

## THE A122 (LOWER THAMES CROSSING) DEVELOPMENT CONSENT ORDER

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### Written Representations

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Interested Party	Northumbrian Water Limited (operating as Essex & Suffolk Water)
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## **1. Introduction**

- 1.1 This is a submission on behalf of Essex & Suffolk Water (“ESW”), the operating name in the south-east of England of Northumbrian Water Limited, in advance of Deadline 1, providing its Written Representations and expanding on matters provided in its Relevant Representation of 23 February 2023.
- 1.2 ESW is the appointed water undertaker for 794,000 properties in Essex and Suffolk by virtue of an appointment under the Water Act 1989 (now the Water Industry Act 1991 (“WIA 1991”)) and therefore has statutory obligations as to public and other water supplies. ESW has a number of assets, including strategically important water mains, within the proposed limits of the draft A122 (Lower Thames Crossing) Development Consent Order (“the dDCO”). In addition, Northumbrian Water Limited is correctly listed in the Book of Reference as the owner of plot 24-133.
- 1.3 ESW has been engaging with National Highways (“the Applicant”) for more than 4 years prior to the application for the Lower Thames Crossing project (“LTC”) being made in November 2022 in relation to the diversions required to ESW apparatus and protections to be provided in the dDCO. ESW is not opposed to the proposed scheme but needs to protect its statutory undertaking and apparatus from the works. The Protective Provisions currently included on the face of the dDCO in Part 1 of Schedule 14 (“the Protective Provisions”) do not provide adequate protections for ESW to address all of the issues raised by the powers sought by the Applicant. Some progress has been made in negotiating provisions of an agreement to adequately deal with ESW’s concerns (“the Side Agreement”) but these are not yet settled and, therefore, ESW needs to protect its interests, if necessary by seeking amendments directly to the dDCO.
- 1.4 Additionally and concurrently, ESW has been in discussions with the Applicant in relation to the supply of water for its tunnel boring machine (“TBM”) since 2019. The relevant teams from the Applicant and ESW most recently met on 23 June 2023. Following this meeting, ESW has produced a further version of a commercial agreement (“the Works Funding Agreement”), in relation to supply of raw water from Linford Well, an ESW owned asset, for further discussion with the Applicant’s relevant team shortly.
- 1.5 The majority of ESW’s concerns relate to the Linford Well, on which further background information is provided at paragraph 2 below. The concerns broadly relate to the use of compulsory powers to take temporary possession of the Linford Well site, and the implications on ESW’s water abstraction licence at the Linford Well site, and water quality, monitoring and pollution affecting any future use of the Well for public water supply. There are also a small number of further issues which are summarised at paragraph 8.

## **2. ESW’s statutory undertaking and legal context**

- 2.1 As a statutory undertaker appointed by Secretary of State for the Environment (now DEFRA) for public water supply ESW has a number of statutory obligations to fulfil, principally through provisions in the WIA 1991, but also associated legislation such as the Water Resources Act 1991 relating to water abstraction.
- 2.2 As a water supply company, ESW is subject to the general duty under section 37 of the WIA 1991. The general duty requires ESW to develop and maintain an efficient and economical system of water supply within its area and to ensure all arrangements have been made -

(i) for providing supplies of water to premises and for making supplies available for those who demand them; and

(ii) for maintaining, improving and extending its water mains and pipes

as required for securing that ESW is and continues to be able to meet its obligations.

- 2.3 There are numerous other specific regulatory duties and powers under the WIA 1991 that ESW is subject to. It is required under sections 37A – D of the WIA to produce a Water Resources Management Plan (“WRMP”) every five years to set out how it intends to secure water supplies to customers for the next 25 years. It is also subject through section 38 to standards of performance regarding water supply which includes a statutory obligation to provide information on performance.
- 2.4 ESW also has domestic supply duties to connect premises to the network within certain timescales where a supply for domestic purposes is requested (sections 45-49) and then to maintain the connection between main and service pipes. The domestic supply duty is to provide water sufficient for domestic purposes, defined in the WIA as "drinking, washing, cooking, central heating and sanitary purposes". It also has a duty to provide services for various other purposes, including for firefighting and other public purposes. ESW is also required to provide supplies for non-domestic services so long as that supply would not affect its ability to meet its existing or future obligations, or unreasonable expenditure would be incurred in meeting those obligations (sections 55-59).
- 2.5 Although ESW has powers to disconnect or reduce supplies where reasonable to carry out necessary works, that comes with a duty to inform customers except in an emergency and to ensure the works are carried out with reasonable dispatch and to provide emergency supply where a domestic supply is interrupted for more than 24 hours.
- 2.6 There are other obligations under the WIA 1991 ESW must meet, such as the duty to provide water at a sufficient pressure and to ensure that the water is "wholesome at the point of supply". The Water Supply (Water Quality) Regulations 2016 (England) (as amended) (SI 2016/614) determine what is wholesome and the Drinking Water Inspectorate (appointed by the Secretary of State) monitors and regulates the water quality.
- 2.7 Through production of a WRMP, ESW is required to identify and appraise a range of options for the provision of water to customers, justifying the preferred plan and demonstrating how supply will be secured whilst protecting and enhancing the environment, preventing deterioration as a result of abstraction and protecting drinking water areas. Pre-consultation discussions must be carried with a number of statutory consultees so as to inform the WRMP, including the Environment Agency, the Secretary of State and Ofwat.
- 2.8 It may be appropriate, in certain circumstances, for the WRMP to extend 50 years or more into the future depending on the local risks or challenges. In developing a new WRMP, a review of the previous version should be undertaken and an assessment should be made of changes that have occurred in that time and why.
- 2.9 Once published, ESW must report on their WRMP annually to the Secretary of State, preparing revised drafts where there are any material changes of circumstance.

### 3. Linford Well – Overview

- 3.1 The Linford Well is a chalk aquifer groundwater source, located near Grays within ESW's Essex Water Resource Zone ("WRZ"), which has a population of 1.78 million people. The WRZ is part rural and part urban, with the main areas of population being in Chelmsford, Southend and the London Boroughs of Barking and Dagenham, Havering, and Redbridge.
- 3.2 The Essex WRZ extends from Witham in the north, down to Grays in the south, and from the London boroughs across to Southend-on-Sea to the east (figure 1).



Figure 1: The Essex Water Resource Zone and location of Linford Well

- 3.3 ESW holds a valid abstraction licence under section 24A of the Water Resources Act 1991 for the Linford Well for the purposes of public water supply and managing water levels. The Well is located within a groundwater inner Source Protection Zone (SPZ1). An SPZ1 is the area of land within a minimum default radius of 50-metre of a groundwater source, defined as the 50 day travel time of a contaminant from any point below the water table to the

source. The protection zone is, by definition, there to protect the groundwater beneath and, therefore, the groundwater source/abstraction from potential pollutants.

- 3.4 The current version of the licence was granted by the Environment Agency on 30 March 2023, having been originally issued in 1966. A copy of that licence is appended to these representations as Appendix 1. In October 2010, the Linford Well water source was taken out of supply and is not currently used for the supply of public water. At that time, there were detections of elevated manganese levels which, although at concentrations within regulatory levels for drinking water, risked causing discoloured water events. The original treatment process installed at the site was simple chlorination, with no filtration, which does not reliably address discolouration. With no abstraction for public water supply occurring, the Linford Well became artesian and now discharges into a watercourse adjacent to the source, called Gobian's Sewer. Despite this, the licence remains in place to enable use for public water supply.
- 3.5 Under the requirements of the licence ESW is required to control the discharge to Gobian's Sewer by limiting the rate of water discharging into it and not discharging when the water level in the Sewer exceeds a given level. To achieve this, ESW is required to monitor and record water levels every 15 minutes via manual gauge board readings and water level sensor readings and must keep the relevant monitoring equipment in good condition. The licence also includes conditions requiring abstraction levels to be maintained at an adequate level so as to avoid any additional risks of local flooding.
- 3.6 In ESW's current Water Resources Management Plan (WRMP19)<sup>1</sup>, which covers the period 2020-2025, the Essex WRZ was assessed as being in surplus with regards to its supply demand balance. Therefore, it was not cost beneficial to install water treatment apparatus at the Linford Well and bring the site back into supply during the current Asset Management Period (AMP7), 2020-2025. ESW is in the process of finalising its Water Resources Management Plan 2024 (WRMP24), which will cover the period 2025 to 2050, An initial draft was consulted on in late 2022 and Spring 2023 and a summary of this draft is included as Appendix 2 to this document. New regulatory requirements require ESW to meet future predicted demands, whilst protecting the aquatic environment under a changing climate. As a result, ESW is required under the Water Resources Management Plan Direction 2022 to improve by 2040 supply resilience to specified levels during times of severe drought. A new version of the 'Water resources planning guideline' was published in April 2023<sup>2</sup>. This sets out further detailed requirements relating to the duty from sections 37A to 37D of the Water Industry Act 1991 to prepare and maintain a WRMP.
- 3.7 ESW is finalising its revised draft WRMP24 and Statement of Response to Consultation for submission to DEFRA by 25 August 2023. However, the plan cannot be formally published until ESW are authorised to do so by the Secretary of State (who, although it is not expected they will, may require amendments to be made, or a hearing or inquiry or examination in public before that happens). The scheme in WRMP24 includes the construction of additional chalk aquifer boreholes and a new groundwater treatment works. It is intended that the new water treatment works will treat groundwater from the new boreholes and the existing Linford Well after the period of use for the TBM, to increase the available water for domestic supply. OFWAT have granted ESW early 'accelerated' funding, allowing it to start detailed design on the new water treatment works immediately, to ensure the construction and operation of the scheme can occur as early as possible in

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<sup>1</sup> <https://www.nwg.co.uk/globalassets/corporate/reports/esw-final-wrmp19.pdf> (accessed 18 July 2023)

<sup>2</sup> <https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline> (accessed 18 July 2023)

the Asset Management Period 2025-2030 (AMP8). If the new borehole(s) are not able to produce the full 6.6 Mld yield required, or ESW cannot secure an abstraction licence for the full currently available 6.6 Mld, which could be the case if another abstraction licence application is submitted before ESW are in a position to submit theirs, due to the importance of Linford Well as a further potable resource for the Essex WRZ, the fallback will be for the Linford Well to be brought back into public water supply from 2033-4.

#### **4. Discussions with the Applicant before application**

- 4.1 The proposed route for the LTC under the dDCO passes approximately 600m to the west of the Linford Well and in 2019, ESW was informed that the Applicant wished ESW to supply water to the project to be used to operate the TBM(s).
- 4.2 One possible source of this water is the raw (untreated) groundwater abstracted at the Linford Well. As explained in 1.4 above, ESW has been working with the Applicant to agree terms on which this will happen, currently included in the draft Works Funding Agreement. The current draft of the Works Funding Agreement aims to refurbish the Linford Well, involving the demolition of existing buildings on the site and the installation of a new portal frame building to protect the borehole at the Site. It is envisaged that ESW will design, procure, install, and commission a new submersible pumping system at the Linford Well site sufficient to support a raw water supply to the Applicant's TBM. The current draft of the Works Funding Agreement includes a right of first refusal for the Applicant for a supply of water from the Linford Well site up to 3.5 megalitres per day for a maximum of five years from the start of supply of water (or until 31 December 2031 if earlier). This supply will be subject to agreement of commercial terms in accordance with section 55 of the Water Industry Act 1991 under which (as a non-domestic supply) an uninterrupted supply of water 24/7 cannot be guaranteed.
- 4.3 It should be noted that any requirement for water over the 3.5 megalitres per day available as raw water from the Linford Well would need to be taken from one of ESW's potable water supplies. ESW is under the domestic supply duty contained in section 52 of the WIA 1991 which means that domestic supply customers will always be given priority over non-domestic users. Therefore, where water for the LTC project is to be taken from a potable water supply, in the event of any reduction in supply (such as a burst) the supply to the project could be restricted or ceased for a period. In anticipation of the Linford Well being brought back into use for public water supply ESW intends to lay the main from the existing well to the new water treatment works and commission the new treatment works at maximum design capacity, which may require the existing well water as well as the new borehole(s) water. Commissioning is currently expected to happen no later than 2027/2028 to meet commitments to OFWAT to bring the treatment works into operation.
- 4.4 As mentioned in 1.3 above, ESW has also been in discussions with the Applicant for more than 4 years prior to the November 2022 application in relation to the diversions required to ESW apparatus and protections to be provided in the dDCO. ESW needs to protect its statutory undertaking and apparatus from the works. The Protective Provisions do not as drafted provide adequate protections for ESW to address all of the issues raised by the powers sought by the Applicant. Some concerns fall outside the scope of those Protective Provisions and, whilst some progress has been made in negotiating provisions to provide ESW with the necessary protections it needs through the Side Agreement, the Applicant does not yet accept all of ESW's concerns and, whilst discussions remain ongoing, on two fundamental matters the parties remain considerably at odds. If the parties cannot reach

agreement on these matters, ESW requires that amendments are made directly to the dDCO to address its concerns and protect its statutory undertaking.

## 5. Inclusion of powers over the Linford Well in the dDCO

5.1 During negotiations, including of the Works Funding Agreement, prior to the application being made, ESW discussed matters on the basis that the Linford Well would remain in its possession, outside the limits of the dDCO. No discussions were had suggesting that the Applicant was going to pursue compulsory acquisition powers over the Linford Well site. ESW was therefore particularly concerned and surprised to see the inclusion of the Linford Well within the dDCO as applied for and within the limits shown on the accompanying plans. Since the application, ESW has not received an adequate explanation from the Applicant of why the site is included within Order limits.

