate. Or all water for the next 6-8 weeks charged at a higher rate.	Post Level 3a drought actions.	0.19 Ml/d	Customers perceive unfair targeting of them as they have a smart meter leading to complaints. Seasonal tariff information is not clear enough leading to customer misunderstanding of reducing water Tariff disadvantages the vulnerable customers Seasonal tariff has no impact on reducing demand	N/A	28 days	5
Supply	Suffolk Blyth	Drought permit to modify the compensation flow and / or abstraction from Blyth Borehole 2	This would be implemented after all Level 3 actions have been implemented and then based on priority order in this table.	This drought permit is phased in a three-step approach: ▪ Step 1: **0.27 Ml/d** from an increase in PWS abstraction from 2.73 Ml/d to 3.00 Ml/d. ▪ Step 2: **0.37 Ml/d** from an increase in PWS abstraction from 2.73 Ml/d to 3.00 Ml/d, and reduction of compensation discharge by 50%. ▪ Step 3**: 0.48 Ml/d** from an increase in PWS abstraction from 2.73 Ml/d to 3.00 Ml/d, and temporary cessation of compensation discharge.	Need for drought permit. Environmental impacts, WFD objectives.	Potential for long term / permanent impacts on ecology and WFD status. See section below summarising the EAR outcomes.	Once application received, normally within 12 calendar days of the date of publication of the last advertisement.	6

9.2 Level 3b Demand Drought Actions

Level 3b demand-side drought actions are characterised by being extreme. For those customers in fully smart metered water resource zones, we would introduce seasonal tariffs where higher water use is charged at a higher rate. We would also reduce ships watering only supplying the minimum amount for a ship to sail to the next port.

We would manage large size grouped area strategic operational plan storage to low low alarm levels.

The implementation period for a level 3b demand drought action can vary from 1 day to 1 month, with an average saving of 0.28 Ml/d. Table 19 provides the estimated total savings for these drought actions across each water resource zone (WRZ).

Table 19: Level 3b demand side actions total saving per WRZ in Ml/d

Drought Level	Drought Severity	Demand Actions	Essex	Blyth	Hartismere	Northern Central
3b	Severe drought (Extreme actions)	Removal of Exceptions on TUBs and NEUBs	0.56	0.03	0.04	0.12
		Leakage & Network Drought Actions	0.00	0.00	0.00	0.00
		Demand (Other) Actions	0.09	0.00	0.19	0.09
		SUM Ml/d	**0.65**	**0.03**	**0.23**	**0.21**

Please refer to Appendix 9 and 10 for detailed information on the individual drought actions, including estimated savings, implementation timetables, tracking effectiveness, fast-track options and risk assessments for the demand side actions.

9.2.1 Removal of Statutory, Discretionary and Universal Exceptions

The implementation of TUBs and NEUBs in earlier drought levels will come with some exemptions. In the case of very severe droughts these exemptions will be removed. It is estimated this could save approximately 1% from NHH consumption.

9.3 Level 3b Supply Side Drought Actions

Level 3b drought actions are those that could be implemented in a severe drought after Level 3a restrictions such as non-essential use bans have been implemented. They would delay the need for Level 4 emergency plan for drought actions such as emergency drought orders that authorise standpipes or rota cuts.

9.3.1 Coldfair Green groundwater abstraction licence daily licence increase and reduction in compensation discharge

The drought action is to apply for a Drought Permit to:

- Step 1 - Increase the daily licence for PWS to 3.0 Ml/d (10% increase) while retaining the full compensation discharge to the Hundred River (0.205 Ml/d).

- Step 2 – Retain the increased daily abstraction for PWS at 3.0 Ml/d and reduce the compensation discharge by 50%, to 0.1025 Ml/d, with the balance used to provide additional PWS.
- Step 3 - Retain the increased daily abstraction for PWS at 3.0 Ml/d alongside the temporary cessation of compensation discharge, with the 0.205 Ml/d balance retained for PWS.

The current daily licence on the Coldfair Green abstraction licence for public water supply is 2.73 Ml/d. ESW, at the request of the Environment Agency, is also required to make a compensation discharge of 0.205 Ml/d (maximum 25 Ml/annum) between July and October inclusive from the Coldfair Green borehole to the Hundred River. Under the implementation of Step 3 of this drought permit, the daily licence for public water supply would increase to 3.205 Ml/d, with a compensation discharge of 0 Ml/d.

The high demand period for the Blyth WRZ is likely to be within the period that compensation discharge is required. Hence, Step 1 of the drought action is to retain the compensation discharge and increase the daily licence to make additional quantities available for supply. If that is not sufficient to meet demand, the subsequent steps would reduce the compensation discharge and make the balance available for PWS in addition to the previous increase in PWS daily licence.

This drought action is only likely to be required under infrequent (i.e. not likely to re-occur within several decades) or exceptional (e.g. extreme drought scenarios) conditions. Our justification for this is because no supply side drought actions have been required in the previous 25 years.

9.3.2 Other possible actions

The groundwater-dominated Hartismere WRZ in Suffolk was affected specifically by the 1996/97 drought. Since then, the establishment of an additional groundwater source and treatment works at Bedingfield, along with extensive network enhancements, has significantly bolstered the security of supply within the WRZ.

Nevertheless, our WRMP24 identified that the Hartismere WRZ now has no supply headroom. In our previous Drought Plan 2022, we presented several supply side drought actions within our Hartismere WRZ, some of which would require a drought permit.

However, all our abstraction licences within this WRZ are currently under Habitats Regulations investigation in relation to their potential impact on protected sites. Until these investigations have concluded, and we have measures in place to ensure that our abstractions are not posing a risk to the integrity of protected sites, we have agreed with our regulators that we will not include drought actions requiring drought permits at any of these sites.

Our remaining available supply side drought action in the Hartismere WRZ is therefore the Level 1 road tankering option described in Section 8.3.2.

9.3.3 Drought Permit / Order Compensation arrangements

Individuals (e.g. owners of a water source or those who have an interest in a source) who suffer a loss or damage as a result of a drought permit or drought order are entitled to compensation. The rules for compensation are set out in Schedule 9 to the Water Resources Act 1991.

In the unlikely event that a third party incurs losses or damages as a result of a drought order or permit overriding their rights to the water, the process to apply for compensation is as follows:

- The claimant must serve notice on our parent company (Northumbrian Water Limited) stating the grounds of the claim and the amount claimed. The Environment Agency is not involved in the claims process;
- Claims must be made within six months of the date of expiry of the permit; and
- In default of agreement, disputes are referred by the claimant or applicant to the Upper Tribunal

10 CUSTOMER COMMUNICATIONS

This is an outline plan for an integrated communications plan for drought. The sections should be updated with relevant information and context.

10.1 Context

This section should be updated with information about rainfall and reservoir stocks in the period leading up to the declaration of drought.

10.2 Strategy

We will ramp up activity on existing PCC and water efficiency demand campaigns, putting extra budget into marketing and using all possible channels, including our community engagement channels Local Action and Flo, Carlton and Sandy community engagement vehicles.

This plan operates side by side with our existing water demand marketing plans and measures for each stage listed in this drought plan, such as Level 1 Appeal for Restraint and Level 2 Temporary Use Ban.

If the company decides to implement a Temporary Use Ban (TUB), such as a hosepipe ban, we have to adhere to a legal procedure for publicising the ban before its implementation in at least two newspapers circulating in the area and on our website three weeks before implementing a TUB.

10.3 Evaluation

- Marketing campaign metrics including reduction in PCC among hotspots
- Media monitoring
- Social media analytics
- Stakeholder email opens and responses

10.4 Communication Channels

10.4.1 Overview

Drought communications will focus on key water resource, demand and water efficiency messages and will provide advice on how customers can save water.

Depending on the severity of drought, the following tools could be used:

- Advertising: TV, connected TV (Amazon Prime Video, Netflix), YouTube, cinema, audio streaming (radio, podcasts, Spotify), digital programmatic and social media;
- Emails all customers;
- Boosted social media posts;
- Community engagement: Sandy, Carlton and Flo, Local Action.
- Emails to MPs and local authority representatives

10.4.2 Channels

- Media Releases
- NWL website: www.nwl.co.uk
- Media Interviews (spokespeople will be selected and briefed by the Communications team)
- Letters to key stakeholders (MPs, district/borough councillors, parish councils)
- Postings on local partner websites (e.g. local councils)
- Briefings for Customer team
- Employee communications
- Stakeholders' channels e.g., local community and non-political organisations
- Community engagement vehicles (Flo, Sandy, Carlton) and Local Action events

10.4.3 Media

As well as trade and industry press, all local media would include:

- BBC and ITV regional news programmes
- All local newspapers
- All local Radio Stations

10.4.4 Social Media

NW social media accounts include:

- Instagram
- TikTok
- Facebook
- LinkedIn

10.4.5 Stakeholders

We would consider contacting the following stakeholders to encourage them to share and reinforce our messaging, for example, by including our messages in their newsletters or distributing them to members/residents/constituents:

- MPs and councils
- Local community and non-political organisations e.g., business/comms networks
- Water Forum
- Chambers of Commerce
- LWE partners
- Caravan parks/holiday homes
- Leisure centres
- NFU
- SME's
- Housing associations
- Allotment groups

10.4.6 Advertising

We will consider creating a series of radio, newspaper and public transport adverts which can be cascaded across the area. Paid for advertising will help us cover all bases and communicate with customers that are not as accessible in hard to reach places or who are engaging with us digitally.

10.4.7 Internal Communications

Sharing messaging with our employees is crucial in supporting our customers. Internal channels include:

- Digital screens across all sites
- Source article
- Employee text messages
- Leadership calls
- Volunteer requests
- H2O newsletter
- All colleagues email

10.4.8 Direct customer communications

- Customer email with water saving messages
- Q&A to answer potential customer questions distributed to all customer facing teams

10.4.9 Our Website

www.nwl.co.uk is a one stop shop for information for our customers. They can check if there is an issue in their area by entering their postcode, access their accounts as well as reporting leaks through our leakage portal.

During drought, we will create website alerts and instant pop-ups to make customers aware of any relevant information. Our website has dedicated **Save Water** pages for our customers with information covering how they can reduce water consumption in their homes and gardens throughout the year.

