

1.0 Description of the Proposals

March 2023



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1. EXECUTIVE SUMMARY

South West Water is applying for a drought permit under section 79A of the Water Resources Act 1991 ("**WRA 1991**") to use, with temporary amendments, the abstraction licence SW/047/0051/003 as dated 7 February relating to abstraction from the inland water known as the River Lyd at Lifton, Devon for the purposes of Public Water Supply.

The proposed actions set out in this permit will offer support across the entire Roadford Water Resource Zone ("**WRZ**") in response to the Exceptional Shortage of Rainfall ("**ESOR**") from March 2022 to August 2022 and its subsequent impact on the hydrological and water supply system leading to this application, which presents an anticipated future risk to the security of supply in 2023.

This abstraction licence was issued to South West Water in February 2023, as a winter licence. South West Water is applying for a drought permit to extend abstraction period from the River Lyd and to abstract water directly to Roadford Reservoir.

Under the existing Licence South West Water is allowed to abstract a maximum of 40,000m³ per day, with an instantaneous rate not exceeding 556 litres per second from 1 November to 31 March inclusive. This is also subject to an aggregated quantity of water under licence serial number 15/47/013/S020 not exceeding 148,000 m³.

This drought permit application is seeking to extend the period of abstraction at the River Lyd from 1 April 2023 to 30 May 2023. The abstraction shall not exceed the maximum daily abstraction volumes set out in the Licence.

South West Water proposes to maintain the means of measurement of water abstracted and the further conditions noted under 9.1 within the existing Licence from 16 January to 31 March to the proposed extended period of abstraction.

From 1 April 2023 to 30 May 2023

No abstraction shall take place unless the rate of flow in the River Lys as measured immediately upstream of the authorised point of abstraction at National Grid Reference SX 39921 85071, marked as point 'A' on the maps, is not equal to or greater than 537 litres per second and the abstraction shall not cause the flow immediately downstream of the of the said abstraction point to fall below that rate.

South West Water also intend to maintain the condition noted under condition 9.2 of the exiting Licence, meaning the quantity of water abstracted shall not exceed 50 percent of the available flow in the River Lyd in excess of the hands off flow.

In addition to this Drought Permit for the Roadford WRZ we are reviewing opportunities for further mitigation options outlined within our Drought Plan.

2. BACKGROUND

South West Water's Drought Management Plan ("**the Drought Plan**"), which has been approved by DEFRA, sets out the actions and interventions which will be used to reduce the demand for water and options to increase access to water during times of drought.

The Drought Plan details the actions expected to be taken at various "Drought Levels" based upon benefit, confidence, and the need to support the environment (e.g., watercourses, waterbodies, and ecology). Our approach has meant that up until 2022, we have avoided the need to impose demand restrictions for 25 years.

This permit application is required due to exceptional shortage of rainfall (ESOR) between March 2022 to August 2022. The consequence of this period of ESOR resulted in inflows to Roadford reservoir reaching historical monthly minima in April and May 2022 and the hydrological position across the WRZ did not start to recover until modest increases from September 2022. The 2022 event is the longest sustained drawdown on Roadford Reservoir since the 1995 drought event with minimum levels of 33.5% reached in October 2022. This is a direct consequence of the length of time supply releases were being made due to the low River Tamar flows and the low resources from local sources across the WRZ.

Dry weather in early December 2022 and from mid-January 2023 to the start of March caused reservoir storage to drop between periods of recovery and Roadford Reservoir levels are currently at 60.7% and have entered drought level 2. This means we are currently projecting a risk to supply in 2023, as recovery to acceptable storage levels will not be possible without intervention.

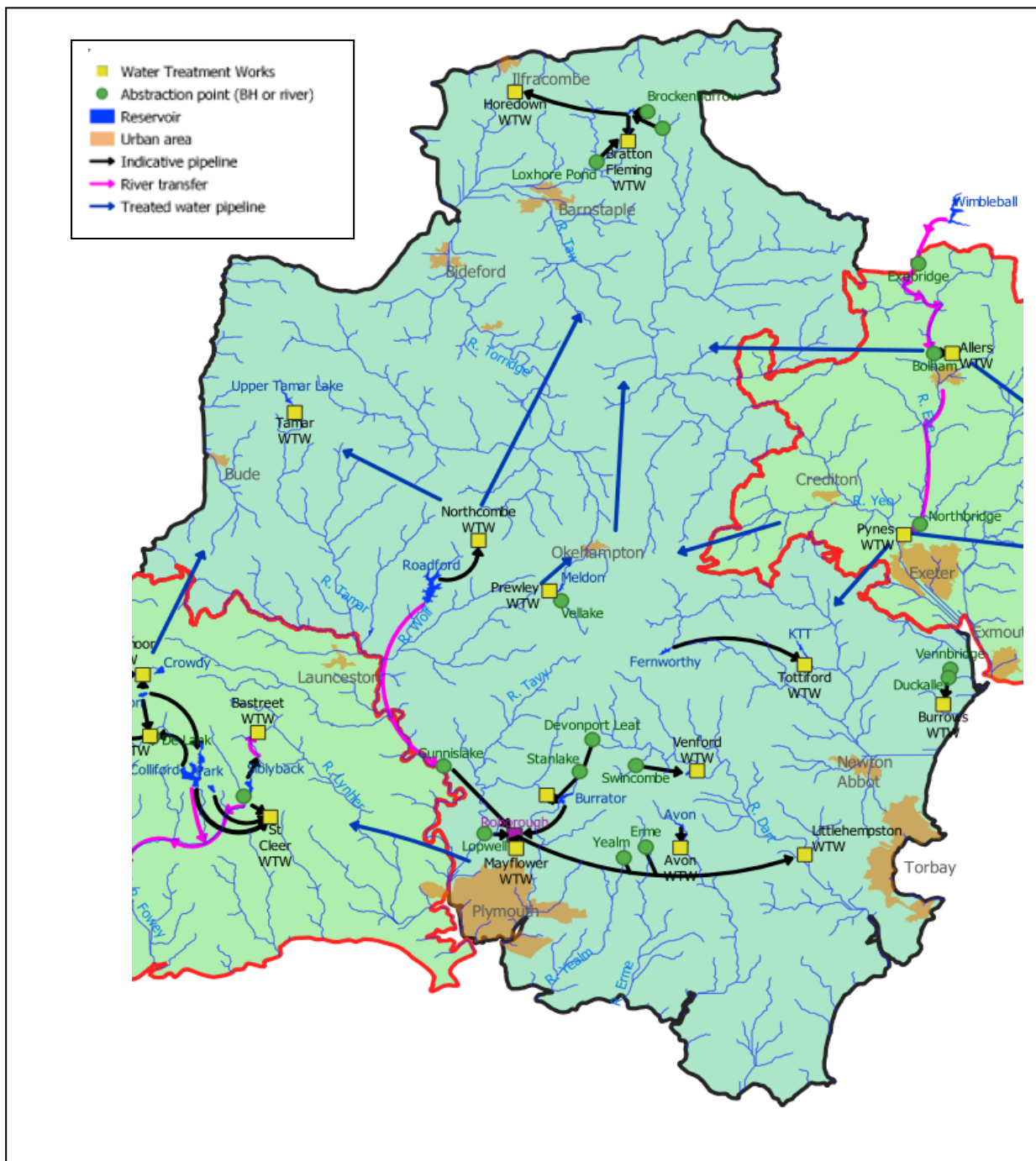
Roadford Reservoir is also susceptible to multi-season impacts due to the modest potential for storage recover between years and an ESOR can have impacts into subsequent years.