5.2 The Book of Reference accompanying the application correctly lists Northumbrian Water Limited as the owner of plot 24-133. This plot represents the entirety of the Linford Well site. The plot is included in the dDCO in Schedule 8 (Land of which only new rights etc. may be acquired) and Schedule 11 (Land of which temporary possession may be taken). The purposes set out in those Schedules are:

Schedule 8: *“Utility Works, including the installation or diversion of underground utilities within a multi-utility corridor, and the rights and restrictive covenants to construct, protect and operate, access and maintain those utility works”;*

Schedule 11: *“Utility works, including the installation or diversion of underground utilities within a multi-utility corridor.”* (This relates to Work No. MUT6, which is described in Schedule 1 to the dDCO as being *“as shown on sheets 20, 22, 23 and 24 of the works plans and being the temporary installation of multi-utilities, to include the installation or diversion of underground utilities connections for the construction area Work No. CA5 within a multi-corridor located to the west of East Tilbury and Linford, for approximately 3,184 metres in length.”*)

5.3 This means that, if the dDCO is granted in its current form, the Applicant will have powers to acquire rights over the land at Linford Well site and/or take temporary possession of the Linford Well and has the potential to exclude ESW from or limit access to a licensed abstraction asset. There is nothing in the dDCO to adequately limit or prevent the exercise of these powers over plot 24-133 and at present in the Side Agreement there is nothing to adequately protect ESW if these powers were to be exercised. (The extent of protection in paragraph 6 of the Protective Provisions is not to acquire apparatus. This does not prevent occupation of or acquisition of rights over the land at the Linford Well and the provision as drafted does not extend to allow ESW to impose any terms or conditions on any acquisition). Given the parties are negotiating a Works Funding Agreement and associated Supply Agreement for the supply of water, the inclusion of powers to temporarily occupy or take rights over plot 24-133 is not necessary. ESW can find no justification or compelling case in the Application documents or in responses to queries it has raised with the Applicant for the inclusion of these powers over plot 24-133 in the dDCO.

5.4 If the intention is to ensure access to a water supply for its TBMs, compulsory acquisition powers cannot be used as a means to permit the Applicant to acquire either the abstraction licence, or the water resource itself beneath the land, because neither the water nor the licence is attached to the land and so falls outside the reach of compulsory acquisition.

- 5.5 The “protections” in section 127 of the Planning Act 2008 are engaged in this case in relation to the possible acquisition of rights over this plot. In that regard, under section 127(5) and (6), the dDCO may only include the provision authorising the compulsory acquisition of a right over ESW’s land to the extent that the Secretary of State is satisfied that:
- 5.5.1 the right can be purchased without serious detriment to the carrying on of the undertaking, or
  - 5.5.2 any detriment to the carrying on of the undertaking, in consequence of the acquisition of the right, can be made good by the undertakers by the use of other land belong to or available for acquisition by them.
- 5.6 ESW contends that acquisition of a right over the site could cause serious detriment to ESW’s ability to meet its statutory obligations as detailed below.
- 5.7 Section 127 is not worded so as to apply to protect statutory undertakers from proposed compulsory powers of temporary possession over their land. Therefore, the potential consequences should the Applicant seek to exercise this power at the Linford Well site causes ESW further concerns in relation to its obligations under its abstraction licence, its WRMP24 plans and obligations and regarding water quality issues, each of which are detailed in the sections below.

## **6. Consequences of powers in dDCO and effects on assets and statutory obligations**

- 6.1 As referred to at paragraph 1.4, ESW is in active negotiations with the Applicant in relation to the Works Funding Agreement. ESW has proposed terms in that Works Funding Agreement under which it would be satisfied that it could supply water from the Linford Well of up to 3.5 megalitres per day to the LTC project safely. Any remainder up to 1.5 megalitres a day would be supplied under a request from the Applicant under section 41 WIA. Under the terms currently proposed by ESW, it would remain in possession and control of the Linford Well site. ESW must retain possession of the site, as the abstraction licence holder for the Linford Well in order for it to continue to carry out the requirements under the licence as described at paragraph 3.5. The Applicant, using powers under the dDCO, would construct a pipe up to the boundary of the site and it would be for ESW to provide a connection to the well.
- 6.2 As noted above, if the Applicant is seeking to acquire a right over plot 24-133 or take temporary occupation over it, that would not enable it to acquire the water resource and it would only be able to use that water via a valid abstraction licence.
- 6.3 ESW is, self-evidently, best placed to undertake the works to bring the Linford Well and site back into use, to make the connection to the temporary supply pipe and meet the relevant ongoing commitments necessary to enable the supply of water for the LTC project. Therefore, entering into the Works Funding Agreement would be the most appropriate means to address the supply of water from the Linford Well to the TBMs. The very fact that such agreement is being negotiated makes it clear that the inclusion of plot 24-133 in the dDCO is both inappropriate and premature. There is no need or justification for compulsory powers to be taken over the site given ESW’s willingness to enter into the Works Funding Agreement, which would adequately protect both parties’ interests. Furthermore, if the intention of the Applicant was to use the Order powers to “acquire” the water resource compulsorily, as explained at paragraph 5.4 it is not legally possible to do so. ESW

requires, therefore, that plot 24-133 be removed from the dDCO so that ESW remains in control of its vital asset required for future water resourcing under WRMP24, and can continue to meet its other statutory obligations (including in relation to its abstraction licence).

- 6.4 The need for inclusion of compulsory powers over plot 24-133 within the dDCO is also not borne out by the Applicant's own position as set out in the Environmental Statement and in recent responses to queries raised by ESW. As explained at paragraph 5.3, the impact of the inclusion of plot 24-133 in Schedule 11 of the dDCO is that it would be possible for the Applicant to take temporary possession of the land forming the Linford Well site. However, through the exercise of those powers to temporarily occupy the site, the Applicant would have powers which could potentially prevent access for the carrying out of ESW's usual abstraction licence obligations in relation to inspection, maintenance, monitoring and safety procedures, as described at paragraph 3.4 above, as well as prevent any works required at the site in relation to the new treatment works described at paragraph 3.7, during the construction period for the works authorised by the dDCO.
- 6.5 ESW notes that the Register of Environmental Actions included as part of Appendix 2.2. to the Environmental Statement (reference APP-336) ("REAC") includes at REAC reference number RDWE003: "*Water supplied to the tunnel boring machinery may be groundwater abstracted from a Northumbrian Water borehole at Linford. If this is the case, then extraction rates would be agreed with Northumbrian Water prior to commencement of main tunnelling works and the supply of groundwater would be within the limits of the groundwater abstraction licence*". It therefore appears that the Applicant intends ESW to continue as licence holder, yet by temporarily occupying the site or taking rights over it, it may be able to exclude or limit and therefore frustrate ESW from the ability to exercise its obligations under the licence.
- 6.6 ESW has sought further information from the Applicant on what it intends to happen to the existing ESW water abstraction licence, since, as noted above, the licence is not something which could be compulsorily acquired by the Applicant using powers in the dDCO. Notwithstanding the powers over the Linford Well site included in the dDCO, the Applicant confirmed in writing on Monday 10 July 2023 that its expectation is that ESW remains as licence holder. If that is to be the case, ESW will need access at all times to carry out all of the monitoring activities described at paragraph 3.4 above in order to remain compliant with its current licence obligations. However the retention of compulsory acquisition powers over plot 24-133 in the dDCO will leave ESW with an element of doubt into its ability to fulfil those obligations.
- 6.7 In the correspondence received from the Applicant on 10 July, the Applicant has stated that it is "envisaged" that there would be no restrictions on ESW's access and that ESW would be able to have access in the same way as they do currently. However, as yet, there is no such binding commitment from the Applicant in the Side Agreement to adequately ensure that ESW will be able to meeting its licence obligations. Furthermore, if the Side Agreement and or the Works Funding Agreements were not to be completed, ESW would need to ensure that position is adequately protected through the DCO, either by removal of plot 24-133 from the Order or a further provision to override the Applicant's ability to exercise powers over that plot except with ESW's agreement and on such terms and conditions as ESW may require.
- 6.8 The powers for temporary occupation and rights will also need to be time-limited to enable ESW to connect the Linford Well site to the new water treatment works required under the WRMP24. As these matters could not be addressed by a requirement in Part 1 of Schedule

2 to the dDCO, ESW considers that a dedicated article relating to Linford Well would be required in the dDCO to provide access, notwithstanding the general power of occupation of that plot granted by article 35 of and Schedule 8 to the dDCO.

## 7. Water Quality

- 7.1 As well as ESW's specific concerns relating to exercise of dCO powers which could frustrate the abstraction licence obligations and public water supply obligations at the Linford Well when it is required to be brought back into use, ESW has broader concerns about the effects of construction and operation of LTC on water quality and the possibility of pollution or contamination incidents affecting the water source.
- 7.2 ESW has concerns that the dDCO contains powers not only for compulsory acquisition of the Linford Well (and control of it), but also for the carrying out of construction of permanent works within the source protection zone for the Linford Well (SPZ1). Each carries a potential risk of contamination to the groundwater source yet there are insufficient mechanisms and protections included within the dDCO application, such as monitoring the water quality and contingent arrangements, if the water supply were to be contaminated during construction or operation of the LTC.
- 7.3 As the WRMP24 provides for future reinstatement of the Linford Well to public potable water supply it is very important that the water quality is not affected by the construction or operation of the works authorised by the dDCO. If the Linford Well water source suffers any detriment to its quality this could jeopardise the future use of the asset and, therefore, the security and resilience of public potable water supply of the Essex WRZ, which ESW has a statutory obligation to maintain.

### Potential for contamination - construction

- 7.4 The Linford Well draws water from the chalk aquifer, which is overlain by permeable strata (the river terrace deposits and the Thanet Formation). Therefore, the aquifer at this location is 'unconfined'<sup>3</sup>, meaning that there is a pathway for surface waters to permeate the soil and reach the aquifer. If this surface water contains contaminants such as hydrocarbons, from a fuel spill for example, or other chemicals, then this will be carried down into the groundwater.
- 7.5 Although the REAC confirms in REAC reference number RDWE019: ground treatment: "*Chemicals and materials, such as cement, grout and lubricants used during construction activities in proximity to any groundwater Source Protection Zone would be stored, transported and used in a suitable manner to safeguard potable water supply*" and REAC reference numbers GS004 and GS005 confirm no chemical and fuel storage will be located within SPZ1 and no plant refuelling will take place within SPZ1, that does not guarantee that such a spillage will not occur. The risk of potential damage will exist despite the mitigation measures which will be applied. ESW is surprised that these commitments are as far as the Applicant is prepared to go to deal with any effects in SPZ1 and, despite the risks, there is no commitment to monitor the water source during construction.
- 7.6 Hydrocarbons are not removed with conventional water treatment processes, and water contaminated with hydrocarbons is unsafe for human consumption. Furthermore,

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<sup>3</sup> Confined aquifers have a layer of impenetrable rock or clay above them, while unconfined aquifers lie below a permeable layer of soil.

hydrocarbons can permeate buried plastic water pipes, causing an unpleasant taste and odour in the water moving through those pipes. A detectable taste and odour in the potable water supplies to customers would breach the Water Supply (Water Quality) Regulations 2016 (England) (as amended) (SI 2016/614) and render the well water unusable. Whilst conventional groundwater water treatment can remove bacteria, and naturally occurring metals found in groundwater, such as iron and manganese, hydrocarbons pose a serious risk to the long-term viability of a groundwater source. If the source for the Linford Well was to become contaminated with hydrocarbons, it would require lengthy and costly remediation, and potentially render the source unusable.

#### Potential for contamination - operation

- 7.7 The Examining Authority's attention is drawn also to Pond 10-001, referred to in table 3.8 in the Hydrogeological Risk Assessment, which is Appendix 14.5 to the Environmental Statement submitted with the application (reference APP-458). In that document it is described as "a new, lined surface water pond", part of which would overlap SPZ1 for the Linford Well. ESW understands from discussions with the Applicant that it is a proposed permanent road drainage attenuation pond. It will be lined with an impermeable lining.
- 7.8 Following ESW queries, the Applicant recently supplied ESW with further information in relation to this pond and has confirmed that there is no alternative location outside of the SPZ1 where it could be situated.
- 7.9 ESW, therefore, acknowledges that the pond must remain within SPZ1 but considers that there does remain a risk, however small, of contamination of the source itself which the Applicant must accept and address, especially given the future intention to bring the Linford Well back into public water supply.