In the event of a drought, we will be create an FAQs page for our customer to ensure any queries or worries they may have are answered. Our website chat function is linked directly to Facebook Messenger where customers can contact a quick response, freeing up, freeing up our phonelines for emergencies, hard to reach and vulnerable customers

10.5 Drought Messaging Actions

10.5.1 Overview

Our drought messaging will be reinforced with facts covering the current rainfall, customer demand, reservoir storage, groundwater level and river flow position. We will provide a consistent message to our customers and other stakeholders including but not limited to neighbouring water companies, WReN, WRE, NFU and the media. The messaging for 'Waters worth saving' from Water UK will help emphasise this at a national level.

Our messaging will generally be accompanied with or a signpost to a list of top water saving tips for the garden and home.

10.5.2 Triggers for Drought Messaging

The triggers for enhanced dry weather messaging and formal Appeals for Restraint are illustrated on our worked examples in Appendix 7.

10.5.3 Dry Weather Messaging and Level 1 Appeals for Restraint

A key part of customer engagement during dry weather and drought is informing customers how they can reduce their water use. Examples of water saving tips that we might use in our business as usual dry weather messaging include:

- Turn off the tap when brushing your teeth and save 6 litres of water each time;
- Have a short shower – we recommend 4 minutes
- Water the garden with a watering can rather than a hose, try watering in the evening to retain moisture in the soil.
- Use a bucket rather than a hose to wash the car;
- Use eco mode and use full loads for your dishwasher and washing machine.
- Replace washers on dripping taps - they can waste up to 26 litres of water in 24 hours - that's enough for a shower;

- Repair any leaky loos, these can waste 215 litres per day.
- Report any leaks you spot so that we can fix them quickly - ring the leak line on 0800 393 084;
- Use a bowl when hand washing dishes and save at least 7 litres every time;
- Reuse cold, non-greasy water for houseplants or the garden.

Actions at this stage will include:

- General update press releases confirming a period of dry weather, that we are managing resources and encouraging customers to report leaks and to use water wisely;
- Frequent water efficiency messaging across all of our social media channels. This will include engaging infographics / animations and we will ask our partners to share these posts;
- A dedicated dry / warm weather advice section on the website which will be regularly updated with press releases / media statements; and
- Q&A's prepped and given to customer team in the event of difficult questions being asked via telephone. External Q&As will also be put on the dedicated page of our website.
- Advertising
- Internal comms sharing external messaging
- Comms to stakeholders

Example messages include:

- Water supplies remain healthy for this time of year.
- However, due to dry weather and more people working at home, demand for water is high.
- We are managing the situation carefully and have plans in place to help keep the water flowing for our customers.
- We are doing X, Y, Z to help maintain water supplies.
- There are currently no plans for a hosepipe ban.
- We would encourage customers to use water wisely now in case the dry weather turns into a drought.
- Customers can do X, Y, Z to help save water around the home and garden.
- Warm weather can cause ground movement which can lead to burst pipes. We are asking customers to help us out by reporting these to us so we can get them fixed as quickly as possible.

As a drought deepens and once the trigger for a Level 1 Appeal for restraint has been reached, we will repeat the actions detailed above and will confirm the latest escalated position. Additionally, we will:

- enhance our social media posts to target areas with tips and advice on using water wisely;
- Contact key stakeholders such as the Chamber of Commerce, the NFU and other related parties within the affected areas and ask that they share our messaging;
- send e-newsletters to customers in affected areas providing tips and advice on using water wisely; and
- Boost marketing campaigns targeted at those areas affected.

10.5.4 Level 2 Temporary Use Ban (TUB) Messaging

If our Drought Management Group concludes that we need to implement a TUB, then we will ensure we follow the legal requirements as outlined in Section 7.3.1. We will also ensure that we effectively communicate to our customers how the bans will affect their use of water.

Once our DMG has agreed a TUB is required, we will undertake a two-week consultation, after which the temporary use ban will be in place. We will ensure we are resourced to be able to effectively manage our messaging as well as to deal with increased media interest.

Where appropriate, we will issue joint customer communications with Water Resources North and its members.

Prior to announcing the TUB, we will ensure:

- press releases are drafted and approved, with appropriate FAQs included;
- location and timing for media interviews are agreed;
- our spokesperson is fully briefed;
- our website is updated;
- Social media posts are agreed and scheduled;
- emails to stakeholders are drafted with draft social media posts included so they can also share our messaging; and
- we have liaised with neighbouring water companies, WReN, WRE, EA, NFU and other interested groups.
- Comms to stakeholders drafted and approved
- Comms to colleagues drafted and approved

Announcing Ban

The following tasks will be undertaken:

- Press releases will be issued one day in advance, under embargo;
- Media interviews to be carried out at agreed locations;
- Website update will go live; and
- Social media posts will be scheduled in advance and monitored to manage enquiries.
- Email sent to stakeholders, including Water Forum and LWE partners
- Q&A answering potential questions from customers distributed to all customer-facing teams

Example messages include:

- Rainfall for the proceeding 3 / 6 / 9 / 12 months is x% below average
- Reservoir storage is currently at x% which is x% below average for the time of year.
- Groundwater levels are currently below average for the time of year.
- Demand is currently running at x% above average.
- A combination of prolonged dry and warm weather and elevated demand has led to our water resources being at levels which are significantly below average for the time of year. With no rain in the forecast, to ensure we are

able to maintain resilient supplies should the drought deepen, we will be implementing a temporary use ban (TUB) across our supply area from XX/XX/XX.
- This is not a decision we have taken lightly, and we thank customers who have already been doing their bit to save water to help us preserve supplies.
- We ask customers to abide by the restrictions and to do everything they can to save water at this time.
- Those who do not adhere to the TUB can be subject to a £XXX fine.
- Warmer weather causes ground movement which can lead to burst pipes. We are asking customers to help us out by reporting these to us so we can get them fixed as quickly as possible.
- We have one of the best records in the water industry for dealing with leakage and are continuing to invest and find new ways to improve on this.
- We will lift the TUB once rainfall, reservoir storage and groundwater levels return to more normal levels for the time of year.

Following Ban Announcement

The following tasks will be undertaken following the announcement of a TUB:

- Daily social media posts reminding customers of planned restrictions and pointing them to our website for more information. Continue daily messaging on how customers can save water (a separate social media plan will be required);
- Record video with key spokesperson explaining why temporary use ban is needed, how customers are affected and urging them to continue to use water wisely;
- Press release 'mythbuster' – Providing some more detail on the temporary use ban, and how customers will be affected (to cover some of the most common questions asked on social media); and
- Reminder press release – Issued 1 or 2 days after implementation.

Post Ban Implementation

Proactive communication in the week following the introduction of the TUB will be limited to reinforcing our key messages, providing factual information about the TUB and encouraging customers to reduce their water use. Following this initial period, more proactive communication will be introduced, focusing on other ways we are managing the situation (tackling leakage / bursts etc). Other actions include:

- Press release on surviving without a hosepipe. Promoting the alternatives to using a hosepipe and confirming what is/isn't covered by the ban;
- Social focussing on confirming that the ban is in place, what is/isn't covered, pointing customers to website as main source of information. Continue to push water efficiency messages; and
- Website FAQs to be reviewed and updated depending on enquiries received.

Ban Withdrawal

We will liaise with neighbouring water companies, WRE, EA, NFU and other interested groups on our plan to withdraw the TUB. Once agreed, we will issue press releases and social media posts confirming that the TUB is withdrawn but that everyone should continue to use water wisely. Additionally, we will update our

website, media interviews will be facilitated with agreed a spokesperson and our Customer team will be briefed to handle enquiries. We will also contact stakeholders and inform colleagues, Water Forum and LWE partners.

Key messages might cover the following points:

- Thanks to the excellent response from our customers to our appeals to use water wisely, and increased rainfall in our region, we will be lifting the hosepipe ban on XXXXXX;
- The ban was required due to extremely low levels of rainfall, more people spending time at home, and increases in demand for water;
- We ask our customers to continue conserving water as much as they can this time, as it will take some time for our reservoir and groundwater levels to return to normal levels. This will help us avoid the prospect of further restrictions;
- We ask customers to continue with the water saving habits they have adopted during this time as much as possible, as this will help us maintain supplies all year round; and
- We thank customers for their help and patience during this period.

10.6 Working with others during Drought

10.6.1 Overview

We will work with a wide range of interested groups and partners to enhance our messaging to reduce demand for water during a drought.

10.6.2 National Drought Group (NDG)

The National Drought Group (NDG) was set up by the Defra Secretary of State in February 2012 to manage that drought. It has convened since, most recently as a result of the 2025 drought, to provide a multi sector overview and strategic management of the drought. It commissions working groups to undertake specific pieces of work and includes senior decision makers from the EA, government and principal drought stakeholders. Whenever formed, we will work with the NDG to contribute to the cross-sector coordination of drought issues.

10.6.3 Other water companies and Water Resources East

We will work closely with our neighbouring water companies and with WRE and will look to provide joint regional messaging where a drought is affecting the region.

10.6.4 The Environment Agency

We work closely with both area and national Environment Agency teams and outside of drought have quarterly liaison meetings and senior manager meetings. During prolonged dry weather, our water resources position would be discussed at both meetings. Additionally, we attend the Environment Agency's Ely Ouse to Essex Transfer Scheme quarterly meeting which takes a foreword look in terms of water availability and the need for the scheme to run to support refill of our Essex reservoirs. During prolonged dry weather, we will also attend the Environment Agency's own regional drought meeting.

Outside of drought, we share our water resource position (surface water storage) with the Environment Agency on a weekly basis.

10.6.5 Non-household Customers and NAVs

Our Wholesale Team will work closely with:

- non-household retailers whose customers (i.e. non-household businesses) we also supply; and
- New Appointments and Variations (NAVs) - limited companies that provide a water and/or sewerage service to customers in an area which was previously provided by the incumbent monopoly provider.

Our Wholesale Team have agreed contacts with each of the NAVS and retailers. We would like them to relay all of our key drought and water efficiency messages and asks to minimise water use to their customers. Likewise, they will need to comply with any restrictions on water use that we impose on our own customers. We will ensure timely and regular communications with our NAVs and retailers that focus on demand side drought management actions or restrictions that will impact the NAV.

We will work closely with business organisations such as the Chamber of Commerce and the Local Enterprise Partnership (LEP). Our team will develop tailored press releases offering guidance on efficient water usage for businesses. Additionally, we will produce targeted social media content for Small and Medium Enterprises (SMEs), engaging relevant groups and boosting posts on LinkedIn to reach specific job titles. An electronic leaflet providing best practices for hot weather conditions will be distributed via email, accompanied by draft social media messaging, to stakeholders including Members of Parliament, Councillors, the Chamber of Commerce, and other local authorities. Furthermore, a dedicated section on our website will provide SMEs with comprehensive information. We may also request the Chamber of Commerce to disseminate our communications to all its members.