#### Monitoring and operational response

- 7.10 To bring the Linford Well back into public water supply, ESW needs to ensure that the LTC works do not cause any damage or harm by regular monitoring of the water quality. ESW requires either sufficient assurance that during construction the Applicant would carry out appropriate monitoring of water quality if in occupation of the site or, if ESW remains in control of the Linford Well site during construction of LTC, under the terms of the draft Works Funding Agreement described at paragraph 1.4 above, it would be able to undertake regular monitoring of water quality at the Linford Well site. Sampling of the water quality would need to take place prior to the use of the Linford Well to establish existing water quality and then it would be monitored, likely through a bespoke programme of sampling based on risk of activities on site. Known risks would also be monitored to allow for appropriate treatment to be designed.
- 7.11 If a deterioration in water quality was identified while the Linford Well was in use to supply the LTC project, immediate investigation would be required to determine the cause of the issue. If it is potentially caused by activities being undertaken by the Applicant, then those activities are likely to need to cease to prevent further contamination. These investigations are likely to involve enhanced sampling and requirements for visits to the site by teams from both ESW and the Applicant. Where changes in water quality are detected, indicating a possible pollution event, then ordinarily ESW would cease abstraction while investigations into potential sources and pathways of pollution are completed.
- 7.12 Were the Applicant to exercise compulsory powers to take rights over and or occupy the Linford Well site this could interfere with ESW's ability to undertake these processes. ESW has been unable to find adequate consideration of water sampling in the application

documents and requested information from the Applicant about its intention for sampling of the water, making clear that its expectation and preference would be for ESW to conduct such sampling using its accredited samplers and laboratories. In a response received on 10 July 2023, the Applicant has confirmed that it is the Applicant's intention for ESW to undertake water sampling from the Well. Given the powers available in the dDCO over plot 24-133, as with access for compliance with licence obligations, access for this type of monitoring will need to be adequately secured through the DCO if it cannot be agreed under the Side Agreement – see paragraphs 6.6 and 6.8.

- 7.13 ESW also requested information on what the Applicant's operational response would be if a change in water quality was detected and, again, received a response on 10 July 2023. That response set out that ESW would (have to) carry out its own operational response. However, again, this relies on ESW having sufficient access to the Linford Well site which is potentially incompatible with the Applicant taking powers to temporarily occupy the site.
- 7.14 The response on 10 July also acknowledges that one reasonable course of action in the event of contamination could be ceasing abstraction while investigations are carried out. It also says that it expects in the event of contamination during construction that LTC would be informed of a decision to cease abstraction with sufficient lead time to enable mitigations to be put in place by LTC to avoid stopping the operation of the TBMs. However, ESW fears that as the Applicant's use of water is to drive TBMs for construction it (i) will not want to stop a TBM once a tunnel drive is underway and (ii) does not in any case have a need to maintain the quality of water supplied for that purpose. There are as yet no provisions to address this concern in the draft Side or Works Funding Agreements.
- 7.15 Water quality is not a matter covered by "standard" Protective Provisions for water undertakers in DCOs and the current wording of Requirement 6 (contaminated land and groundwater) in Part 1 of Schedule 2 does not assist. That wording relates to a determination by the Applicant as to whether the groundwater needs to be remediated. From ESW's perspective this is wholly unsatisfactory for its longer-term use as a potable water supply. ESW will require bespoke wording to address this, either as a requirement in Schedule 2, or within a dedicated article dealing with Linford Well unless the Applicant will agree appropriate provisions, such as the provision of a Pollution Risk Plan to ESW's satisfaction in the Side Agreement.
- 7.16 In the event of contamination, the aquifer would either require remediation to remove the contamination, which would likely involve a significant period of time and cost, or an alternative replacement borehole would need to be drilled. Evidently, were contamination to happen as a result of works by the Applicant authorised by the DCO, the cost of such remediation or alternative should rightly be borne by the Applicant.
- 7.17 The well water which, if not being treated to produce a potable water supply, must be discharged into Gobian's sewer watercourse, must be of a suitable quality to comply with Environment Agency regulations for such a discharge to the environment. If the well water were to become contaminated so that the EA deem it no longer of a suitable quality to enable discharge to the environment, the well could not simply be stopped because it is artesian and would cause local flooding, and therefore the cost of disposing of contaminated water or remediation of the well would need to be met by the Applicant.
- 7.18 There is no adequate protection for ESW for this type of loss in the dDCO including the Protective Provisions; whilst they would cover damage to ESW's apparatus and pipes, they do not provide cover for other liabilities arising, such as damage to or contamination of the water source or to liabilities arising from any escape of water or flooding. To date the

Applicant has not accepted the principle of water quality concerns being relevant to the draft Side Agreement, let alone accepting that it would be prudent to monitor the water. Compensation is payable for temporary possession of its land and, under the Protective Provisions, the dDCO provides ESW with specific means of recourse against the Applicant for damage to their apparatus, including for loss of supply through damage to ESW's assets. However there is no protection from damage to the water resource itself. ESW's only recourse would be to bring a claim in negligence and, if the Applicant has undertaken all reasonable measures to protect the water resources, it will not have been negligent or have failed in its legal duty of care.

- 7.19 The principles raised in this scenario of potential damage from construction or operation to a potable water supply with certain controls in place has been considered and accepted by the Secretary of State for Transport in relation to another major transport scheme, namely, Phase 1 of the High Speed 2 railway project. Documents in relation to this are publicly available online. The written Ministerial Statement on 22 March 2016 and the accompanying 'Contingent Liability' document are included at Appendix 3 to this document. The Secretary of State of Transport (who will determine this Application) accepted in that case that a risk would exist despite mitigation measures in place, and:

*"Should the aquifer or the company's abstraction points be damaged, Affinity Water is likely to face a consequential financial loss. There is no existing protection for Affinity Water in respect of this loss and they would be unlikely to make a successful claim under common law. Under standard compensation arrangements, the basis for compensation would link to the loss in value or damage to a claimant's property, which for Affinity Water could include pipes or pumps. However, the water in an aquifer is not a property of Affinity Water and so they have no protection if the project causes damage to the resources on which they are dependent. Therefore, Affinity Water require the Department for Transport to carry the liability for any financial loss arising from any impact of the Phase One construction works on their abstraction points."*

- 7.20 A specific, contractual indemnity would provide the means to reclaim any losses incurred as a result of impact from LTC on water resources. The Secretary of State in the HS2 case gave an unlimited indemnity but noted that the worst case would be costs for replacing 3 abstraction boreholes and the cost of temporary replacement water supply while the abstraction is interrupted.
- 7.21 ESW requests that the same approach is taken in relation to this project.
- 7.22 In conclusion, in respect of water quality concerns, ESW contends that exercise of compulsory powers over plot 24-133 should be removed from the Order so as not to restrict ESW's ability to carry out water sampling and that the Applicant provide an indemnity should there be contamination from the LTC works, to cover losses arising so as not to put ESW in breach of its obligations under its abstraction licence, including in relation to the discharge of artesian water to Gobian's sewer, and in relation to any supply of potable water where the Linford Well is brought back into public use.

## **8. Other Concerns**

- 8.1 In addition to the major concerns set out above, ESW has been negotiating with the Applicant in relation to a number of other potential issues. These are generally picked up in the current draft of the Side Agreement but have not yet all been agreed. They are set out briefly below and can be expanded upon to assist the Examining Authority later in the Examination if agreement cannot be reached.

#### Transfer of powers

- 8.2 The dDCO contains certain powers in article 8 for the Applicant to transfer the benefit of the Order to specified transferees, including ESW. ESW is requesting that it be given sufficient notice of the transfer of the benefit of any of the powers of the dDCO to itself or the transfer of the benefit of any of the powers which has or could have an impact on its apparatus to any other third party.
- 8.3 ESW is also requesting that it be given notice of a decision to transfer the benefit of the powers of operation and maintenance to any other third party. If there are ongoing risks to ESW's apparatus, including any contamination risk from pond 10-001, it will be of concern to ESW to know what entity is operating the authorised development.

#### Cooperative working and advanced notices

- 8.4 ESW has sought from the Applicant commitments to a process of early engagement and suitable notice periods in addition to the protections contained in the Protective Provisions in the dDCO. Similar provisions have been secured for the benefit of Northumbrian Water Limited on another highways scheme promoted by DCO.
- 8.5 These are predominantly agreed in the latest version of the draft Side Agreement.

#### Depth of apparatus

- 8.6 Article 6 (Limits of deviation) of the dDCO sets out differing limits of deviation for different elements of the authorised development. In relation to the works relating to the diversion of ESW apparatus, it allows for the vertical deviation downwards to any extent and upwards to a limit of not less than 0.25 metres below the surface of the ground.
- 8.7 ESW require their assets to be at a minimum depth of not less than 0.75 metres to avoid unnecessary damage to its water pipes and mains. If this cannot be agreed in the Side Agreement, ESW will require that this be included within Article 6 of the dDCO.

#### Water Supply and Sewerage Services (Customer Service Standards) Regulations 2008

- 8.8 ESW is concerned that where it is obliged to make payments to customers under the Water Supply and Sewerage Services (Customer Service Standards) Regulations 2008 due to impacts of works to construct the development authorised by the dDCO, it is able to be reimbursed by the Applicant in an appropriate and timely manner.
- 8.9 The current drafting of the Protective Provisions is not adequate in this respect and ESW is seeking further protection in the draft Side Agreement. This provision is not yet agreed between the parties.

### **9. Conclusion**

- 9.1 ESW's concerns relate to the use of compulsory powers to take temporary possession of or rights over the Linford Well site, and the implications of the LTC works on ESW's water abstraction licence at the Linford Well site, and water quality, monitoring and pollution affecting any future use of the Well for public water supply. If ESW cannot reach agreement

with the Applicant on these points, it will require amendments to the dDCO, ideally in a dedicated article relating to Linford Well to address the following:

- 9.1.1 removal of Plot 24-133 from the Order so as not to interfere with ESW's statutory and abstraction licence obligations, or
- 9.1.2 if compulsory powers over that plot are to remain, that the Applicant may only exercise powers to acquire rights or temporarily occupy plot 24-133 with ESW agreement and subject to ESW's terms and conditions (including access for monitoring); and
- 9.1.3 if contamination is caused to the source attributable to the LTC project for the applicant to pay for any losses arising secured by an indemnity from the Applicant for costs of remediating the Linford Well or a new borehole and maintaining and public water supplies.

**Winckworth Sherwood LLP**

# APPENDIX 1



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## **Water Resources LICENCE TO**

**ABSTRACT**

**WATER**

Environment Act 1995  
Water Resources Act 1991 as amended by the  
Water Act 2003  
Water Resources (Abstraction and Impounding)  
Regulations 2006

# IMPORTANT NOTES

## Need for safekeeping

**This licence is an important document.** The permission or right to abstract water may be valuable to your landholding. So -

- **Keep the licence safe, preferably with your deeds etc.**
- **Take careful note of the comments below about “transfer and apportionment” and “death and bankruptcy”.**

**This is to ensure that the permission and any rights granted by the licence continue if you need to pass it on to someone else.**

If you want to:

- [revoke \(cancel\) the licence;](#)
- [notify us of the death or bankruptcy of the licence holder ;](#)
- [vary \(change/amend\) the licence in any way](#)
- **change the owner of the licence or**
- [change your contact address \(but you continue to hold the licence\).](#)

You can find our forms on [.GOV.UK](#) or alternatively contact us for advice on how to make any changes by calling our National Customer Centre on 03708 506 506

## Transfer and apportionment (split)

If you need to pass this licence or any part of it to someone else, you must contact the Environment Agency and obtain the appropriate application forms. Temporary licences cannot be transferred or apportioned. The licence holder remains responsible for compliance with the terms of the licence and any charges payable until the licence has been transferred or apportioned.

## Death or bankruptcy of the licence holder

**‘Vesting’** is the transfer of responsibility and ownership of a licence when an existing licence holder is no longer able to hold the licence either through death or bankruptcy.

If a licence has been **‘vested’** in you, as a result of the death or bankruptcy of the licence holder, please contact the Environment Agency in writing, telling us the licence number(s) and the date that the licence vested in you as a personal representative or trustee of the licence holder. This is necessary in order to enable you to subsequently transfer the licence.

You must notify us in writing within **15 months** of the date of vesting, being either death or bankruptcy of the licence holder giving the full names of all personal representatives or trustees and a contact address.

## Time limits

Your licence may be subject to a time limit (where appropriate this will be shown on the front of your licence). All new abstraction licences are legally required to include a time limit. For variations to licences, time limits are added in accordance with our policy.

The duration of a time limit is determined in accordance with our time limiting policy. The time limit is linked to the next or subsequent review of water resources within the relevant [Abstraction Licensing Strategy](#) (ALS)

At the end of the time limit, we should be able to renew the licence if:

- there is no damage to the environment;
- the need for the abstraction can still be justified;
- water is being used efficiently; and
- you still meet the legal requirements for getting a licence.

If your licence is time limited and you wish to renew it when it expires, you will need to apply for a new licence to replace the existing one. You are advised to submit this application at least six months before it expires. To allow you to give early consideration to this, we will send you a reminder approximately 18 months before the expiry date.

If your licence cannot be renewed, we will endeavour to give at least six years notice. We will also endeavour to give at least six years notice where the licence is likely to be renewed on different terms and will significantly impact upon the use of the licence.

In exceptional circumstances, for example where there are other overriding statutory duties such as the Habitats Regulations, it may not be possible to provide six years notice.

## Charges

Unless specifically exempted, we will levy an annual charge for water authorised to be abstracted by this licence, in accordance with our abstraction charges scheme in force at the time. To work out your charges, please refer to our [Scheme of Abstraction Charges](#) available on GOV.UK.

## Quantity and quality of water

You must not abstract more than the quantity specified in the licence. The Environment Agency does not, by issue of this licence or otherwise, in any way guarantee that the source of supply will produce the quantity of water authorised to be abstracted by this licence, nor that the water is fit for its intended use.

The quantity of water authorised for abstraction is given in cubic metres. One cubic metre is approximately 220 gallons.  
(The precise conversion is 1 cubic metres = 219.969 gallons).

## Source of supply and authorised point of abstraction

You may abstract from the point(s) specified in the licence and from no other points. If you want to add or change the authorised point(s) of abstraction, you must apply to us to vary the licence.

## Purpose for which water is authorised to be used

You may only use the water for the purpose(s) specified in the licence. You must apply to us to vary the licence if you wish to add to or change the purpose(s).

## Offences

Under the Water Resources Act 1991 it is an offence:-

- to abstract water, or cause or permit any other person to abstract water, unless the abstraction is authorised by and in accordance with an abstraction licence, or is subject to an exemption;
- to do anything to enable abstraction, or to increase abstraction, except in accordance with an abstraction licence or exemption;
- to fail to comply with the conditions of an abstraction licence.

**Note in particular that it may be a condition of the licence to maintain the meter or other measuring device etc. and failure to do so will be an offence;**

- to interfere with a meter or other device which measures quantities of water abstracted so as to prevent it from measuring correctly;
- to fail to provide information which we have reasonably required for the purpose of carrying out any of the Environment Agency’s water resources functions;
- to knowingly make false statements for the purpose of obtaining a licence or consent or in giving required information.

The requirement for a licence is subject to some exemptions, set out in the Water Resources Act 1991 as amended. If in any doubt as to whether you need a licence, contact us at the address shown at the bottom of the front page of the licence.

## Right of appeal

If you are dissatisfied with our decision on your licence application, you have the right to appeal against our decision.

You should write to the Secretary of State for the Environment, Food and Rural Affairs, care of The Planning Inspectorate at:  
The Environment Team  
3A Eagle Wing,  
Temple Quay House, 2  
The Square, Temple  
Quay, Bristol,  
BS1 6PN

Alternatively you can obtain an on-line appeal form at:

<https://www.gov.uk/government/publications/water-abstraction-and-impoundment-appeal-form>

You must serve notice of appeal within 28 days of the date of receipt of this licence (although the Secretary of State has power to allow a longer period for serving notice of appeal). See [Water Resources Act 1991, section 43](#).

## Disclosure of information

Details of this licence are placed on a register, kept by the Environment Agency and open for inspection by the public. The public may also obtain further details about it by virtue of the Environmental Information Regulations 2004 (see also Disclosure of Information) except in special cases (for advice please contact us at the address shown on the front page of the licence).

Members of the public are also entitled to ask us for other “environmental information” it holds, including any activities likely to affect “the state of any water” or any “activities or other measures designed to protect it”. That would include the information additional to the licence document e.g. any related agreement or abstraction returns. In certain restricted circumstances it is possible to claim that information should be kept confidential. If you require more information about keeping this information off the public register because it is confidential, please contact us by writing to the address shown on the front page of the licence within 28 days of receiving this licence.

Licence Serial No:	8/37/56/*G/0044
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Please quote the serial number in all correspondence about this licence



## FULL LICENCE TO ABSTRACT WATER

The Environment Agency (“the Agency”) grants this licence to:-

Northumbrian Water Limited (“the Licence Holder”)

Northumbria House  
 Abbey Road  
 Pity Me  
 Durham  
 DH1 5FJ

Company registration number 02366703

This licence authorises the Licence Holder to abstract water from the source of supply described in the Schedule of Conditions to this licence and subject to the provisions of that Schedule. The licence commences from the effective date shown below and shall remain in force until revoked.

<b>Signed</b> P Radcliffe	<b>Date of issue</b> ..... 30 March 2023
Paul Radcliffe Permitting Team Leader	<b>Date effective</b> ..... 30 March 2023
Environment Agency Permitting and Support Centre Water Resources Team Quadrant 2 99 Parkway Avenue Parkway Business Park Sheffield S9 4WF	<b>Date of original issue</b> .....01 June 1966

The licence should be kept safe and its existence disclosed on any sale of the property to which it relates. Please read the ‘important notes’ on the cover to this licence.

Note: References to “the map” are to the map which forms part of this licence.  
 References to “the Agency” are to the Environment Agency or any successor body.

## SCHEDULE OF CONDITIONS

### 1. SOURCE OF SUPPLY

1.1 Underground strata comprising of chalk at Stifford and Linford, Essex.

### 2. POINTS OF ABSTRACTION

#### 2.1 Abstraction Point 1 (Stifford)

At National Grid Reference TQ 59245 80050 marked 'Abstraction Point 1' on Map 1.

#### 2.2 Abstraction Point 2 (Linford)

At National Grid Reference TQ 67168 79280 marked 'Abstraction Point 2' on Map 2.

### 3. MEANS OF ABSTRACTION

#### 3.1 Abstraction Point 1

A well not exceeding 42.67 metres in depth and 4,057 millimetres in diameter, with steel tubing to a depth of 11 metres, and brick lined from 11 to 42.67 metres in depth, with a pump.

3.2

#### Abstraction Point 2

A well not exceeding 64.9 metres in depth and 3,600 millimetres in diameter, plain lined from 0 to 17.7 metres in depth, and brick lined from 17.7 to 45 metres in depth, with a pump.

### 4. PURPOSES OF ABSTRACTION

#### 4.1 Abstraction Point 1

Public water supply.

#### 4.2 Abstraction Point 2

4.2.1 Public water supply.

#### 4.2.2 **Up to and including 31 March 2026:**

Managing water levels.

### 5. PERIOD OF ABSTRACTION

5.1 All year.

**6. MAXIMUM QUANTITY OF WATER TO BE ABSTRACTED**6.1 Abstraction Point 1

11,700 cubic metres per day

6.2 Abstraction Point 2**For purpose 4.2.1 (Public water supply):**

6,365 cubic metres per day

**For purpose 4.2.2 (Managing water levels):**

2,160 cubic metres per day

At an instantaneous rate not exceeding 25 litres per second

6.3 The aggregate quantity of water authorised to be abstracted under this licence shall not exceed 3,728,000 cubic metres per year

6.4 **Up to and including 31 March 2026**

The aggregate quantity of water authorised to be abstracted from Abstraction Point 2 shall not exceed 6,365 cubic metres per day.

Note: an hour means any period of 60 consecutive minutes, a day means any period of 24 consecutive hours and a year means the 12 month period beginning on 1 April and ending on 31 March.

**7. MEANS OF MEASUREMENT OF WATER ABSTRACTED**

7.1 (i) The Licence Holder shall use one meter for each separately identified purpose and each point of abstraction to measure quantities of water abstracted and discharged.

(ii) No abstraction shall take place unless the Licence Holder has installed any meters required in (i) above.

(iii) The Licence Holder shall position and install the meters in accordance with any written directions given by the Agency.

(iv) The Licence Holder shall calibrate, maintain, repair or replace any meters to ensure that accurate measurements are taken at all times.

(v) The Licence Holder shall retain all evidence of the repair of the meters or replacement(s) including evidence of current certification and / or results of flow checking for inspection by the Agency for a period of 6 years.

**8. RECORDS**

- 8.1 The Licence Holder shall take and record readings of the meters specified in condition 7 at the same time each day when abstraction is taking place during the whole of the period during which abstraction is authorised or as otherwise approved in writing by the Agency.
- 8.2 The Licence Holder shall send a copy of the record or summary data from it to the Agency within 28 calendar days of 31 March each year or within 28 days of being so directed in writing by the Agency or alternatively the Licence Holder shall send summary data from the record as specified by the Agency.
- 8.3 Each record shall be kept and made available during all reasonable hours for inspection by the Agency for at least 6 years.

**9. FURTHER CONDITIONS**

- 9.1 The discharge of water to Gobians Sewer at National Grid Reference TQ 67160 79265 shall not exceed the rate of 25 litres per second.
- 9.2 (i) No discharge to Gobians Sewer shall take place when the level of water in the Gobians Sewer as measured at the Bridge at National Grid Reference TQ 67153 79263 is equal to or greater than 4.54 metres Above Ordnance Datum or at such other level as may be approved in writing by the Agency.
- 9.2 (ii) The Licence Holder shall use a gauge board and water level sensor to measure the water level in the Gobians Sewer at the Bridge at TQ 67153 79263.
- 9.2 (iii) The Licence Holder shall monitor and maintain the gauge board and water level sensor device in such a condition, and if necessary replace the, so as to ensure that accurate measurements are recorded at all times.
- 9.3 (i) The Licence Holder shall use the measuring device specified in condition 9.2 (ii) to record the level every fifteen minutes during the whole of the period during which discharge is authorised or as otherwise approved in writing by the Agency.
- 9.3 (ii) The Licence Holder shall send a copy of the record or summary data from it to the Agency within 28 calendar days of 31 March in each year or within 28 days of being so directed in writing by the Agency.
- 9.3 (iii) The Licence Holder shall keep each record required by 9.3 (i) and make them available during all reasonable hours for inspection by the Agency for at least 6 years.

## ADDITIONAL INFORMATION

Note: the following is provided for information only. It does not form part of the licence.

### REASONS FOR CONDITIONS

The abstraction is required to be metered to demonstrate compliance with the terms of the licence and to provide information on actual water usage for water planning purposes.

The licence is time-limited to a date to reflect the timing of a future review of the catchment resources availability.

Further conditions have been included to prevent any additional risk of flooding as a result of this activity.

### IMPORTANT NOTES

#### Abstraction Reform

We have granted this licence in line with current legal requirements and policies on managing water resources. However, Government have consulted on reforms which may affect the duration, quantities and management of licences before your current licence expires (ends), where appropriate. You should take account of this when making business decisions. If you would like to find out more, please search for 'abstraction reform' on [gov.uk](http://gov.uk).

#### Metering

The Agency will have regard to its Abstraction Metering Good Practice Manual (or equivalent guidance) in directing any of the following: where the meter should be located or how it should be installed; whether the meter measures accurately, and/or is properly maintained; whether it is necessary to require repair or replacement of the meter.

#### Condition 9.2 (i)

The Licence Holder shall contact the Asset Performance Team at the following address if it is determined that a change to the level specified in condition 9.2.1 is necessary:

Environment Agency  
Brook End Road  
Chelmsford  
Essex  
CM2 6NZ

Or email: [Essex.Operations@environment-agency.gov.uk](mailto:Essex.Operations@environment-agency.gov.uk).

#### Water Level Data

The Licence Holder shall send data in accordance with condition 9.3 to:

Assess Performance Team  
Environment Agency  
Brook End Road  
Chelmsford  
Essex  
CM2 6NZ

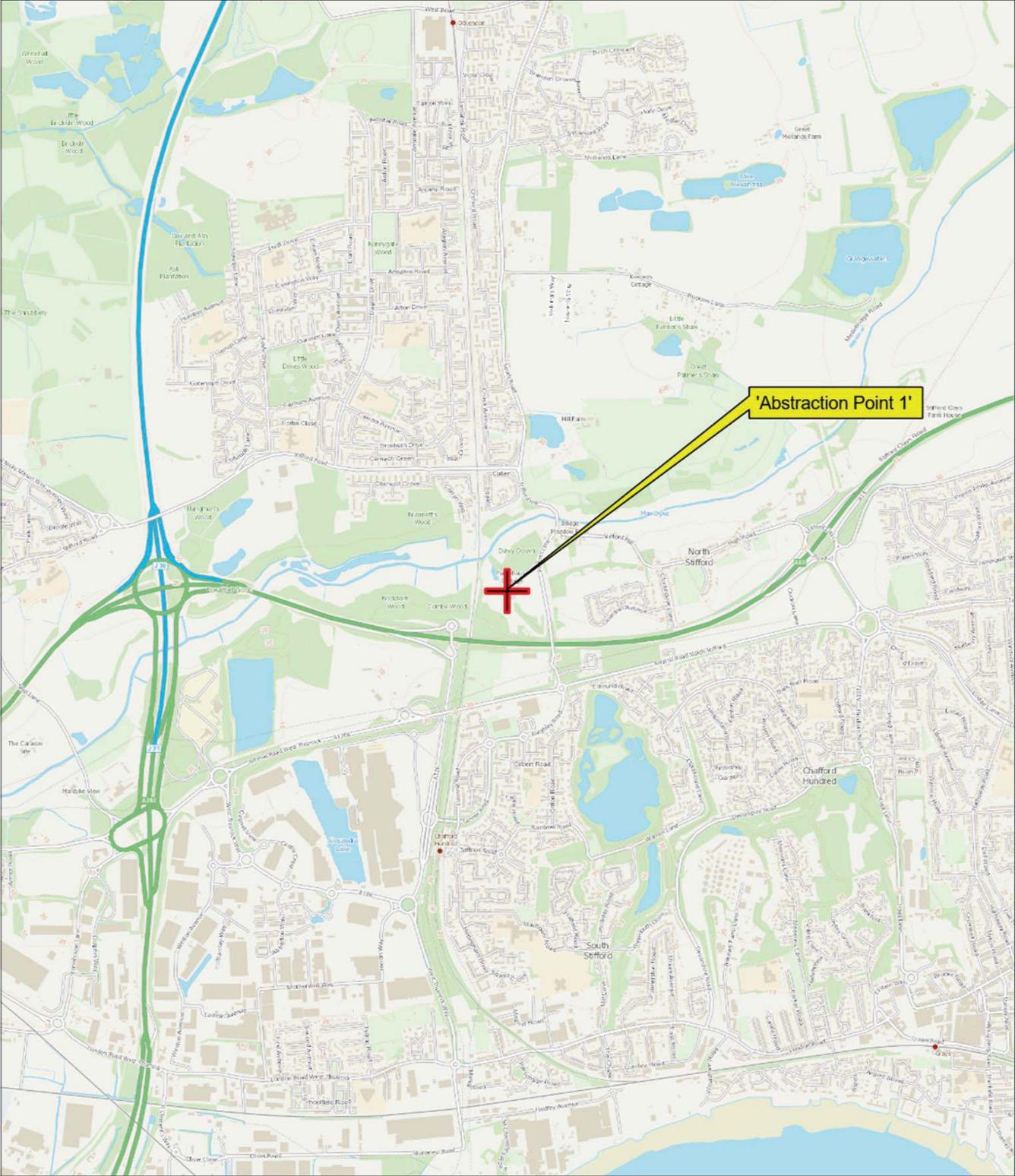
Or email: [Essex.Operations@environment-agency.gov.uk](mailto:Essex.Operations@environment-agency.gov.uk).