10.6.6 Priority Services Register (PSR) Customers

During a drought, the priority would be to ensure PSR customers have water supplies and bottled water in case of an emergency. To get this messaging across we would send letters to customers and would also work with partners such as Age UK, the local NHS and the Trussell Trust. During the earlier summer months, we would also do some proactive social media posts encouraging people to sign up to the PSR register.

10.6.7 Schools

We promote this initiative throughout the year round and can increase promotion during prolonged dry weather to provide an educational resource to schools in order to change the water using behaviours of future generations at a large scale, known as The Ripple Effect. We will continue to push this across our social media channels, and we can reach out to schools in effected areas and supply them with our educational resources (see section 7.1.8).

10.6.8 Local Resilience Forum

We maintain close ties with our Local Resilience Forums and will continue to do so during a drought to keep local responders informed and engaged.

10.6.9 Housing associations

We will collaborate with housing associations to draft a press release and provide content for newsletters, social media, and an e-leaflet encouraging tenants to save water. We will also create targeted social media posts and tag housing associations.

10.6.10 Landlords

As with housing associations, we will work closely with the Landlord Association and create a specific press release to ask landlords to encourage tenants to save water. We will also ask local landlords associations to share water efficiency messaging in any newsletters they distribute. We will produce social media posts and e-leaflets for landlords and associations to share with tenants, and also publish our own tagged posts.

10.6.11 Shared Homes / Student Accommodation

We will collaborate with regional universities, including the University of Essex and Anglia Ruskin University, to develop a tailored press release and provide guidance for students. Additionally, we intend to engage with university radio stations and publications by offering a designated spokesperson for interviews. There is also potential to involve students from journalism and communications courses to utilise and disseminate our messaging.

Furthermore, we will produce social media content across all major platforms, including targeted boosted posts aimed specifically at 18–25-year-olds. Posts will be prepared for sharing by the universities and Students' Unions. An electronic leaflet will be developed, and we will request that the university distributes it to all students.

10.6.12 High rise flats

We will develop a targeted press release and work with local councils to distribute advice for residents of high rise flats. We'll share social and boosted Facebook posts in relevant areas and provide an e-leaflet for councils to guide residents on hot weather precautions. Councils will be encouraged to share this with tenants, and we may consider creating tailored customer letters.

10.6.13 Farms

We will collaborate with the National Farmers Union (NFU) to promote water conservation through a farm-focused press release and e-leaflet, both providing practical advice for farmers. We would ask NFU to distribute these through their weekly newsletter and share them with members. Additionally, we'll use social media to reach farming groups with our message.

10.6.14 Caravan/Holiday homeowners

For holiday homeowners and caravan owners, we will issue a targeted press release on water conservation, share tips via social media, and create an e-leaflet with practical guidance. We will contact major holiday parks to spread our message and may send customized letters to site managers.

11 ENVIRONMENTAL ASSESSMENT

11.1 Overview

This section provides a summary of the environmental assessments we have carried out for each of our supply side drought actions (including drought permits / drought orders) (see sections 8.2 to 8.5) and for our plan as a whole. The environmental assessments and associated environmental monitoring plans document how we will monitor, assess and, where possible, mitigate for the environmental impacts of our supply side drought actions and demonstrate how we are trying to balance protecting the environment whilst maintaining a secure supply of water for our customers.

The sections below provide a high-level summary only, with technical detail of the environmental assessments and environmental monitoring reports being provided in separate technical appendices (Appendix 11).

We have prepared our environmental reports (covering environmental assessment, monitoring and mitigation) following the guidance set out in the Environment Agency's "Environmental assessment for water company drought planning" (March 2025) and the UKWIR guidance "Environmental Assessments for Water Resources Planning (21/WR/02/15)" (March 2021). We have also checked that our environmental assessments meet all the expectations set out in relevant environmental legislation (see Section 11.9).

We have undertaken a Strategic Environmental Assessment (SEA) of our Drought Plan and prepared an Environmental Report that details the outcomes of our assessment against our environmental objectives. This is provided as a separate report.

We have undertaken Habitats Regulations Assessment (HRA) and Water Framework Directive (WFD) assessment of the supply side drought plan actions included within our SEA, including cumulative and in-combination assessments. The outcomes of these assessments are provided as separate reports, with relevant information also included within the environmental assessment reports (EARs) for individual supply side drought actions.

For each of our supply side drought actions requiring a drought permit or order we have:

- completed an environmental assessment report (EAR) to demonstrate our understanding of the impact on the environment of our proposed action
- set out the environmental monitoring we will put in place to understand the environmental impacts of our action and
- identified the mitigation measures we will implement in order to minimise the environmental impact of our action.

This information will help us to prioritise the use of options which generate the most additional water supply with the least environmental impact. We have also considered the combined environmental effects of our supply side drought management actions and, where relevant, the combination effects of our actions with those of our neighbouring water companies and other abstractors.

We will review and update our environmental assessments and associated monitoring plans annually or more frequently, as required, to ensure that the information remains up to date. If we need to apply for a drought permit or drought order during a drought event we will refresh our relevant environmental assessments and monitoring plans afterwards. This will help to improve our environmental assessments, by incorporating datasets generated from in-drought and post-drought (recovery) monitoring and enable us to ground-truth predicted environmental impacts against observed impacts.

We will also update our environmental assessments if there is a material change to our Drought Plan, as required by section 39B(6) of the Water Industry Act 1991.

11.2 Engagement with the Environment Agency and others

We have discussed our environmental assessments, including our mitigation measures, and monitoring plans with the Environment Agency and, where our drought actions are in proximity to a nationally or internationally protected site, with Natural England. We have agreed that we will prepare and maintain full environmental assessment reports for the following actions, so as to be as 'application ready' as possible in the event of requiring a drought order or drought permit (Table 20). For more information on how we intend to be 'application ready' for these drought actions, see Appendix 19.

Table 20: 'Application ready' supply side drought actions

Action Name	Drought level	Type of Action
Denver Licence variation	L2	Drought order to amend seasonal HOF conditions on licence
Coldfair Green borehole	L3b	Drought permit to increase daily abstraction licence and then reduce compensation discharge.

We have contacted the relevant local authority for any local wildlife sites potentially affected by our drought actions. We have also contacted relevant third-party organisations where watercourses may be affected by our drought actions (Table 21).

Table 21: Supply side drought action specific consultees

Action Name	Local Authority	Other Third-Party
Denver Licence variation	Fenland	N/A
Coldfair Green borehole	East Suffolk	N/A

We meet regularly with the Environment Agency and Natural England, at operational and management levels, to discuss various aspects of our operations and conversations around our drought plans are part of this discussion. This ensures that we understand if there are any changes that may affect our drought plans and require our environmental assessments to be updated.

11.3 Strategic Environmental Assessment

We have completed a Strategic Environmental Assessment (SEA) and prepared an Environmental Report, for our DP27, including assessing our individual supply-side and demand-side drought actions and our plan as a whole, in accordance with the requirements of the SEA Directive.

The Environmental Report is provided in the accompanying document 'ESW DP 2027 - Strategic Environmental Assessment – Environment Report – Main Report' (ESW, 2026) and reviews the drought actions included in our plan and the reasonable alternatives, to identify any potential positive or negative environmental effects.

Strategic Environmental Assessment (SEA) is a statutory requirement under the European Union Directive 2001/42/EC, more commonly known as the SEA Directive. The Directive was transposed into United Kingdom (UK) law via the Environmental Assessment of Plans and Programmes Regulations 2004 ('SEA Regulations') and retained following withdrawal from the European Union. This requires an assessment of the effects of certain plans and programmes on the environment. Part 2 (5) (2) of the SEA Regulations states that SEA is required for plans and programmes which are prepared for water management and which set the framework for development consents.

The SEA also works to inform the decision-making process through the identification and assessment of significant and cumulative effects a plan or programme may have on the environment and outlines how any negative effects might be mitigated. The SEA process is conducted at a strategic level and enables consultation on the potential effects of a plan with a wide range of stakeholders.

We identified the need to carry out Strategic Environmental Assessment (SEA) of our DP2027 using the screening flow chart set out in Figure 3-3 of the UKWIR 'Environmental assessments for water resources planning 21/WR/02/15' (2021). We communicated the outcome of our SEA screening to the Environment Agency and Natural England.

Undertaking an SEA is a multi-stage process, comprising:

- Stage A – Setting the content and objectives, establishing the baseline and deciding on the scope
- Stage B – Developing and refining alternatives and assessing effects
- Stage C – Preparing the Environmental Report
- Stage D – Consulting on the Draft Plan and the Environmental Report
- Stage E – Monitoring implementation

The following sections summarise the activities and outputs from different SEA stages.

11.3.1 SEA – methodology

The Strategic Environmental Assessment of identified drought actions has been carried out using an 'objectives-led' approach, a widely recognised method for evaluating environmental effects and comparing alternative actions. The SEA objectives were derived from:

- Environmental protection goals set out in relevant policies, plans, and programmes, enabling identification of areas where our Drought Plan may support or conflict with other objectives at local, national, or international levels.
- The current environmental conditions within our supply areas and source catchments, along with key environmental issues and opportunities.
- Consideration of the likely evolution of the baseline, drawing on key environmental trends such as projected climate change impacts, anticipated pressures on water resources, changes in land use and habitat condition, and expected shifts in population and demand.

The SEA objectives and associated assessment questions guided the evaluation of each drought action using a consistent, evidence-based approach. For each SEA topic, key questions were developed to ensure comprehensive coverage and were updated to reflect stakeholder input and evolving priorities. Findings from the HRA for Special Protected Areas (SPAs) and Special Areas for Conservation (SACs), Natural England's Impact Risk Zones (IRZs) for Sites of Special Scientific Interest (SSSIs), and WFD assessments have also informed the evaluation of drought actions against SEA objectives related to biodiversity and water.

The SEA is composed of two assessments:

- Primary assessment – categorised all drought actions within Drought Plan 2027 according to the residual effects matrix, which considers sensitivity of the receptor and magnitude of effect.
- Secondary, cumulative and synergistic environmental effects - involved examining the likely significant effects of each of the drought action in combination with each other and in combination with the implementation of other relevant plans and programmes. The methodology was informed by, and integrated with, the findings of the HRA, WFD assessment and EARs for drought permit and order actions.