Licence Serial No:

8/37/56/\*G/0044

**Licence History**

<b>Licence serial number</b>	<b>Issue date</b>	<b>Expiry date</b>	<b>Summary of changes</b>
8/37/56/*G/0044	6 June 1968	N/A	Licence first issued.
8/37/56/*G/0044	31 October 1994	N/A	Licence Holder name change.
8/37/56/*G/0044	1 April 2000	N/A	Licence amended to correct two administrative errors.
8/37/56/*G/0044	30 November 2009	N/A	Licence Holder name change.
8/37/56/*G/0044	23 December 2015	Variation until 31 March 2023	To add an additional purpose of abstraction to Abstraction Point 2 of 'Managing water levels' and to include conditions relating to discharge to Gobians Sewer.
8/37/56/*G/0044	30 <sup>th</sup> March 2023	Variation until 31 March 2026	NPS/WR036711: extension of time-limited conditions and varying of Hands off Level from 4.3 AOD to 4.54 AOD.



**MAP ACCOMPANYING LICENCE NUMBER**

**8/37/56/\*G/0044- Map 1**

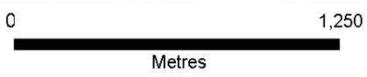
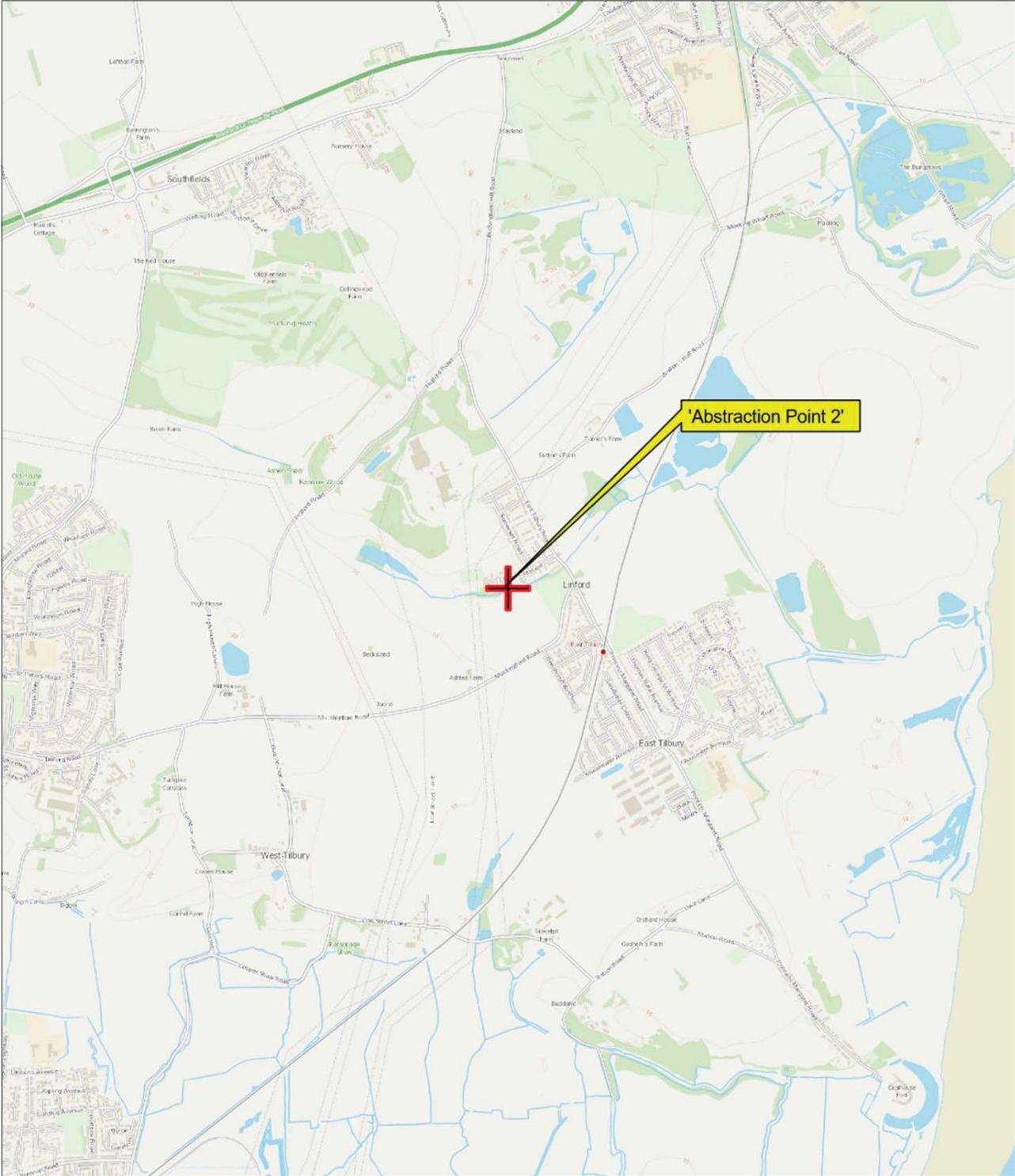
Scale 1:25,000



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Licence Serial No:

8/37/56/\*G/0044



**MAP ACCOMPANYING LICENCE NUMBER**

**8/37/56/\*G/0044**

Scale 1:25,000



**Would you like to find out more about us, or about your environment?**

**Then call us on  
03708 506 506 (Mon-Fri 8-6)**

**email**

**[enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)**

**or visit our website**

**[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)**

**Incident hotline 0800 80 70 60 (24hrs)  
Floodline 0345 988 1188**



Environment first: This publication is printed on paper made from 100 per cent previously used waste. By-products from making the pulp and paper are used for composting and fertiliser, for making cement and for generating energy.

## **APPENDIX 2**

An aerial photograph of a wide river at sunset. The sun is low on the horizon, creating a bright orange and yellow glow that reflects on the water. Several sailboats are visible on the river. The surrounding landscape includes green fields and a city skyline in the distance under a clear sky.

# DRAFT WATER RESOURCE MANAGEMENT PLAN 2024: A SUMMARY

HAVE YOUR SAY

**ESSEX & SUFFOLK**  
**WATER** *living water*

## Foreword

Welcome to an overview of our draft Water Resource Management Plan (WRMP) for 2024 and thank you for your interest in this important topic. This is a critical document, which sets out how we make sure we can continue to deliver clean, clear drinking water in the future, even in the most severe droughts.

In sharing these plans in draft form, we hope to get as many views from our customers as possible to help develop our final plan.

East Anglia is one of the driest parts of the country and has been confirmed by the Environment Agency as being a Serious Water Stressed Area.

We are forecasting that there will not be enough water supplies to meet forecasted demand over the next 25 years and beyond. We need to prepare for worsening droughts. To do this we're taking a twin track approach to address this by working hard to reduce demand and putting plans in place to increase supply.

We are proud that overall leakage from our network and from our customer's homes is at one of the lowest levels in the water industry. However, we recognise that there is a lot more to do. Innovation is key and we will use all the latest technology to make our network smart as well as using satellite imagery to help us identify leaks more quickly. Reducing demand means we won't have to take so much water from the environment, or treat as much water, which will reduce the amount of energy and chemicals we use too.



We are forecasting that there will not be enough water supplies to meet forecasted demand over the next 25 years and beyond.

Increasing supply is going to need significant levels of investment. We work hard to provide the best balance between environmental protection and securing water supplies for the future, with maintaining affordable bills for customers.

The government sets targets for how much water people should use. To reduce demand and hit these targets we need to work together with our customers and with manufacturers and builders with a shared goal to use water more wisely. We also work with partners as part of a regional planning group to tackle national water resourcing issues.

A huge amount of work has gone into these plans so far, and groups of customers, stakeholders, and our customer challenge group, known as the Water Forum, have all been involved in shaping this draft WRMP.

The main dWRMP24 is a large, technical document. This shorter document aims to help you understand what a WRMP is, and how it is used to plan your water services over the next 40 years.

Your views will help us take the right decisions and shape our final WRMP24.

I very much hope you find this document informative and encourage you to send in your views.



*Heidi*

**Heidi Mottram,  
CEO**

## Introduction

Our Purpose is caring for the essential needs of our communities and environment, now and for generations to come. We do this by providing reliable and affordable water services for our customers. We make a positive difference by operating efficiently and investing prudently, to maintain a sustainable and resilient business.



We provide water to **1.8m** people in Essex and **300,000** people in Suffolk

When you turn on your tap to make a cup of tea, have a shower or wash up, you expect clean, clear, and great tasting water to flow. It's our job to make sure this happens for you and that there is enough water for everyone in our communities and the environment – now and for generations to come.

The role we have in providing you with such an essential service is one we take very seriously.



## Where your water comes from

In Essex we supply water to 1.8m people in Chelmsford, Southend, Barking & Dagenham, and London Boroughs Havering & Redbridge, and in Suffolk we supply water to 300,000 people including those in Great Yarmouth and Lowestoft. Depending on where in the region you live, your water will come from one of four Water Resource Zones (WRZs):

### Essex WRZ

We take water from local rivers such as the Chelmer, Blackwater, Stour, and Roman Rivers which support storage reservoirs at Hanningfield and Abberton and treatment works near Maldon, Stratford St. Mary, Chelmsford, and Colchester.

In a drought year, only 33% of the water supplied comes from within the Essex WRZ, with the rest being transferred in from outside the area. This is because the water taken from our local rivers and the bulk raw water supply from Thames Water is not enough to meet demand.

### Blyth WRZ

All the water supplied here is taken from boreholes constructed into the Chalk and Crag aquifers (water-bearing rock).

### Hartismere WRZ

As in Blyth, all the water supplied here is taken from boreholes constructed into the Chalk and Crag aquifers.

### Northern Central WRZ

Most of the water supply here comes from the River Waveney, the River Bure, and groundwater fed lakes at Ormesby, Lound and Fritton. A small proportion comes from remote Chalk boreholes in the north of the WRZ and in the south of the WRZ, your water comes from chalk groundwater sources.

We're part of a wider regional group, called Water Resources East. Read more about this in [How we developed our dWRMP24](#).



**Our supply area is in the driest part of the country.**



## Thinking ahead

Global warming is disrupting our climate and affecting weather patterns causing serious challenges to the world's water supply.

When we talked to our customers about this, they told us that investing now for the future to prepare for severe weather is important to them.

# 88%

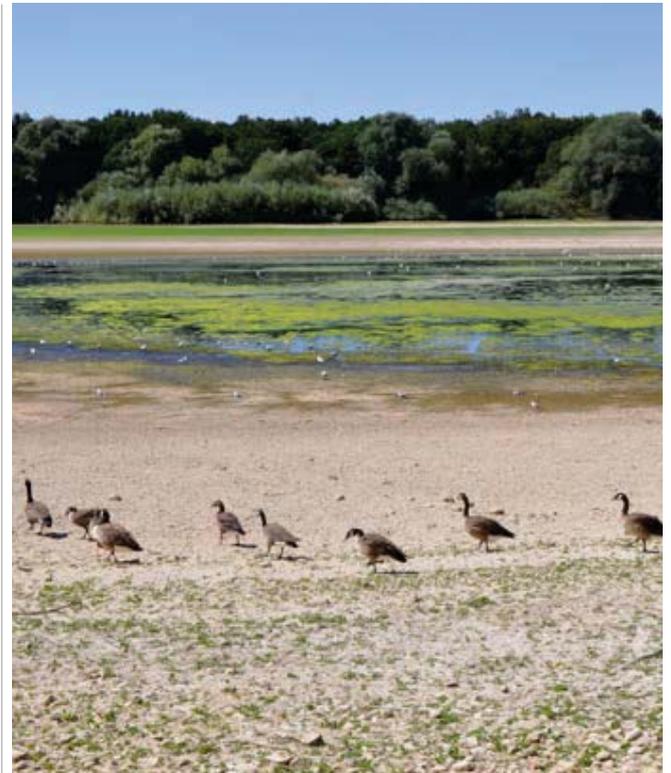
of respondents were very concerned or a little concerned that Essex and Suffolk are water stressed areas

While we know the climate is changing, we can't be certain how quickly it will change and how this will affect rainfall and the availability of water, so we have tested our supplies against a range of different scenarios.

To do this, we have used the UK Climate Projections (UKCP), which is a set of tools and data that shows how the UK climate may change in the future.

The latest projections are called Climate Projections 2018 (CP18) and can be found [here](#). The climate change modelling shows us that both Essex and Suffolk are seriously water stressed areas. This means that demand for water in the future will be greater than the available water supply.

To make sure we have a reliable water supply for years to come, we need to do some careful planning - and our Water Resource Management Plan (WRMP) is where we do this.



## Protecting our environment

As part of updating our WRMPs every five years, we agree a list with our regulators of environmental improvement actions we will take to further improve the environment around the rivers we use, our reservoirs and our land.

But our care and respect for the natural environment goes far beyond any legal requirements. We want the best outcome for the environment, in particular when our customers are in support of this and we can deliver these improvements in a way that is affordable for customers.

We're adopting low-carbon options where possible, such as building a new reservoir in North Suffolk and embracing nature-based solutions as a priority.

Working with the Environment Agency (EA), from 2020-25 we have many initiatives in place to make sure our rivers, aquifers (a body of rock that holds groundwater) and coasts are in the best possible environmental health.

This covers things like measures to protect eels, reducing the risk of spreading Invasive Non-native Species (INNS) or offering grants to farmers to help them reduce pesticides in river water.

We've agreed with the Environment Agency to reduce how much water we take from aquifers from 2030 to make sure important ecosystems, such as wetlands, are not adversely impacted as water demand increases and the climate changes.

Working in partnership is key to improving river habitats and we've been working collaboratively to increase biodiversity and address the impacts of climate change, focusing on the Blackwater catchment.

For 2025-30 we're currently working with regulators to identify what more we can do for our local environment. We're thinking big and our overall aim is to create resilience in rivers and aquifers so they can support healthy habitats and diverse and abundant wildlife in the face of climate change, as well as having enough water for our customers' needs.

The water industry cannot solve these issues alone and we know that working in partnership with local authorities, regional groups and the government can help us to achieve greater things for our environment and our people.

We're part of Water Resources East, read more about this [here](#).



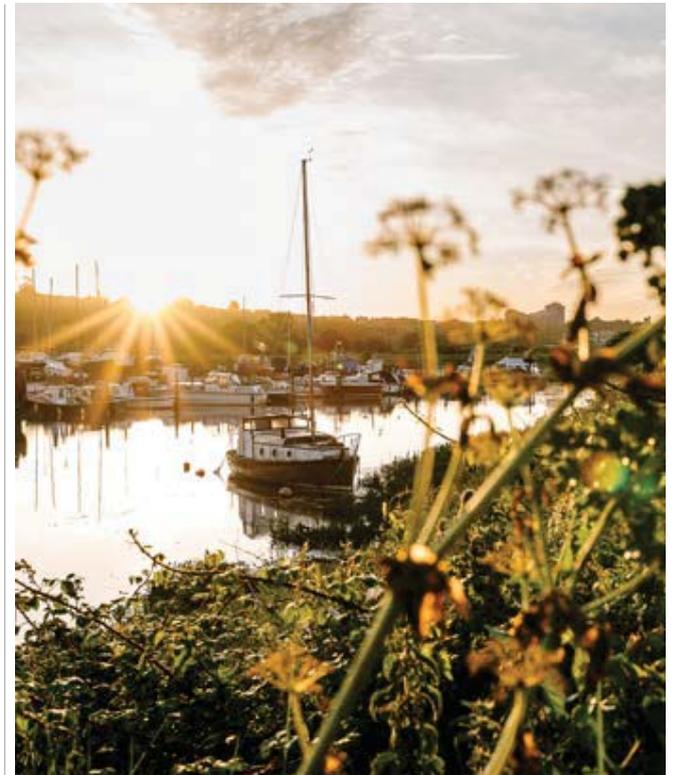
## Purpose of this consultation

Over the following pages you will find a summary of our draft Water Resource Management Plan 2024 (dWRMP24).

This consultation is open until Wednesday 29 March 2023.

We use the consultation period to collect your views and make sure we build the right balanced, and adaptive plan, for our customers and the environment.

You can read how to respond to this consultation on [page 22](#).



## What is a Water Resource Management Plan (WRMP)?

### The Government needs all water companies to plan for at least the next 25 years.

We have chosen to look ahead 75 years in this plan, from 2025 to 2100, because it can take a long time to design, cost and deliver the right schemes. We test multiple scenarios and monitor things that might change, so we're ready to adapt our plan if needed.

The main aim of a WRMP is to estimate how much water our customers will need in the future (demand) and consider this against the water that will be available (supply), and then look to find the best solutions to meet any future challenges.

We consider a range of options and put forward our preferred plan by looking at which ones offer the best value.

WRMPs are submitted to Defra (Department for Environment, Food and Rural Affairs) by all English and Welsh water companies every five years.

The WRMP is our plan for just one area of our business and forms part of our overall Business Plan for PR24 (the price review in 2024 where all water companies present their plans to Ofwat covering the period April 2025 to March 2030, and Ofwat decides what level of service we need to provide our customers, and what level we can set customer bills at).

More in-depth information can be found on our website [www.nwg.co.uk/wrmp](http://www.nwg.co.uk/wrmp).

### Our plan covers...

#### Supply

- Water available from 'raw' water sources including reservoirs, rivers, and underground sources.
- The amount of 'raw water' we can take without harming the environment.
- The effect of climate change demand for water and available sources.
- The amount our water treatment works (WTW) can reliably supply.

#### Demand

- Estimates of how much water people will use in the future.
- Impacts of population and housing growth.
- Our water efficiency plans to help customers save water.
- Saving water because of water meter installation.
- Reductions in leakage.

#### Outcomes

By planning, we will have sufficient water available to meet the forecast demand for water to 2065.

## What's changed since our last WRMP in 2019?

**In our WRMP19 (Water Resource Management Plan in 2019), we reported we had enough water to meet demand up to 2060 and did not need to take any action to increase supply.**

Our plan committed we would reduce leakage by 17.5% by 31 March 2025 and promote water meters and water saving to our customers. Covid-19 and the associated lockdown restrictions meant we were a little behind, but we are working hard to catch up and get back on track to meet our 2025 targets.

For our WRMP24 we, along with other water companies, have some new requirements from our regulators.

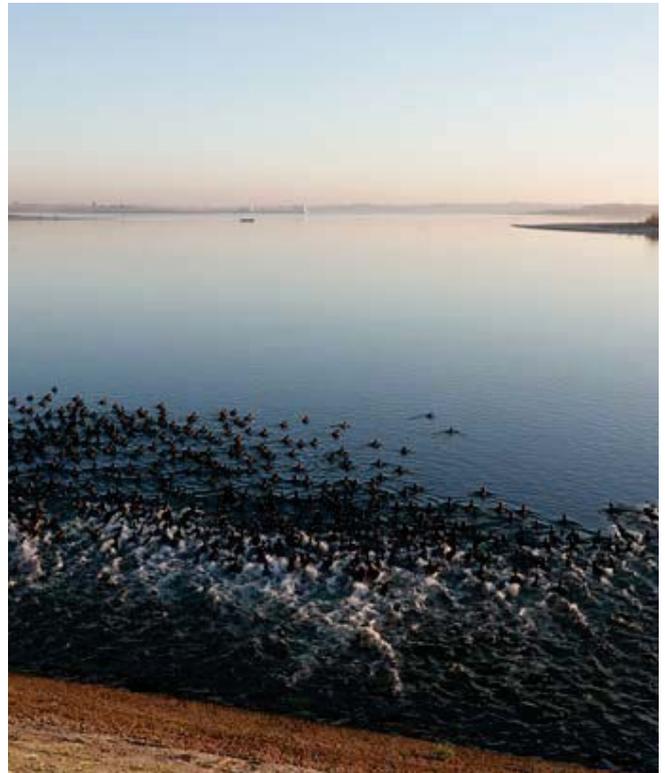
From 2040, we need to plan for extreme drought that could happen on average once every 500 years (in our WRMP19 it was once every 200 years), increasing the level of resilience that we need to plan for. At the same time, new information on the impact of climate change shows the effects on the amount of water available may be bigger in the future than previous data predicted.

We need to make sure there's enough water because the amount of water the Environment Agency (EA) permits us to take will reduce from 2030. This is to make sure we take water in a way that is sustainable for the environment.

We are forecasting significant increases in water demand from businesses in Suffolk over the next ten years, beyond the level of growth we predicted in previous plans, further increasing the pressure. This includes requests for water from the food processing and energy sectors.



**The environment also needs its fair share of water, so we always plan to leave more water in the environment than it needs to allow for climate change.**



## How we developed our dWRMP24

### The Environment Agency (EA) realised regional solutions were needed to help solve to national water resourcing issues so five regional water resource planning groups were set up in 2020.

We're part of Water Resources East (WRE) with Anglian Water, Cambridge Water and Affinity Water, as well as regional EA representatives and stakeholders from energy, agriculture, environment, and industry sectors. We all work together to set out how the supply of water in the East of England will be managed for the next 25 years and beyond.

Read more about WRE [here](#).

Our dWRMP24 links to the wider WRE regional plan, which is in draft and being developed at the same time.

We predict a baseline, an initial estimate of how much water will be available and what we think customer demand will be from 2025 to 2100.

#### Supply:

how much water we can take from existing rivers and reservoirs and treat at existing water treatment works. It considers climate change and any future changes to how much water the EA lets us take from the environment.

#### Demand:

how much water homes and businesses will need in each year of the planning period. It considers existing demand as well as new demand in the future from population growth.

We then compare the supply demand balance. We do this to see if there could be a water supply shortage (not enough water) or surplus (extra water) predicted at any point across the planning period.



**We have tested the resilience of our water supply systems to an extreme drought.**

Importantly, the baseline forecast is for a dry year (extreme drought), and we do this to make sure we won't run out of water, even in an exceptionally dry year. We need to be prepared for worst case scenarios and this is the best way to do that.

From 2040, we are required by our regulators to plan for extreme situations that could happen once every 500 years. For example, if we needed to restrict water and only supply it at certain times of day or put standpipes in public places for people to draw water from instead of it being supplied to their homes.

As we go through the modelling process to predict how much water will be needed and how much water will be available, there are lots of factors to think about including laws and risks, but we follow guidance from the Environment Agency (EA) and work with external auditors to check our planning process is strong. [Click here to read more detail about this.](#)

Because we are forecasting for a long time into the future, there are uncertainties including how quickly the climate will change and how this will affect rain fall and river flows, so we're ready to adapt our plan if needed.

Our customers and stakeholders have helped to shape this plan already. We carried out three phases of research to help us understand which options for our plan had the most support. The research took place in the form of online questionnaires, panel surveys and face to face surveys. For more information on this [click here](#).

We put forward our best value plan. Defra then reviews our plan and gives us feedback on it.

## How safe is your water supply in the future?

### As temperatures in England are forecast to increase there will be a reduction in the amount of water available to use.

We are predicting that without our intervention, demand for water could significantly exceed supply in our Essex and Suffolk supply areas and so we need to put plans in place now to make sure we have enough water in the future.

This is because:

- The Environment Agency (EA) is reducing the amount of water we are allowed to take in the future to make sure there is enough water left for the environment.
- Climate change means drier summers.
- Non-household (business and industry) demand for water is increasing.

When we expanded Abberton Reservoir from the 1990s to 2014, we invested £150m and increased its storage by 60%, or 15billion litres, helping to secure the water supply in the region.

Almost all our groundwater sources are resilient to climate change. Partnerships with other water companies through Water Resources East and Water Resources North, further support the resilience of our future water supply.



**Our region is classified as a seriously water stressed area and is prone to drought.**



## Water supply and demand

**Supply side measures are the things we can do to increase the amount of water available to customers. Because we are predicting demand will outweigh supply if we don't intervene, this means we need to look at the different options to increase the supply of water to our customers.**

These are things like new boreholes, water treatment works and reservoirs, desalination (the process of turning sea water into drinking water) and water re-use (recycling wastewater and treating it until it is clean and safe to drink).

Demand side measures are the things we can do to reduce the amount of water needed by customers.

We can't do this alone. The Government has a target to reduce personal water consumption (the amount used per person per day) to 110 litres per day.



That's about **seven** buckets of water per person per day!

We're delighted that last year Defra announced plans to introduce mandatory water efficiency labels for white goods, meaning customers buying showers, baths, taps, toilets, washing machines, dishwashers and garden related products would be able to see how water efficient those products are.

Building laws will also require new homes to be built with the 110 litres per person per day target in mind too.

You can play your part by using water wisely and making some simple savings.

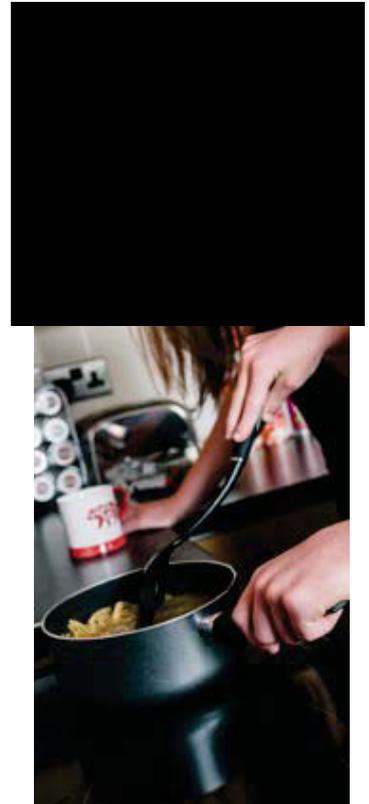


**Did you know leaving the tap on when you brush your teeth can waste 6 litres a minute?**

There are more water saving tips [here](#).