11.3.2 SEA Scoping

The scoping stage of our SEA set the context and scope for our SEA and Environmental Report. We issued our SEA Scoping Report for statutory consultation in October 2025 and received responses from the Environment Agency (EA), Natural England and Historic England. Our SEA Scoping Report set out our SEA Objectives, presented a review of the policies, plans and programmes relevant to our DP2027 and included a review of current baseline environmental and socioeconomic

information for our ESW supply and water catchment areas, under the topic headings of biodiversity, flora and fauna; water; flood risk; soil; air; climatic factors; population, human health and economy; historic environment; landscape; material assets and natural capital. We have considered the responses received from the consultation on our SEA Scoping Report in the development of our DP2027 SEA.

11.3.3 SEA – outcomes

Demand-side actions reduce pressure on water resources by lowering consumption or system losses. This helps to maintain river flows, protect sensitive habitats and strengthen ecological resilience during drought conditions. Effects across these actions are generally neutral, with no significant adverse effects. Only minor, temporary adverse effects were identified, primarily associated with short-term operational activities, vehicle movements, and potential customer impacts during the implementation of restrictions.

Most supply-side actions help maintain river flows, water quality, biodiversity and WFD objectives by redistributing abstraction, supplementing flows or reducing pressure on sensitive sources during drought conditions. All actions operate largely within existing infrastructure and licensing constraints and generally result in neutral environmental effects, with no significant effects.

Minor adverse effects associated with supply-side actions are typically limited to traffic emissions, temporary localised hydraulic or water-quality changes, or small increases in operational energy use. Most actions provide minor beneficial effects such as enhanced drought and climate resilience, protection of designated sites, support for reliable public supply and improved resource efficiency.

The Coldfair Green drought action was assessed as having a number of minor adverse effects against SEA objectives, relating to short-term changes to flows, water levels, water quality and some wetland and riparian habitats. However, these effects are localised, temporary, do not lead to deterioration in WFD status, and are outweighed by the action's benefits, particularly in strengthening drought resilience and maintaining reliable public water supplies. Post drought monitoring in the Environmental Monitoring Plan will confirm recovery of flows, water quality and ecological conditions, and specific mitigation measures outlined in the EAR have been designed to avoid, reduce or manage environmental effects during drought implementation and to support post-drought recovery.

Overall, the SEA concludes that the action included in our Drought Plan 2027 can be implemented without significant adverse environmental effects, provided that the identified mitigation and monitoring measures are applied and that drought actions are implemented proportionately in response to drought conditions.

11.4 Habitats Regulations Assessment

Habitats Regulation Assessment (HRA) is a statutory requirement under the Conservation of Habitats and Species Regulations 2017 (as amended) and concerns the protection of the integrity of individual European sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites and associated functionally linked land) and the integrity of the over-all network of sites.

The HRA also feeds into the SEA objective on biodiversity. The stages of HRA include the test of Likely Significant Effects (LSE), Appropriate Assessment (AA) (if required from the LSE), and consideration of alternatives (if the AA finds that effects on site integrity cannot be adequately mitigated).

We have completed an HRA and prepared a report, for our DP2027, to provide an understanding of the impact of our drought actions on designated European Sites and any associated compensatory habitat or functionally linked land, in accordance with the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended). Our assessment includes consideration of the likely significant effects of our DP2027 alone and in-combination with other plans and projects and follows the process as set out in Figure 4-4 of UKWIR 'Environmental assessments for water resources planning 21/WR/02/15' (2021). We have discussed the outcomes of our HRA with Natural England.

Our Habitats Regulation Assessment Report is provided in the accompanying document 'ESW DP 2027 – Habitats Regulation Assessment' (ESW, 2026).

11.4.1 HRA – methodology

Our HRA Screening Report has been prepared in support of the development of our Drought Plan 2027 and assessed all level 0-3b demand and supply-side drought actions included within the Drought Plan. As part of this process all European sites (Special Areas of Conservation, Special Protection Areas and Ramsar sites) that interact with the hydrological zone of influence of each drought action were identified (where applicable). The source, pathway, receptor approach was then used to assess the potential for LSE on qualifying features of the European sites arising from drought actions, both alone and in-combination with other ESW Drought Plan elements, and other strategic plans and projects.

11.4.2 HRA - outcomes

The results of the Stage 1 screening of our Drought Plan 2027 has indicated that Likely Significant Effects can be ruled out for all of the demand-side drought actions, as they focus on customer usage and therefore none of the actions directly or indirectly have a pathway to affect any European Site.

Two of the five Level 0 (business as usual) supply-side drought actions, 'Raw water and WTWs optimisation' and 'Co-ordination planning to reduce outage', were excluded from the screening because they were both concluded to operate within existing permits and conditions.

A further six supply-side drought actions were not included for individual assessment as they relate to existing water supply, are separately licensed and therefore independently environmentally assessed by the regulators.:

- Ely Ouse to Essex Transfer Scheme (EOETS) (Level 0);
- Langford Recycling Plant (Level 0);
- Waveney Augmentation Groundwater Scheme (WAGS) (Level 0);
- Stour Augmentation Groundwater Scheme (SAGS) (Level 1);
- Great Ouse Groundwater Scheme (GOGS) (Level 1); and

- Bulk raw water transfer from Thames Water to Chigwell WTW (Level 3a).

In each case, the relevant Environment Agency licence will include operation during drought periods so providing use remains within licensed conditions, they are assumed to result in no Likely Significant Effect (LSE) on European Sites. These drought actions were however included in the in-combination assessment.

With regard to the remaining supply-side drought actions, the implementation of Level 1 tankering at Hartismere was assessed as having no pathway to effect to any European Sites and was consequently screened out at Stage 1.

Two supply side drought actions, Coldfair Green and Denver, were identified to interact with the hydrological zone of influence of European Sites.

For the Level 3b drought action at Coldfair Green, there is a hydrological pathway present to two European Sites through the Hundred River. However, the predicted change in riverine flow arising from the drought action is considered ecologically inconsequential to the functioning of the downstream European Sites, and the qualifying interests of Sandlings SPA are not associated with any hydrological features. All other European Sites are not hydrologically or functionally linked to the abstraction of water at Coldfair Green and as such there is no further requirement to progress to Appropriate Assessment (Stage 2).

Assessment of the Level 2 action at Denver identified three European Sites to be hydrologically connected to the drought action. The confluence of the Ouse Washes European Site is below the Denver sluice, and therefore water level management is in place to retain water in the Ouse Washes, thus there is no Likely Significant Effect. A reduction in freshwater flows at Denver will reduce the freshwater inflows into the Wash. Modelling undertaken for the EAR indicates that <0.06% changes in water velocity and river depth arising from the drought action will result in negligible changes to sediment dynamics or water quality. The lower Great Ouse and inner Wash are tide-dominated estuarine systems where tidal prism and tidal currents overwhelmingly control hydrodynamic and sediment-transport processes relative to freshwater river discharge. As such, the negligible change to freshwater inflows arising from the drought action will not prevent the achievement of conservation objectives relating to the extent, distribution, structure or function of habitats, supporting processes, population or distribution of qualifying interests within each site. Therefore, Likely Significant Effect has been excluded beyond reasonable scientific doubt.

With regard to in-combination effects, the three drought actions (tankering from Hartismere, increasing abstraction at Coldfair Green and reducing the Hands-off Flow at Denver) are geographically isolated so there is no opportunity for in-combination effects on European Sites between these drought actions. No significant in-combination effects have been identified between any of the demand-side and supply-side actions, as drought actions would be introduced progressively and sequentially. Furthermore, no in-combination effects have been identified between out Drought Plan and any of the following plans and projects.

Overall, stage 1 screening of our Drought Plan 2027 has indicated that Likely Significant Effects can be ruled out on all European sites both alone and in-

combination so there is no need to progress to Appropriate Assessment, and the recommendation is that the Drought Plan can be adopted under the Habitats Regulations.

11.5 Water Framework Directive Compliance Assessment

Water Framework Directive compliance assessment is a statutory requirement under Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and concerns supporting environmental objectives in river basin management planning, including preventing deterioration, achieving protected areas objectives and achieving waterbody status objectives. In the context of our DP27 WFD compliance is assessed at the level of the individual drought actions - those requiring licence variation through a drought permit or order.

A Water Framework Directive Compliance Assessment Report is provided for the Denver and Coldfair Green drought actions in the accompanying documents 'ESW DP 2027 – WFD Compliance Assessment – Coldfair Green' (ESW, 2026a) and 'ESW DP 2027 – WFD Compliance Assessment – Denver' (ESW, 2026b).

11.5.1 WFD compliance assessment – methodology

The WFD assessment process follows a 3-stage approach:

1. Stage 1 – Screening for WFD Risks.
2. Stage 2 – Compliance Assessment (Further Assessment).
3. Stage 3 – Regulation 19 derogation.

The purpose of screening is to identify water bodies and activities which could result in impacts to the water body baseline and increase risk of deterioration. All potential effects of activities must be considered. If the Stage 1 determines there are impacts, then Stage 2 compliance assessment is required. Stage 2 determines the level of compliance with WFD objectives and identifies if there are any adverse effects. Where it is deemed that objectives cannot be met, then a derogation needs to be sought.

The Stage 1 process identifies waterbodies which could be affected by the drought actions and summarises their baseline WFD classifications. From here, the assessment identifies and ranks potential impacts from the drought actions, taking into account any embedded mitigation measures. The scored impacts allow waterbodies with no or minor localised impacts to be screened out and not taken forward to a Stage 2 assessment.

11.5.2 WFD compliance assessment – outcomes

All demand-side actions were screened out during the Stage 1 assessment, as they were identified to influence customer behaviour or network operation only and have no direct interaction with any waterbodies, meaning these actions did not require further assessment under Stage 2 of the WFD assessment.

Supply-side actions, by contrast, generally do involve water bodies, either directly or indirectly. The following supply-side drought actions were screened out during the Stage 1 assessment because each involves the use of existing abstraction licences, within existing terms, which have been issued subject to the standard EA licensing process, which includes environmental assessment:

- Raw water and Water Treatment Works (WTW) optimisation
- Coordination planning to minimise planned outage
- Ely Ouse to Essex Transfer Scheme (EOETS)
- Langford Recycling Plant
- Waveney Augmentation Groundwater Scheme (WAGS)
- Stour Augmentation Groundwater Scheme (SAGS)
- Great Ouse Groundwater Scheme (GOGS)
- Road tankering potable water from Northern Central WRZ to Hartismere and Blyth WRZs
- Bulk raw water transfer from Thames Water to Chigwell WTW.

The 'Environmental assessment for water company drought planning', (EA, March 2025) states that for actions that are within existing licensed limits or licensed drought sources, there is a need to, "discuss the detail of the additional abstraction proposal relative to recent actual" and that there should be consideration of, "the appropriate evidence required and potential deterioration risk to meet your responsibility within WFD Regulations." Deterioration falls into two categories according to Regulations 16 and 17 of the WFD Regulations. Regulation 16 concerns temporary deterioration, which includes natural causes, force majeure, and a requirement to take all practicable steps to prevent further deterioration. Regulation 17 concerns new modifications to the physical character of a waterbody, which covers new development or the renewal or variation of a groundwater licence. The drought plan actions listed above do not fall within the criteria for either. Regulation 19, which concerns modifications to the physical characteristics of a water body, is also not applicable because no new infrastructure or physical alterations are proposed.

Stage 1 identified that the Level 3b Coldfair Green drought action could affect the Waveney and East Suffolk Chalk & Crag groundwater body and the Hundred River waterbody. Similarly, Stage 1 identified that the Level 2 Denver HoF Variation drought action could affect downstream receptors including the Ely Ouse (South Level), Relief Channel, Great Ouse, Wash Inner and Wash Outer waterbodies. Both actions were therefore progressed to Stage 2 WFD Assessment.

The Stage 2 WFD assessment for Coldfair Green concluded that the drought action is unlikely to cause deterioration in WFD ecological status or hinder progress towards achieving Good Ecological Potential in the Hundred River or the Chalk & Crag Groundwater Body. The effects of the small increase in groundwater abstraction (~10%) remain within natural hydrological variability. Impacts on WFD quality elements of the Hundred River, as well as the of the Chalk & Crag Groundwater Body, due to increased abstraction and related reduction in compensation flow are expected to be minor overall. Modelling from the environmental assessment report indicated that phosphate levels remain close enough to the Moderate/Good threshold that a change in classification cannot be completely ruled out, a risk which will be managed through targeted monitoring. There is a hydrological pathway to two European Sites through the Hundred River.

However, the predicted change in riverine flow arising from the drought action is considered ecologically inconsequential to the functioning of the downstream European Sites and the qualifying interests of Sandlings SPA are not associated with any hydrological features.

For the Denver HoF variation drought action downstream water bodies and designated sites were screened out at Stage 2 because modelling shows negligible differences between baseline and drought conditions, leaving the Ely Ouse (South Level) Waterbody as the only water body screened in for this action, as the drought action is located within it. The Stage 2 WFD assessment found very low potential for impacts on biological, physico-chemical or hydromorphological elements. The temporary increase in abstraction from a lower HoF during March and April is not expected to affect the water body's progress toward Good Ecological Potential or cause deterioration from its current Moderate status.

Stage 2 compliance assessment for the Level 2 Denver drought order and Level 3b Coldfair Green drought permit, when taking into consideration the potential impacts on WFD elements for the identified waterbodies, concluded that both actions complied with all WFD environmental objectives. Neither action was progressed to Stage 3 detailed assessment.

11.6 Supporting environmental assessments

11.6.1 Invasive non-native species

We have considered the impact of our drought actions on the potential spread of invasive non-native species (INNS) and where applicable we have identified mitigation measures.

11.6.2 Biodiversity no net loss

We have screened our drought actions for any loss of habitats or changes in river condition. No construction or operational land will be required for the drought actions and operations will be temporary; therefore Biodiversity Net Gain assessment is not required.

11.7 Environmental Assessment Reports

For each supply-side drought action requiring a drought permit or order we have carried out action-specific environmental assessments and produced an environmental assessment report (EAR) and monitoring plan. This section outlines our approach to these environmental assessments, a summary of the methodology used and a summary of the outcomes of each environmental assessment.

For other business as usual supply side drought actions and those actions not requiring a drought permit or drought order to implement (see Table 12), we have provided summary tables of the drought actions and their environmental impacts in Appendix 10.

11.7.1 EAR approach

Our environmental assessment reports (EARs) set out the likely impacts on the environment of each of our supply-side drought actions that require a drought permit or order, and how we plan to monitor and mitigate for these. The environmental assessments follow the approach outlined in Figure 20.

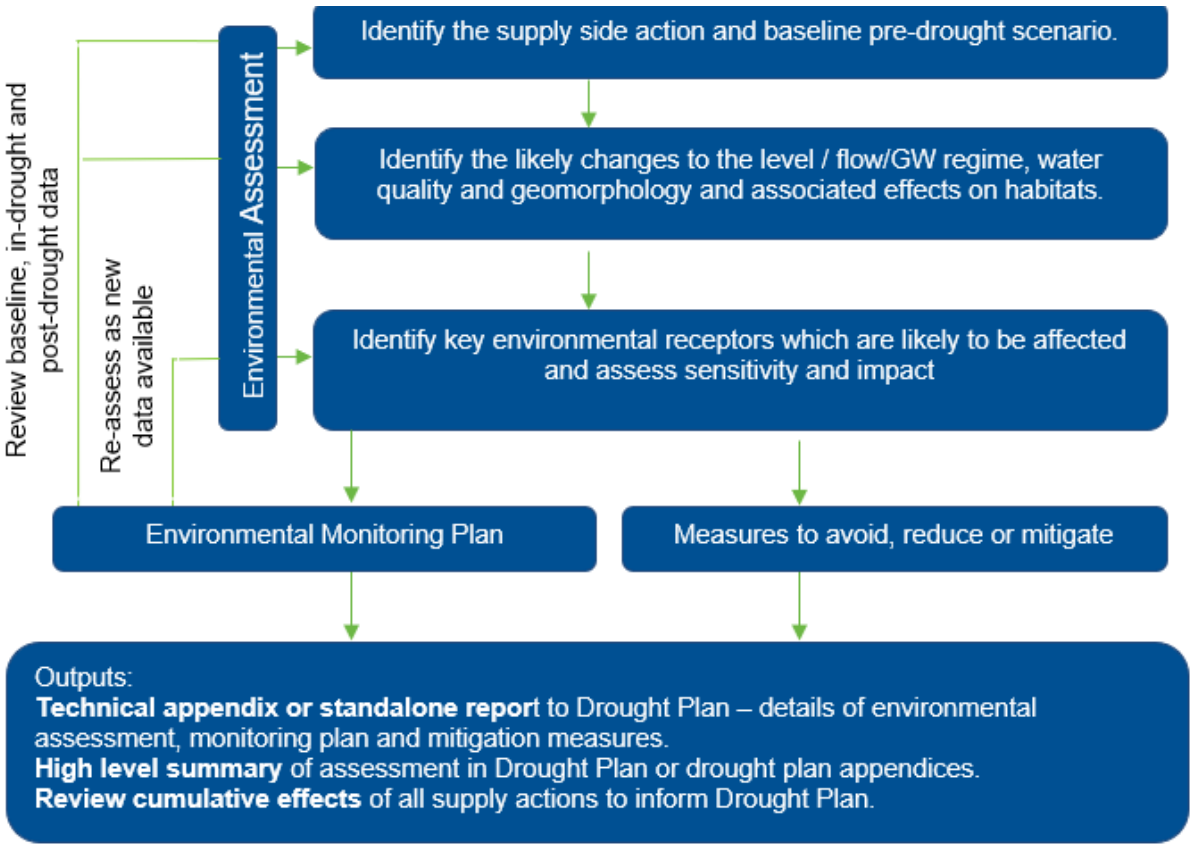


Figure 20: High level summary of our approach to environmental assessments for drought actions. Adapted from 'Environmental assessment for water company drought planning' (EA, 2025).

11.7.2 EAR Methodology

Our EAR methodology follows that outlined in Sections 3.2 – 3.5 of the EA guidance document 'Environmental assessment for water company drought planning' (March 2025).

A key part of our environmental assessments is to understand the impact of our drought actions on each environmental feature of interest and how sensitive they are to the likely changes in hydrology or hydrogeology, and likely associated habitat changes, caused by each drought action.

The features we have considered within our environmental assessments include:

- Hydrology (water flow or level regimes) and hydrogeology (where appropriate)
- Water quality
- Ecology – including ecological status, the quantitative status of groundwater as identified in river basin management plans (RBMPs) and fish populations
- Habitats and geomorphology
- Designated sites and priority habitats and species

- Conservation of biodiversity in our role as a public authority under the Natural Environment and Rural Communities Act 2006 (NERC)
- Other physical, economic, cultural and heritage issues
- The spread of invasive non-native species (INNS).

The type and quality of environmental datasets available for each drought action varies. The types of evidence that we have used to inform our environmental assessments include:

- Observed historical datasets
- Observed datasets from ongoing monitoring programmes
- Expert judgement relating to specific habitat types
- Evidence from other nearby sites which are similar to our site of interest
- Modelled / simulated datasets.

Having access to good quality, long term environmental datasets is beneficial to aiding our understanding of how the environmental features at the site of each drought action respond to changing water flow and level conditions and how likely they are to be affected by our drought actions. Where we have identified a lack of data for a specific environmental receptor, this has been included in our environmental monitoring plan (Section 11.8).

We have used a qualitative scale (High, Medium, Low, Not Sensitive, Uncertain) to categorise the sensitivity of the features of interest to hydrological changes. This helps us to then predict the likely impacts of our drought actions on the environmental features of interest. For example, if a feature is categorised as 'not sensitive' it is unlikely that the drought action will cause an impact on this part of the environment.

We also take into consideration the likely environmental impacts of each drought action on each pathway and environmental receptor and classify these as major, moderate, minor or uncertain. Where impacts are considered as major or moderate we have included monitoring and mitigation measures in our plan.

We have allocated a level of confidence of low, medium or high to our environmental assessments. This is based on the quality of the datasets and the evidence and analysis methods we have used to inform our assessments. Where one of our environmental assessments is categorised as low confidence, for example, because it is based on very limited datasets, we have set out in the associated monitoring plan what additional monitoring we will carry out to help reduce this uncertainty.

In the sections below we have used tables to summarise the findings of our environmental assessments, setting out the environmental sensitivity, the likely predicted impacts, the level of confidence allocated to each environmental assessment and any mitigation measures we plan to implement, in order to minimise the environmental impact of our drought actions.