17% of energy use in the home is used to heat water\*. Saving water can also help lower your energy bills too.

[Try our water and energy calculator](#) to see how much you use, you might be surprised.



\*Source: Energy Saving Trust

## Demand for water

### Households

The local authority and Office for National Statistics (ONS) forecasts a 24.5% increase in population in Essex and a 11.3% increase in population in Suffolk by 2050. An average of 8,638 new homes are expected to be built each year.

We're predicting that customers will use less water in the future thanks to water meters and wanting to be careful with how much water they use as we become more aware of the effects of climate change.

The current levels of water use and our forecasts for 2050:

	Avg. litres used per person per day in 2020/21	Avg. litres used per person per day in 2050 forecast	Avg. litres used per person per day in 2050 after we implement our plan
<b>1 megalitre is 1 million litres</b>			
Customers with a water meter	162.37	132.20	112.27
Customers without a water meter	168.23	143.00	112.77

### Non-households (NHH's)

We forecast an increase in the amount of water used by businesses and industry over this period because of a growth of new businesses in the area, such as new free ports and power stations in Essex and new food processing and cosmetic factories, and a nuclear power station in Suffolk.

Until we develop new resources (2032), we are currently unable to agree to new requests for water in our Hartismere Water Resource Zone where it will be used for non-domestic purposes, such as processing and manufacturing.

	Average megalitres used per day for all NHH's in 2020/21	Average megalitres used per day for all NHH's in 2050 forecast if we don't take any action now	Average megalitres used per day for all NHH's in 2050 after we implement our plan.
<b>1 megalitre is 1 million litres</b>			
NHH's	61.1	89.2	89.2

## Reducing demand

### Water meters

Our long-term vision is for all households to have a water meter because they are an effective way to reduce water use.

By law we must install a meter for any customer who requests one. Being on a meter means you pay according to how much water you use, rather than by the rateable value of your property. Since 1990 all new homes have a water meter.

We've seen a drop in customers requesting water meters during Covid-19 and might not meet our targets for 2025.

We began installing smart meters outside houses that are currently unmetered in Dagenham in Essex in 2021. The customers weren't automatically charged by the meter but are given comparison bills to show them how they would have been charged, had they been using the meter. They can then decide whether to switch to metered billing or not.

Smart water meters (like smart gas and electricity meters) are self-reading meters that help you keep track of how much water you're using and how much it costs. They're not to be confused with pre-payment or pay-as-you-go meters. When you know how much water you're using you can make responsible choices for yourself, your household, and your local community. They're a great way to reduce water demand and we've set ourselves a challenging target for all our meters to be smart by 2035.

As Essex and Suffolk are both classified as serious water stressed areas and are prone to drought, our plan is to introduce compulsory metering from 2025.

This means all homes will be required to be fitted with a smart water meter by 2035. Currently 64% of all properties in Essex and 69% of properties in Suffolk have a water meter.



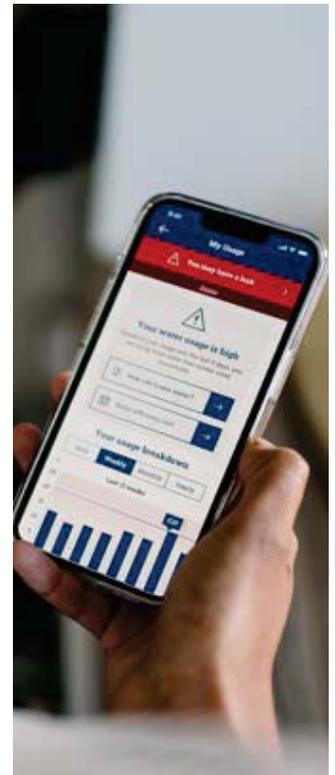
**By 2035 all properties will have a smart meter.**

In some areas we're installing smart ready water meters – this means the meter isn't smart enabled just yet, but it can be connected to the network at a later date, once there is a mast available to connect to.

Until then, we can drive by or walk by to read the meter meaning you will only be billed for how much you use. Once connected to a network the meter will send us readings automatically, using a secure network.

Any customer who has previously had a meter installed and had chosen not to switch to measured bills will be automatically moved onto a measured tariff.

Over 2025-30 we're working hard to promote the benefits of having a smart meter as a way of helping to reduce demand.



What are the advantages of a smart meter for me?

- Track your water usage on our app with hourly, daily, weekly, and monthly views.
- By saving water you reduce your carbon footprint and could also reduce your energy bills.
- Get an alert if there's a potential leak in your home.
- No more estimated bills.
- We don't need to visit your home to read your meter.

In most cases the meter will be free unless you decide you want it to be in a different place to where we recommend.

Non-households (businesses) can also benefit from more accurate bills, easier and faster leak detection, higher energy and water savings and less impact on the environment.

#### What customers said:

Compulsory metering divided our customers but was supported overall by 58%. Even though it was one of the least supported solutions, customers saw that it has its positives and its negatives.

Future customers (younger people who aren't yet bill payers) show lower support for compulsory metering, with only 14% 'definitely supporting' it.

Our customers said support for compulsory metering is dependent on individual circumstances. They expressed empathy and concern towards those who have larger families and are on a low income.

As the cost of living and utility bills rise, we understand it's a difficult time for many.

If you're struggling to pay your bills or falling into debt, please get in touch.

There are many ways we can help you, from payment breaks and low-income discounts to advice on saving water which can help lower your energy bills too.



**Compulsory metering will mean a 3-7% reduction in water use.**

## Promoting water efficiency

We have been coming up with innovative ways to encourage our customers to use water wisely for more than twenty years. So that we can all play our part in protecting our environment, we are aiming for customers to use 118 litres per day by 2040 and are on track to achieve this with your help.

Every customer who commits to using less water helps us to reduce the amount of water that we will need to take from rivers, lakes and groundwater and treat at our treatment works. This means more water is retained in the environment and that we use less chemicals and energy, all of which is an environmental benefit too.

We have lots of ways to help you save water, energy, and money. From 2025-30 our plan is to help our customers to be more water efficient.

Using data, we can spot who our top 5% highest water users are. Those customers might not know they have a leak or there may be another reason they are using a lot of water.

There are many ways we can help from offering tailored advice and free water saving devices, free repairs of leaking toilets and help finding leaks.

Our goal is to help them achieve genuine long-term water savings through behaviour change action.

We can also offer water efficiency visits to customers who currently don't have a water meter installed and again, offer tailored advice to help them understand the many ways in which they can use less.

We'll continue to communicate the importance of identifying and repairing leaking toilets, taps and overflows. We can help you find a Water Safe plumber too. We'll also offer rebates to customers who install a high efficiency toilet.

We will offer a free visit to repair leaks for our customers on an affordability tariff to support them with the cost of these repairs.

Working with house builders we want to install a device to the water meter that regulates the amount of water into the home without compromising any of the customer's appliances. Initial research shows this would save around 34 litres per property per day.

For customers living in blocks of flats or who own multiple properties we have a dedicated team of leak advisers to liaise with homeowners, landlords and associations. Their job is to find and fix leaks to eliminate the 5-8% of toilets that leak every day.

Our online educational resource for schools aims to change the water use behaviours of future generations at a large scale. Known as The Ripple Effect, this work will be adapted for Early Years, Key Stages 1, 2 and 3 as well as colleges and universities.

We'll increase our future bill payers' awareness about the impact to the environment, the effects of climate change and how they can become a water efficient generation.

Our website will provide customised advice, services, information, and guidance to change behaviour on a large scale. We'll also be checking in with customers at moments of change - whether that be moving home or having a baby - to talk about how their water use will change.

We're also part of a nationwide campaign to support and increase awareness of water saving with support from Waterwise and all water companies.

#### What customers said:

This was the option with the second highest level of overall support (81%) – behind company-side leakage reduction (86%). Water saving devices also had significant support amongst respondents. They feel this can be a positive solution as it will help save money and reduce their environmental impact. Some respondents were sceptical how effective these devices can be. Focus group respondents also highlighted how education is key.



**Did you know a leaking toilet can flush £200 a year down the drain?**

#### Reducing leakage

We don't want to waste precious water through leakage, and we know this is important to our customers too. They especially want us to repair visible leaks quickly.

For 2020-25 some of our key projects have included:

- By investing in our systems and models we are getting better at predicting how much water will be needed and how much water will be available. It means we have more confidence in knowing where water is being consumed. Smart water meters will significantly improve our understanding of how and when people use water and help us and our customers to find leaks more quickly.
- Installing pressure reducing valves which automatically adjust the pressure throughout the day, depending on the flow in the network. This minimises the excess pressure in an area, reducing the flow rates from customer taps and any leaks.



- Reducing leakage by looking at new ways to find and fix leaks using digital twins (virtual models that replicate our network), acoustic loggers (a little device that can 'listen' for leaks and alert us) and satellite surveys.

We talked to customers about why leakage occurs and how some of it comes from big bursts, largely due to extreme weather, but most of the leakage comes through tiny invisible leaks all along our vast network of pipes and are very hard to find.

Innovation will be a key. We're trialling new technology to help us find and fix leaks more quickly and have been awarded funding from the Ofwat Innovation Competition to help us do this.

One of our biggest projects is the National Leakage Research Centre which will provide the facilities to accelerate new ideas in this space and help us towards our future goals.

A hydrophone is a microphone designed to be used underwater for recording or listening to underwater sound and we plan to permanently install these in our network.

The pipes that connect your home to our network can also leak. These pipes are the customer's responsibility, although a lot of people don't know this.

We've already been involved in exciting trials working with internet experts B4T and Welsh Water to fund an innovative trial in smart water metering which could help customers avoid large bills.

B4T's Jellyfish device clips on to existing water meters, which are typically in underground chambers and do not easily connect to 4G, 5G or Wi-Fi. Jellyfish gets around this problem by connecting wirelessly over 0G helping to find leaks which helps to prevent damage to people's homes – and wallets. Preliminary results showed the device was 96% reliable, even from the most challenging of underground meter boxes.



**We will reduce leakage by 40% by 2050**

#### Our customers told us:

Company side leak reduction had the highest support of all the options for our plan as a first solution. It has low impact on wildlife and helps reduce wastage, making the network more efficient.

We don't have any plans to reduce water pressure because there is only a finite number of areas where we can reduce pressure without compromising customer levels of service.

There is a government target nationally to reduce leakage by 50%. In the water industry, we have always been a leading company in the field of reducing leakage and because of this, trying to further reduce our already leading performance would be too difficult. The cost for us to further reduce leakage goes up more rapidly when you reach a certain point because we would need to replace many pipes, and this would not be in the best interests of customers in the region.

Therefore, we aim to reduce leakage by 40% by 2050 instead. This is still a very challenging but achievable target.

As 2050 is a long time in the future though, we will review the target as our plan adapts over time. For example, as more people move to smart meters, we will have more data and can improve our knowledge as well as finding and fixing leaks faster.

## Increasing supply

### Reducing demand for water alone isn't enough to make sure we have a plentiful supply of clean, clear drinking water in the future.

We have also had to investigate what the least cost, best value, and best for the environment options are to increase the supply of water available to our regions.

### In Essex

Our plan contains two schemes.

#### Linford Water Treatment Works

We would build a new treatment works to treat an existing and new borehole. A borehole is a deep, narrow well that taps into naturally occurring underground water. This scheme would be complete by 2030.

#### Southend water reuse scheme

This scheme is only needed if customer demand, known as per capita consumption or PCC, does not come down in the coming years as quickly as we are forecasting it too. We will review PCC every June and decide in 2026 whether this scheme is needed.

Water recycling plants treat wastewater to a high standard and release it back into a river or reservoir. Thinking about wastewater being reused as drinking water can be off-putting but our drinking water has the strictest limits on it for cleanliness and a reuse plant strips everything out.

It's like the process for desalination which turns sea water into drinking water.

We are a water only company, we don't provide your wastewater services.

These are provided by Thames Water or Anglian Water, depending on where you live.

We would buy wastewater from Anglian Water. Once treated we would discharge very clean water from the water recycling plant into Hanningfield Reservoir where it would mix with reservoir water before being taken into our water treatment works where it would be made clean as normal and safe to drink.

We have spare capacity at Hanningfield Reservoir to treat water so installing a new pipeline to Hanningfield makes this a good option.



## In Suffolk

### Linking our WRZs

Our plan is to build new pipelines that will allow us to move water around our network from places with extra water to areas with a water shortage. These new pipelines will connect our Blyth, Hartismere, and Northern Central WRZs.

Northern Central WRZ is in surplus initially so once the new pipeline is built, it can share water with Blyth WRZ. We would build new pipes to link Northern Central to Hartismere and Northern Central to Blyth.

We can build a pipe much quicker than anything else so these schemes will be ready by 2030. The benefit here is that we'll be able to move water to areas that have less, meaning our customers in those areas can have a reliable supply of water in the future.

### New treatment works storage reservoirs

We will build new treated water storage reservoirs at treatment works in Hartismere and Northern Central. These reservoirs are small in comparison to Abberton, for example.

They usually hold a few days' worth of supply but would give us extra resilience in Suffolk in the future.

### New pipeline

We will install a new pipeline from an existing well near Bungay to a nearby water treatment works by 2030 to increase capacity in the area.