More detail can be found in the accompanying environmental assessment reports themselves (provided in separate technical appendices).

We have not needed to implement any of our supply side drought actions in the last 25 years, so we have no observed data from previous drought action implementation with which to supplement our environmental assessments. Should we need to

implement any of our supply side actions during a future drought, we have set out in our environmental monitoring plans how we will generate appropriate in-drought datasets to understand actual environmental impacts.

11.7.3 Summary EAR outcomes – Coldfair Green borehole

The Coldfair Green borehole drought action comprises three steps. The first is to increase the daily maximum licence from 2730 m^3/day by 10% to 3000 m^3/day. The second step would be dependent on the progression of the drought and actual levels of customer demand and would be to decrease the daily compensation discharge to the Hundred River by 50%, from 205 m^3/day to 102 m^3/day. The third step, if forecast demand necessitates additional abstraction, would be the temporary cessation of compensation discharge, with the 205 m^3/day volume retained for public water supply.

The full technical details of our Coldfair Green borehole environmental assessment, including the monitoring plan, can be found in the environmental assessment report for this drought action. We review this document regularly to ensure it is ready to use if needed and report on its readiness in our annual drought health check.

A summary of the outcomes of the environmental assessment for the Coldfair Green borehole drought action is provided in Table 22.

Table 22: Environmental Assessment Summary table for Coldfair Green borehole drought action

Supply Side Drought Action Name		Coldfair Green licence changes[4]
Supply action information	**Supply action**	Increase daily maximum licence from 2730 m^3/day by 10% to 3000 m^3/day, retaining full compensation discharge of 205 m^3/day. If required, a second step would be to decrease the daily compensation discharge to the Hundred River by 50%, from 205 m^3/day to 102 m^3/day. The third step, if forecast demand necessitates additional abstraction, would be the temporary cessation of compensation discharge release, with the 205 m^3/day volume retained for public water supply.
	Location (WRZ)	Blyth
	Likelihood / level of action	Level 3b – severe drought
	Trigger	Zone deployable output below the groundwater threshold level 3b curve. Only indicative, also dependent on other resource availability and that all relevant prior level 1-3a actions are in place.
	Deployable output of action	<0.27 Ml/d if increase daily licence from 2.73 Ml/d to 3.0 Ml/d and an additional <0.205 Ml/d under cessation of compensation discharge.
	Implementation timetable	6-8 weeks. Likely to be required in summer when drought linked to peak demand.

[4] Source: Essex & Suffolk Water (2026) Environmental Assessment Report: Coldfair Green Drought Action

	Permissions required and constraints	Requires **drought permit**.
	Risks associated with the action	Objections may mean that permit cannot be granted.
Summary of environmental assessment (including mitigation measures)	**Overall environmental impact** (minor, moderate, major or uncertain)	Minor – pathway analysis demonstrated generally low to negligible changes in hydrology, hydraulics, water quality and geomorphology across much of the Zone of Influence (ZoI).
	Level of confidence (H,M,L)	Low – Monitoring, although long term and ongoing, does not extend through a drought where this action has been required.
	Summary of likely environmental impacts	**Environmental impact has been assessed against the step 3 scenario with no compensation discharge.** • Statutory designated sites - Medium sensitivity, Moderate impact on SSSI. • NERC habitats – Medium sensitivity, Moderate impact. • NERC species – Minor sensitivity, Minor impact. • INNS – Low sensitivity, Minor impact. • Macroinvertebrate- Low sensitivity, Low impact. • Fish – Medium sensitivity, Moderate Impact. In-combination: Assessment concluded there is not in-combination deterioration in WFD status class for any quality elements and the action does not introduce a new mechanism of failure beyond existing baseline pressures. Effects on designated sites and priority wetlands were assessed to be Minor to Moderate, localised and reversible. For macrophytes, macroinvertebrates and priority species (exc. Fish), effects were assessed to be Minor. Fish, under step 3, were assessed to be Moderately affected, but with no step-change in ecological status.
	Summary of baseline information used	• ESW abstraction data • BGS geological data • Model scenarios in EA NEAC model • Hydraulic model • Groundwater levels in abstraction/observation boreholes • River flow data for Hundred River & Leiston Beck • Local designated site information and priority habitat / species records. • GW quality parameters for Crag aquifer • EA WFD classifications and water quality data in local surface and ground waterbodies. • Water quality parameters in Hundred River & Leiston Beck (incl. temperature & DO) • Surface water levels in wetland ditches • Rainfall data. • Socio-economic baseline data

	Summary of additional monitoring required	Increase the frequency of river flow, DO, pH, temperature and phosphate monitoring in the Hundred River during pre-permit application and post-implementation. Undertake a pre-application observation survey for fish, with twice weekly observations for the first 2 weeks of implementation, and weekly for the rest of the permit's duration. Within 3 months of post drought recovery, fish observations are to be monthly. Macroinvertebrate surveys during post-drought recovery. On an ad-hoc basis during the permit's implementation, if concerns are raised, targeted botanical walkovers of the North Warren reedbed will occur.
	Summary of mitigation measures	Early withdrawal of drought permit if water quality monitoring indicates DO <5 mg/l sustained for <48 hours, or phosphate greater than the WFD threshold. Fish rescue / relocation if fish distress is observed or DO concentrations suggest acute fish risk. Restoration of the compensation discharge if observed wetted permitter reduction exceeds the modelled precautionary thresholds at designated sites/reedbeds. Check/clean/dry protocols if new INNS spreads are identified.
	Permits / approvals needs for mitigation measures	Any mitigation measures implemented on third party land will require landowner permission.
	Impact on other activities (e.g. fisheries, industry)	Even under the step 3 scenario with no compensation discharge, there was no identified impact on heritage sites, agricultural economy or recreation and tourism. There was a moderate impact on protected rights, same as identified with a typical drought, which will be monitored.

11.7.4 Summary EAR outcomes – Denver Drought Order

The Denver Drought Order involves reducing the Hands-off Flow (HOF) from 318,226 m^3/day to the lower HoF value of 113,652 m^3/day during March and April following a drought, in order to support the refill of Hanningfield and Abberton reservoirs.

The full technical details of our Denver Drought Order Environmental Assessment, including the monitoring plan, are in the environmental assessment report for this drought action. We review this document regularly to ensure it is ready to use if needed and report on its readiness in our annual drought health check.

A summary of the outcomes of the environmental assessment for the Denver Drought Order is provided in Table 23.

Table 23: Environmental assessment summary table for Denver drought order.

Supply Side Drought Action Name		Denver licence variation[5]
Supply side action information	**Supply action**	Reducing the hands off flow (HoF) during March and April from 318,226 m^3/day to the lower HoF value of 113,652 m^3/day.
	Location (WRZ)	Essex
	Likelihood / Level of action	Level 2
	Trigger(s) Or preceding actions	Decision trigger to apply for the drought order when reservoir storage reaches the Stour Augmentation Groundwater Scheme/Great Ouse Groundwater Scheme control curve trigger.
	Demand Saving or DO of action (Mld)	Could allow up to 200 Ml/d additional water to refill reservoirs.
	Implementation Timetable Preparation time, time of year effective, duration	8-12 weeks. Would be implemented in spring following summer drought, depending on reservoir refill probability.
	Permissions required and constraints Including details of liaison carried out with bodies responsible for giving any permits or approvals	The Denver licence is held by the EA so a **Drought Order** would be required to implement this drought action.
	Risks associated with action	Risk that Drought Order is not granted. Risk that sufficient water not available at Denver to deliver anticipated benefit.
Summary of environmental assessment (incl. mitigation measures)	**Overall environmental impact** (minor, moderate, major or uncertain)	Minor - drought action would result in negligible changes to hydrology, hydraulics, water quality and geomorphology, with all receptor-level impacts assessed as Minor and Not Significant.
	Level of confidence (H, M, L)	Medium-High
	Summary of likely environmental impacts	• Designated sites – Low sensitivity, Minor impact. • NERC species/habitats – Low sensitivity, Minor impact (note otters were classified as Medium sensitivity). • INNS – Low sensitivity, Minor impact. • Phytoplankton- Not sensitive, Minor impact. • Fish – Low sensitivity, Minor impact. In-combination: The drought order is not predicted to give rise to significant cumulative or in-combination environmental effects beyond those already assessed for the drought action alone. Overall

[5] Essex & Suffolk Water (2026) Drought Action Environmental Report: Denver Drought Action

		cumulative effects are assessed as Low, with Minor significance at Medium to High confidence, reflecting the robustness of the modelling evidence and the conservative assumptions adopted in the assessment.
	Summary of baseline information used	• EA WFD classifications and water quality data in local surface and ground waterbodies. • EA rainfall data. • BGS geological data. • Local designated site information and priority habitat / species records. • Long-term flow data at Denver, where Great Ouse divides. • Cross-sectional geometry from the EA flood-risk model. • Socio-economic baseline data. • Fish and ecological monitoring.
	Summary of additional monitoring required	• Daily review by the EA of continuous flow monitoring for HoF compliance post-implementation and for 2 weeks after cessation. • Daily review by ESW and EA of continuous flow monitoring to ensure protected right compliance post-implementation. • Fortnightly spot samples post-implementation, of water quality for WFD compliance, with one sample at one-month post-cessation. • Fortnightly walkovers post-implementation, for algal blooms and phytoplankton indicators, with one survey post-cessation. • Incident Observations and fortnightly post-implementation, with one post-cessation inspection.
	Summary of mitigation measures	Given the negligible magnitude of predicted impacts identified by hydrological, hydraulic and water-quality modelling, no receptor-specific mitigation measures are required beyond standard operational monitoring and stakeholder liaison. Should monitoring during implementation indicate unforeseen environmental effects, the early withdrawal of the HoF reduction would occur.
	Permits / approvals needs for mitigation measures	N/A
	Impact on other activities, e.g. fisheries, industry	Protected rights, economic tourism/agriculture, water-based recreation and cultural events were all identified as Medium sensitivity, with Minor impact. Land-based recreation and heritage were classified as Low sensitivity, and Minor impact.

11.8 Environmental monitoring

Environmental monitoring is a key component of the drought planning process, helping to inform understanding of the likely and actual environmental impacts of our supply side actions.