### Lowestoft and Caister water reuse schemes

Water recycling plants treat wastewater to a high standard and release it back into a river or reservoir. Thinking about wastewater being reused as drinking water can be off-putting but our drinking water has the strictest limits on it for cleanliness and a reuse plant strips everything out. It's like the process for desalination which turns sea water into drinking water.

We would buy wastewater from Anglian Water. Once treated we would discharge very clean water from the water recycling plant into a river where it would mix with river water, and travel for a distance of at least a mile, before being taken into an existing water treatment works that has spare capacity, where it would be made clean and safe to drink.

The water recycling scheme at Lowestoft would be ready by 2032. The scheme at Caister is not needed until 2045. It's likely that we could build these quicker than we could build a new reservoir.

### North Suffolk winter storage reservoir

Winter storage reservoirs are manmade or naturally occurring lakes where excess water is collected during periods of heavy rainfall over the winter.

If we build the Lowestoft Reuse scheme by 2032, we won't need a new winter storage reservoir until 2041. However, it could be ready by 2035, three years later than the water reuse scheme.

A winter storage reservoir is a low carbon option that is great for the environment in many ways. We don't have to use a large amount of electricity as it is low level pumping (Suffolk is relatively flat) and only over relatively short distances. It will also allow us to create hectares of natural habitat to help wildlife to thrive in the area. For example, when we expanded Abberton Reservoir we created one of the best wetland sites for birds in the country.

**Our best value plan is to complete the water reuse schemes first because we think we can deliver them more quickly.**

However, we're going to complete further work to see if we can build the North Suffolk winter storage reservoir more quickly and instead of the Lowestoft Water Reuse scheme. In the long term, a reservoir is a better and more environmentally friendly option than water reuse schemes.

There are fewer pumping costs, and we can help wildlife and nature thrive in the local area.

We will complete further detailed designs by 2026 and will then decide whether we construct the North Suffolk Winter Storage Reservoir or the Lowestoft Water Reuse Scheme.

**What our customers say:**

Winter storage reservoirs and new pipelines had high support at all stages of the research. Wastewater reuse schemes (which was tested as water recycling plants) was amongst the four options with the highest support.

Water recycling plants appealed to focus group respondents thanks to the 'recycling' element and the high amount of water generated. Among future customers water recycling plants is the most supported demand option.



## Delivering our plans affordably

**We know that clean and clear water is a priority for our customers. The investment that Ofwat allows for these plans will help us to continue to provide this essential service long into the future, but the cost of investments will be added to customer bills.**

We know that this is a difficult time for customers with the current cost of living pressures that we are experiencing. Alongside our dWRMP24 we continue to work hard to make sure that our bills remain affordable for all. We were the first company in the industry to commit to reaching zero water poverty by 2030, a target that we are currently ahead of.

There is a lot more that water companies need to do in the future than has been delivered in the past meaning we require a much larger investment across all areas of our business, for example, meeting the Government's targets to reduce storm overflows will represent 'the largest infrastructure project to restore the environment in water company history'. (Storm overflows operate in times of heavy rainfall and act like a relief valve on the sewer network to protect homes from sewer flooding).

We are working hard with our partners to meet the challenge, but the scale of new work is substantial.

We have developed our plans with our customers in mind to manage the impact on customer bills while making sure there will be enough water in the region in the future. We will consult customer and stakeholders to understand their preferences and priorities on the final WRMP in 2024 and then the draft PR24 Business Plan as a whole 'acceptability research programme' later in 2023.



**What is zero water poverty? We define water poverty as when a household spends more than 3% of its disposable income on water and sewerage charges.**

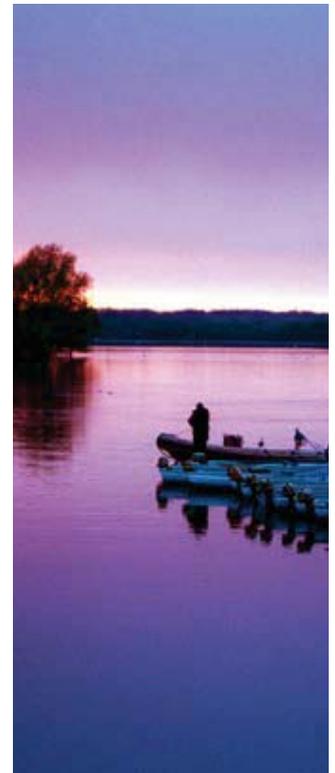
We will be able to give a more holistic view of the possible impact on bills across all services so we can build future plans that meet those priorities and balance the need for investment with affordability.

The impact of the 'best value plan' that we are proposing would be around an 11% impact on charges in the region.

As the cost of living and utility bills rise, we understand it's a difficult time for many.

If you're struggling to pay your bills or falling into debt, please get in touch.

There are many ways we can help you, from payment breaks and low-income discounts to advice on saving water which can help lower your energy bills too.



## Have your say

### This document is a non-technical summary of our draft Water Resources Management Plan 2024 (dWRMP24).

Our draft WRMP24 main report is a technical document written primarily for our regulators and technical stakeholders. It has been prepared for the purposes of consultation and will form the basis of the final WRMP.

The consultation period starts on Wednesday 21 December 2022 and closes on Wednesday 29 March 2023.

The Statutory Consultees are:

- The Secretary of State, Defra
- Ofwat
- Environment Agency
- Consumer Council for Water
- Natural England
- Local Authorities within our supply area
- National Park Authority
- English Heritage
- Navigation Authorities

Please email your comments (written representation) on this dWRMP24 to the Secretary of State for the Department for Environment Food and Rural Affairs (Defra) at [water.resources@defra.gov.uk](mailto:water.resources@defra.gov.uk) and to [waterresources@eswater.co.uk](mailto:waterresources@eswater.co.uk) with “**Essex & Suffolk Water draft Water Resources Management Plan 2024 Consultation**” in the email subject header.

Alternatively, you can send your comments to:

**Water Resources Management Plan Consultation,  
Department for Environment Food and Rural Affairs (Defra),  
Water Resources,  
Seacole 3rd Floor,  
2 Marsham Street  
Marsham Street,  
London,  
SW1P 4DF**

## Next steps

The consultation closes on Wednesday 29 March 2023.

We will publish a statement of response to any representations we receive on our website. This will confirm how we have taken account of each response in our final WRMP24.

In early 2023 we will talk to our customers about how much they are willing to pay for service changes and the impact this plan could have on customer bills.

Our final WRMP24 will be published in 2024.



## **APPENDIX 3**

## Written questions, answers and statements

UK Parliament > Business > Written questions, answers and statements > Find written statements > HCWS637

# HS2 Phase One - Financial Indemnity for Affinity Water

## Statement made on 22 March 2016

Statement UIN HCWS637

### Statement made by



**Mr Robert Goodwill**

Minister of State for Transport

Conservative

Scarborough and Whitby



[Commons](#)

### Statement

I have today laid before Parliament a Departmental Minute from the Department for Transport describing the contingent liability arising from an indemnity that will be provided to Affinity Water Ltd, protecting them from financial loss as a result of any construction damage to at-risk water resources from the construction of the Phase One, London to West Midlands HS2 rail line.

HS2 construction in the Colne Valley has the potential to cause damage to the chalk aquifer from which Affinity Water sources its water supply. An appropriate mitigation strategy will be developed during detailed design of the construction works, using information from ground investigation surveys. With the mitigation strategy in place, it is considered that the risks to the aquifer will be low. However, the risk of potential damage will exist despite the mitigation measures which will be applied. Should the aquifer or the company's abstraction points be damaged, Affinity Water is likely to face a consequential financial loss. There is no existing protection for Affinity Water in respect of this loss and they would be unlikely to make a successful claim under common law. Under standard compensation arrangements, the basis for compensation would link to the loss in value or damage to a claimant's property, which for Affinity Water could include pipes or pumps. However, the water in an aquifer is not a property of Affinity Water and so they have no protection if the project causes damage to the resources on which they are dependent. Therefore, Affinity Water require the Department for Transport to carry the liability for any financial loss arising from any impact of the Phase One construction works on their abstraction points.

The worst case scenario with respect to the liability would include the cost of replacing 3 abstraction boreholes, each one is estimated to cost £20m, and also the cost of providing temporary replacement water supplies during the period for which water abstraction is interrupted. The indemnity will not be limited, however, under the worst case scenario, the projected cost of the indemnity is expected to be approximately £77m. The duration of the liability is scheduled to last for four years from 2017 – 2021, which represents the period of the construction works which might cause the potential damage. The worst-case scenario, in which HS2 must replace more than one borehole, is considered to be remote.

If the liability is called, provision for any payment will be managed through normal supply procedure. The Department will be noting this Contingent Liability in its Accounts.

### Statement from

Department for Transport



## Linked statements

This statement has also been made in the House of Lords

### Department for Transport

HS2 Phase One - Financial Indemnity for Affinity Water



[Lord Ahmad of Wimbledon](#)

Parliamentary Under Secretary of State for Transport  
Conservative, Life peer

Statement made 22 March 2016

HLWS620

Lords

## Attachments



### Contingent Liability - Affinity Water

PDF (117.24 KB)



## **CONTINGENT LIABILITY – DEPARTMENT FOR TRANSPORT, AFFINITY WATER**

It is normal practice, when a government department proposes to undertake a contingent liability in excess of £300,000 for which there is no specific statutory authority, for the minister concerned to present a departmental minute to Parliament, giving particulars of the liability created and explaining the circumstances; and to refrain from incurring the liability until 14 parliamentary sitting days after the issue of the Minute, except in cases of special urgency.

Affinity Water Ltd (“Affinity”) is a water-only supplier covering parts of Bedfordshire, Berkshire, Buckinghamshire, Essex, Hertfordshire, Surrey, and north-west London. Affinity draws a significant proportion of its water supply from a Chalk aquifer south of Harefield, using licensed abstractions. The route of HS2 will pass close to these sources and within 1km of 6 of Affinity’s abstraction points (combined abstraction more than 70 million litres per day). It is considered that the 3 boreholes closest to the proposed HS2 Colne Valley Viaduct in this area will be at risk from the impact of the HS2 construction works. The closest abstraction point, Blackford, is located approximately 40 metres from the centreline of the route.

The risk of impact to the groundwater at the borehole locations arises from activities including the piling required for the Colne Valley Viaduct, tunnel boring along the proposed Chiltern Tunnel, excavation of cuttings and general construction operations at the surface such as topsoil stripping and stockpiling. Potential risks associated with these activities include the release of contaminative fluids (via spills etc.), changing the hydraulic flow regime around boreholes and the creation of chalk particles as ‘turbidity’ within groundwater. This turbidity interferes with the water treatment process for bacteria. Water abstraction automatically terminates when the turbidity level increases above the safe limit. The impact of even low levels of turbidity could cause the closure of a source due to the high quality required to be met for potable use.

Mitigation measures will be adopted to avoid the construction impact risks set out above. However, fully mitigating against the risk is not possible due to the unpredictable nature of impacts on the aquifer. The realisation of this risk would affect Affinity’s supply and thereby cause them financial detriment. The High Speed Rail (London to West Midlands) Bill provides water companies with specific means of recourse against the Promoter of the Bill (the Secretary of State for Transport) for any damage to their apparatus (i.e. pipes or distribution network), including if the Promoter causes a loss of supply through damaging their assets. However, the Bill does not protect water companies if the project causes damage to the resources on which they are dependent. As a result, if Affinity Water should suffer any loss as a result of impact on water resources, their only legal recourse against the Promoter will be through common law (i.e. negligence). However, if the Promoter has undertaken all reasonable measures to protect the water resources and Affinity’s abstraction, they will not have been negligent or have failed in their legal duty of care, meaning Affinity will have no claim against them either under common law or the Bill. A specific, contractual indemnity would ensure that Affinity can formally reclaim any losses incurred as a result of impact from HS2 upon natural water resources. This indemnity will

effectively transfer the financial risk caused by the project back to the Promoter, instead of it lying with Affinity or their customers. This indemnity would provide Affinity with a cause of action against the Promoter, even where it was clear the Promoter had acted with due care and was not negligent.

This indemnity will be time limited to effects arising as a result of the construction activities. This indemnity would not cover detriment due to Affinity's own negligence. It is further noted that the Promoter would be liable for any detriment on account of its own negligence or that of its contractors irrespective of this indemnity.

The worst case credible impact is considered to be a case where 3 boreholes are affected (more than temporarily) and must be replaced in conjunction with a requirement to import temporary replacement supplies for a combined period totalling one year. The costs resulting from this combination of events would be in the order of £77 million. This figure accounts for the risk from contractor negligence (i.e. contaminant spill) as well as the inherent risks from construction close to the aquifer (as outlined above) and is included within budgets. The liability will not be limited and if the liability is called, provision for any payment will be sought through the normal Supply procedure.

For the HS2 Phase One route (London to the West Midlands), there are no other water companies' abstraction points as near to the proposed line of route as Affinity Water's. With respect to this indemnity creating a precedent for future infrastructure projects, the principle behind this indemnity mirrors that of indemnities given to other statutory undertakers and, therefore, does not represent a shift from the approach taken on other schemes.

HM Treasury has approved this proposal in principle. Final approval to proceed with incurring the liability will not be withheld unless a notice of an objection is received during the 14 parliamentary sitting days. In case of any such objection, final approval to proceed with incurring the liability will be withheld pending the examination of the objection.