Baseline monitoring helps to inform understanding of the nature of the environment under normal (non-drought) circumstances, and how sensitive the environmental features might be to changes in flow. It is also fundamental to assessing the actual environmental impact of our supply side actions by allowing comparison of the environment under normal conditions against observed environmental datasets collected during and after a drought. While the level of monitoring required is risk-based and potentially different for each drought action, the importance of long-term, high-quality datasets is recognised, given that normal environmental conditions are variable and may demonstrate a trend of change over time, for example, due to climate change, water quality improvements etc.

In-drought monitoring helps to assess the actual environmental impacts of a drought action during the drought and informs the choice and implementation of mitigation measures. Post-drought (recovery) monitoring helps to assess the longer-term environmental impacts of, and recovery of the environment from, the implementation of our drought actions.

We have tailored our environmental monitoring programme to the needs of the specific environmental assessment for our supply side actions. We have focused our monitoring effort on receptors that have a moderate category of impact or greater, or where we have a medium/low confidence in our environmental assessment. The key types of environmental monitoring likely to be required include:

- Ecological (e.g. macro-invertebrates, fish, macrophytes, INNS, protected habitats and species);
- Hydrological (e.g. flow and level);
- Geomorphological (e.g. walkover surveys);
- Water quality (e.g. dissolved oxygen, temperature);
- Temperature;
- Other supporting information (e.g. fixed-point photography).

In addition to our own monitoring we also make use of monitoring carried out by other organisations, such as the Environment Agency. We have set out in our environmental monitoring plans where we have, or plan to, use such datasets. We check with these organisations regularly to keep our data up to date and to understand whether their monitoring remains ongoing.

We have considered how we can design our monitoring programmes to try to understand the difference between natural environmental variance, the impact on the environment of natural drought, our normal level of licensed abstraction and the implementation of our supply side drought actions. Where possible we aim to use a Before-After-Control-Impact (BACI) approach to inform this.

We have set out the monitoring that we will carry out to understand the environmental impact of our supply side actions, including baseline monitoring, in-drought and post-drought (recovery) monitoring. For the Coldfair Green and Denver

drought actions, the monitoring plan is summarised in Tables 22 and 23 and included, alongside our environmental assessments in separate documents.

11.9 Mitigation measures

In our EARs we have set out how we will mitigate for or reduce the adverse impacts on the environment of our supply side drought actions. We have considered these in terms of:

- Pre-drought mitigation actions that we will implement before a drought, or while a drought is developing to reduce the likely environmental impact of our drought actions;
- In-drought mitigation actions that we will implement during a drought to minimise the environmental impact of our drought actions;
- Post-drought mitigation actions that we will implement following a drought to reduce any environmental impacts that may occur as a result of the actions we implement.

We have also considered:

- Whether the mitigation measures we are proposing will be effective for the features that could be at risk from our drought management actions;
- How we will monitor the effectiveness of implementing these mitigation measures;
- Any additional permits or approvals that we would need to obtain in order to implement our mitigation measures.

As a drought unfolds we would review our planned mitigation measures before implementing them, taking into consideration the unique features of the specific drought and using our monitoring data to inform our choice of mitigation measures to implement.

We have discussed our proposed mitigation activities with the Environment Agency, Natural England and other affected parties.

For the Coldfair Green and Denver drought actions, the proposed mitigation activities are summarised in Tables 22 and 23 and included, alongside our environmental assessments in separate documents.

11.10 Relevant legislation

We have taken steps to ensure that we comply with all relevant environmental legislation as outlined in the Environment Agency guidance document ‘Environmental assessment for water company drought planning’ (Environment Agency, 2025), particularly where our drought actions may affect protected areas or designated sites.

11.10.1 Strategic Environmental Assessment

Strategic Environmental Assessment (SEA) is a statutory requirement under the European Union Directive 2001/42/EC, more commonly known as the SEA Directive. We have complied with this legislation by conducting an SEA of our drought plan. For more information on how this assessment was carried out and the outcomes, see section 11.3.

11.10.2 Habitats Regulations

As a competent authority, we must legally carry out assessments under the Habitats Regulations, known as a habitat regulation assessment (HRA), to test if any of our proposed drought actions could significantly harm the designated features of Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites. We have complied with this legislation by conducting an HRA of our drought plan. For detailed information on how this assessment was carried out and the outcomes, see section 11.4.

11.10.3 River basin management plans (RBMPs)

The Water Framework Directive (WFD) established a legal framework for managing the water environment across Europe and these requirements were translated into domestic law post-Brexit principally in the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (WFD Regulations). We have complied with this legislation by conducting a WFD compliance assessment for our drought plan. For detailed information on how this assessment was carried out and the outcomes, see section 11.5.

We have not needed to apply for a drought permit or drought order in the previous 25 years. The last time we imposed a hosepipe ban (now a temporary use ban) was in 1997/98. There have been subsequent dry / drought years, notably in 2025, when only an appeal for restraint was required. We therefore think that it is reasonable to conclude that a Suffolk drought worse than 1996/97 (Suffolk design drought year) and an Essex drought worse than 1933/34 (the Essex WRZ design drought year) would be required before we would even need to consider drought permits. Consequently, we consider that article 4.6 would allow for any temporary deterioration caused by ESW drought permit applications.

Nevertheless, in line with the WFD Regulations, we would ensure that all practicable steps were taken to prevent any deterioration in status and to limit it where possible and we have undertaken a WFD assessment and have considered the effects of our supply side drought actions on WFD objectives and water body classification. The results are summarised in section 11.5 presented in our separate WFD compliance reports.

11.10.4 Other relevant legislation

We have demonstrated our compliance with the following legislation via the individual drought action EARs, which are provided as separate technical reports alongside our drought plan.

- Wildlife and Countryside Act 1981 - Under the Wildlife and Countryside Act 1981, we as a Water Company are required to take reasonable steps to further the conservation and enhancement of Sites of Special Scientific Interest (SSSI).

- Habitats and species of principal importance and locally important sites - As a statutory undertaker we have a duty to consider the general biodiversity objective in Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 whilst carrying out our environmental assessments.

- Fish and Fisheries - The principal fisheries legislation that we have considered when undertaking our environmental assessments include the Salmon and Freshwater Fisheries Act 1975, Water Resources Act 1991 and Environment Act 1995. Certain fish species and fish stocks are also protected by the Habitats Regulations, the Wildlife and Countryside Act 1981, Eels Regulations 2009 and the requirements of the Water Environment (Water Framework Directive) Regulations 2017. Fish species of principal importance included in the Natural Environment and Rural Communities (NERC) Act 2006 have also been included.

- Invasive non-native species (INNS) - Aquatic and riparian INNS can cause the ecological status of WFD water bodies or protected sites to deteriorate or not achieve their ecological objectives. Additionally, we are at risk of committing an offence under the Wildlife and Countryside Act 1981 if our operations spread INNS listed in Schedule 9 to the Act.

12 Historic Environment Assessment

12.1 Overview

The actions outlined in this drought plan, such as temporary water transfers and increased abstraction can have adverse environmental effects on the water bodies that support waterlogged and water adjacent heritage sites. The effects of drought itself on the archaeological record are not considered in this document.

We have discussed the need for historic environmental assessments, including our mitigation measures, and monitoring plans with the Environment Agency and, where our drought actions may affect a nationally or internationally protected historic site, with Historic England. Although the north-east of England within our supply area has few sites that could potentially be affected by our drought actions, we have ensured we have made appropriate consideration of them.

12.2 Impacts

The actions considered in this drought plan have the potential to cause the following negative impacts on the historic environment and any such actions should be discussed with local planning authorities to see how these impacts could be mitigated:

- Building subsidence: The drying of soils leads to ground movement and subsidence, which can cause cracking or structural failure in historic buildings and monuments.
- Archaeological degradation: Prolonged drying will cause the desiccation of wetlands, which can destroy waterlogged archaeological and palaeoenvironmental remains.
- Erosion and stability: Lowering water levels exacerbates soil erosion and can destabilize riverbanks, damaging bridges and structures near changing water courses. This risk is limited during periods of drought where sub-aerial erosive processes are minimal.

The historic landscape should also be considered and if possible negative impacts mitigated against:

- Plant and tree Loss: Lowering water levels may harm historical designed landscapes by stressing or killing specimen trees and heritage plants.
- Water features: Changes in water tables and drought actions (such as abstraction) can dry up ornamental lakes, fountains, and historic water features.

12.3 Policy and Guidance

We have taken steps to ensure that we comply with all relevant environmental legislation:

- Historic England and local heritage services will be explicitly included in these planning processes to protect designated and non-designated heritage and landscapes.
- Granada Convention (1985) Convention for the Protection of the Architectural Heritage of Europe
- Valletta Convention (1992) Convention on the Protection of Archaeological Heritage of Europe
- The World Heritage Convention (UNESCO) 1972
- Charter for the Protection and Management of Archaeological Heritage (1990)
- Historic England (2016) Sustainability Appraisal and Strategic Environmental Assessment Historic England Advice Note 8.
- European Union Directive 2001/42/EC.
- UKWIR Environmental Assessments for Water Resources Planning (21/WR/02/15) (2021).

Reference to specific legislation and guidance, and how it has been applied can be found in the main SEA report (see Section 11.2) or in individual Drought Action EARs (see section 11.7).

12.4 Strategic Environmental Assessment (SEA)

Strategic Environmental Assessment (SEA) is a statutory requirement under the European Union Directive 2001/42/EC, more commonly known as the SEA Directive. Historic England has produced advice regarding historic environment considerations as part of the SEA process (Historic England, 2016) including:

- Consideration of the historic environment should include the potential for LSEs on non-designated heritage assets, including archaeological remains.
- The guidance sets out key baseline information that can help identify sustainability issues relating to the historic environment.
- Examples of criteria for decision-making are included in the guidance, including whether the plan will alter the hydrological conditions of water-dependent heritage assets, including organic remains. This includes consideration of the hydrological setting of water dependent assets (such as important wetland areas with potential for paleo-environmental deposits).
- Guidance is provided for the prediction of significant effects on the historic environment and principles that may be helpful in assessing impacts on the historic environment and their subsequent integration with the wider assessment of the plan.
- Examples of possible mitigation measures for the historic environment are also provided.

We have complied with this legislation by conducting a drought plan SEA assessment and Historic England were included as a consultee for our SEA scoping exercise. Our SEA objectives included historic environment which were assessed against the following criteria:

- Will the action affect designated or non-designated historic assets, sites and features?
- Will the action affect the setting and/or significance of a historic asset?
- Will the action affect archaeology (including unknown archaeology)?
- Will the action alter the hydrological conditions of water-dependent heritage assets, including organic remains?

For a summary of our SEA methodology, please see Section 11.3.2.

12.5 Environmental Assessment Reports

As per the EA guidance document ‘Environmental assessment for water company drought planning’ (March 2025), environmental assessments should include details of the likely impacts of our supply actions on heritage (including the historic environment). We consequently defined a ‘zones’ around the impacted water bodies (the extent of which was dependent on drought action specifics) which was then assessed using historic environment resources such as the National Heritage List for England (NHLE), Keys to the Past Online Historic Environment Record, local County Council Conservation Area Maps, and selected secondary sources. Based on the types of features identified and the potential impact pathway, the risk magnitude was then assessed.

Appendix 11 provides a summary of the EAR outcomes for each drought action including the impact on heritage receptors which includes the historic environment.

13 RECOVERY FROM DROUGHT

The recovery from drought will be based on the latest rainfall, reservoir storage, groundwater levels, river flows and customer demand data which will be monitored by our Water Resources team and Drought Management Group.

A key factor in deciding to move to Recovery status is the Environment Agency moving the region into its Recovery drought status. We will also use reservoir storage and aquifer levels increasing through our defined Level 1, 2 and 3 drought triggers to indicate if the region is recovering from a drought.

Worked examples in Appendix 7 show examples of recovery and actions that would be taken.

14 END OF DROUGHT

14.1 End of drought triggers

The true end of a drought can only be determined retrospectively. A key trigger will be when actual reservoir storage or groundwater levels are above the Level 1 Drought Action control curve for 2 weeks. However, we will take an agile approach to deciding whether to return to business as usual (i.e. non-drought) messaging and will consider:

- operational experience;
- water resources forecasts using our Aquator and Aquimod models
- whether there is an improving situation with increasing reservoir levels, lake levels and groundwater levels;
- the time of year (i.e. whether going into summer or winter); and
- the short and medium term weather forecasts.

We will make a careful judgement as to whether to remove restrictions since an apparent ending of drought conditions could easily be confused with a temporary respite in a prolonged drought sequence. Additionally, decisions will be balanced with the need to avoid impacting on customers and business for longer than is necessary.

Prior to concluding a drought has ended, we will consult neighbouring water companies, Water Resources East and other interested stakeholders to obtain their view on drought recovery. We will only declare the end of a drought after confirming with the Environment Agency that the water resource situation and associated threat to public water supply has returned to normal. We will communicate this to our customers as outlined in our Communications Plan.

If Level 3 drought permits were required, we will continue to carry out environmental monitoring and assessment for a period after hydrological triggers have recovered to understand how the environment is recovering. We recognise that some species and habitats will take longer to recover from drought and potential drought actions than others. Consequently, we confirm that recovery monitoring (ecological and hydrological) will continue until full recovery is observed and agreed with Natural England.

14.2 Reviewing our plan performance after drought

We will complete a Post Drought Review (PDR) comprising data collation and report writing within four months of confirmation of the end of a drought. It will be overseen by our Drought Management Group, with all members contributing.

The review will identify lessons learnt and also consider potential improvements both to our Drought Plan and wider drought management strategy. Additionally, where appropriate, the need for future investment to limit the impact of similar drought conditions occurring in the future will be considered, as will the need for any additional monitoring. The PDR will examine:

- the hydrological conditions leading up to the drought and the effectiveness of our drought indicators;
- the effectiveness of drought trigger levels and whether they should be reviewed and amended, including lead-in times to implement actions;
- the effectiveness of our drought actions, whether our chosen actions were the most appropriate and whether we could have acted more quickly;
- whether we managed risk appropriately with regards to our operational response, and internal processes;
- assess how our estimates of reductions in water demand for each of the measures introduced compared to actual reductions observed and consider the potential influences of other factors on these findings such as the weather;
- the effectiveness of our liaison with other neighbouring water companies, NAVs and water retailers, regional water resources groups and others such as the local resilience forums to implement drought management actions where required;
- the monitoring data to determine the actual environmental impacts of our drought management actions, and the effectiveness of any mitigation measures we deployed;
- lessons learnt to improve our environmental assessments, monitoring plans and mitigation measures in our drought plan;
- the effectiveness of our communications plan;
- how effective our data and information sharing was with regulators, the National Drought Group and subgroups, regional water resources groups and other relevant groups;
- implications of the drought for future levels of service;
- what longer term improvements to resilience may be needed and to reflect this in our next WRMP.

We recognise that the environment often takes longer to recover from the effects of drought than hydrological indicators. If we have implemented any supply-side drought actions, we will continue to carry out relevant post drought monitoring until we have collected sufficient data to know when the environment has recovered.

Any improvements to our drought management process and drought plan identified from the Post Drought Review will be made where appropriate and shared with the Environment Agency.

Our lessons learnt from the 2022 and 2025 droughts can be found in Appendix 20 and 21 respectively.

14.3 Revision of Drought Plan

We will review our drought plans annually and will update them in line with the Drought Regulations it if there are any material changes.

REFERENCES

Environment Agency (2025) Water company drought plan guideline, LIT 74637, Version 1.4, March 2025.

Environment Agency (2025) Environmental assessment for water company drought planning.

Essex & Suffolk Water (2024) Water Resources Management Plan, October 2024

Water Resources Act 1991 (WRA 1991)

UKWIR (2011) Code of Practice and Guidance on Water Use Restrictions (11-WR-33-12)

UKWIR (2017) Drought Vulnerability Framework

UKWIR (2021) Environmental Assessments for Water Resources Planning (21/WR/02/15).

UKWIR (2023) Review of 2022 Drought Demand Management Measured Final Report 23-WR-02-17

15 GLOSSARY

AA	Appropriate Assessment
Abstraction	The removal of water from any source, either permanently or temporarily.
Abstraction licence	The authorisation granted by the Environment Agency to allow the removal of water from a source.
AMP	Asset Management Period- 5 year cycles set by OFWAT which dictate water company investment and performance targets.
Baseline	Information on the environment that details conditions prior to implementation of a drought action.
BAU	Business As Usual
Bulk transfers	A legal agreement for exporting and importing water between a donor and recipient operator.
Control curves	A diagram or graph presenting drought triggers levels.
CSLs	Customer Side Leaks
Demand management	The implementation of policies or measures which serve to manage control or influence the consumption or waste of water.
Deployable output	The output of a commissioned source or group of sources or of bulk supply as constrained by the environment, abstraction licence, pumping plant and/or well or aquifer properties, raw water mains and/or aquifers, transfer and/or output main, treatment or water quality.
DI	Distribution Input
DMA	District Metering Area(s)
DMG	Drought Management Group
Drought management Area (DrMA)	The area (within a resource zone) that a particular drought management action will apply to as specified.
Drought order (DO)	An authorisation granted by the Secretary of State under drought conditions which imposes restrictions upon the use of water and/or allows for abstraction/impoundment outside the schedule of existing licences on a temporary basis.
Drought permit	An authorisation granted by the Environment Agency under drought conditions which allows for

	abstraction/impoundment outside the schedule of existing licences on a temporary basis.
Environmental assessment	An assessment of environmental sensitivity and likely impacts from implementing drought management actions.
Environmental monitoring plan	A plan describing how the company will address gaps in the environmental assessment of the supply-side drought management action; baseline monitoring (including pre drought monitoring); in- drought monitoring; and post drought monitoring.
Environmental report	The report that accompanies an application for a drought order or drought permit. It is based on the information from within the environmental assessment and updated with any additional information.
Feature	A way of describing an ecological, chemical, habitat or morphological element to be assessed. For example a species of plant or animal, habitat type or sub-habitat type.
Government	Central Government (Defra)
Habitats regulation assessment (HRA)	A HRA identifies whether or not drought actions will have an adverse effect on a site's (SPA or SAC) integrity.
Habitats Regulations	The Conservation of Habitats and Species Regulations 2010. The domestic legislation which transposes the EU Habitats and Wild Birds Directives into UK law and replaces the Conservation (natural habitats &c) Regulations 1994.
HH	Household(s)
In-drought monitoring	Monitoring that is undertake during the implementation of a drought management action.
Levels of service	The standard of service that water company customers can expect to receive from their water company, commonly setting out the frequency of restrictions that a company expects to apply to its customers.
Ml/d	Megalitres per day
NAVs	New Appointments and Variations
NEUB	Non-Essential Use Ban
NDG	National Drought Group
NHH	Non-Household(s)

NNR	National Nature Reserve - designation to protect the most important areas of wildlife habitat and geological formations in Britain, and as places for scientific research.
PRVs	Pressure Reduction Valves
PSR	Priority Services Register
Ramsar site	Internationally important wetland site.
Resilience options	Additional options to deal with plausible droughts worse than those in the recorded record.
River Basin Management Plan (RBMP)	Strategic documents which set out how to work together to improve the water environment according to a series of objectives.
SAC	Special Area of Conservation - Designated under the European Habitats Directive (1991)
SOP	Standard Operating Procedure
SMD	Soil Moisture Deficit
SPA	Special Protection Area - Classified under the European Birds Directive (1979)
SPL	Supply Pipe Leakage
SSSI	Site of Special Scientific Interest - A site given a statutory designation by English Nature or Natural Resources Wales because it is particularly important, on account of its nature conservation value.
Strategic Environmental Assessment (SEA) Directive	The Strategic Environmental Assessment Directive ensures significant environmental effects arising from proposed plans and programmes are identified, assessed, subjected to public participation, taken into account by decision-makers and monitored.
TUB	Temporary (Water) Use Ban - powers granted to water companies to impose restrictions on customers' water use.
UKWIR	UK Water Industry Research
Water Industry National Environment Programme (WINEP)	A programme of actions (Investigations, options appraisal and implementation schemes) water companies are required to undertake to meet the environmental legislative requirements that apply to water companies in England.
Water resource management plan (WRMP)	A water company long-term strategic plan for water supply and demand over 25 years.

Water Resource Zone (WRZ)	The largest possible zone in which all resources, including external transfers, can be shared and hence the zone in which all customers experience the same risk of supply failure from a resource shortfall.
WIA	Water Industry Act
WRA	Water Resources Act
WRE	Water Resources East
WRSE	Water Resources South East
WTW	Water Treatment Works

16 APPENDICES (SEPARATE DOCUMENT)

Separate document on www.nwg.co.uk/droughtplan:

Essex & Suffolk Water Drought Plan 2027 Appendix