The three month outlook for March to May suggests a higher than normal chance of a dry spring which means the effects of the march 2022 to August 2022 ESOR are therefore more likely to be exacerbated due to limited further recover before we enter the 2023 reservoir drawdown period.

The Roadford WRZ serves a population of c. 422,000 domestic and commercial properties.

The strategic Roadford reservoir is responsible for supplying c.48% of the total population of the South West Water Region. Whilst other smaller treatment works and reservoirs exist and supply local areas, they cannot substitute the supply for Devon in the event of Roadford Reservoir running out of water.

Figure 1 - Map showing the Roadford WRZ



Critical to the recharge of Roadford Reservoir is the Lyd recharge which is used as a pumped winter recharge option for Roadford Reservoir.

Routine operational levers to reduce demand on the system are dependent on a combination of available raw water resource and production headroom at supporting reservoirs and WTW (Tamar, Bratton, Northcombe and Prewley). During 2022, all reservoirs in the Roadford WRZ have experienced reduced levels due to the exceptional shortage of rainfall across the region, a combination of reduced in-year refill and higher than base year demand.

As such, it has been necessary to draw down Roadford Reservoir by releasing higher volumes for a longer period to support supply for the wider Roadford WRZ.

The Roadford Reservoir is the largest and most significant store of water resources in the region and is fundamental to the operation of the system of reservoirs and pipes which keep our customers supplied.

On 26 February 2023 Roadford Reservoir crossed Drought Level 2. Since last year we have been communicating with customers within the region asking them to reduce their water use. The company has also actively prepared for the implementation of a Temporary Use Ban (TUB) for the Roadford WRZ. The implementation of a TUB will require internal approval and the proposal to implement TUB is currently going through the company's internal governance process so that its implementation is at a time which will have most impact on customer demand.

This application, to extend the abstraction period from the River Lyd provides direct support to Roadford Reservoir through the provision of up to an additional 40 Ml/d of water into the Roadford WRZ. The precise benefit is dependent upon river inflows and customer demand in in this zone.

Due to the considerable investment and engineering requirements already in place to enable this implementation of the new Licence issued in February 2023 there is a high level of confidence associated with the anticipated benefits.

Given how critical Roadford Reservoir is to supply in the Roadford WRZ, South West Water will continue to regularly review the need to apply for further drought management measures to ensure uninterrupted supply to customers and to meet demand.

This document is part of a suite of documents which form the application for the drought permit as set out in Table 1. The structure and contents of the documents follows the requirements set out in **Appendix E** of the EA guidance on drought permits and drought orders ("**The Drought Permit Guidance**"), which was issued in 2019 and revised in 2021, with some adjustments to the sequence of documents / sections.

Table 1 Document structure and checklist for drought permit application

| Documents: Drought Permit Proposals | | |
|-------------------------------------|-----|--|
| 1 | 1.0 | Description of Proposals including a location map |
| | 1.1 | Draft Permit |
| | 1.2 | Drinking Water Services Report 2023 – Operations Supporting Evidence |
| | 1.3 | Appendix 1 River Lyd Abstraction Licence |
| | 1.4 | Appendix 2 National Security Notice |
| 2 | 2.0 | Statement of Reasons |
| | 2.1 | Case for Exceptional Shortage of Rain (ESOR) |
| 3 | 3.0 | River Lyd Drought Permit Environmental Assessment Report |
| 4 | 4.0 | Evidence the Company has followed its Drought Plan |
| | 4.1 | Appendix 1 Enhanced Media Campaign |
| | 4.2 | Appendix 2 Leakage and pressure management |
| 5 | 5.0 | Consultation Process |
| | 5.1 | Appendix 1 Formal Notice |
| | 5.2 | Appendix 2 Email to Stakeholders |

3. DESCRIPTION OF THE PROPOSALS

3.1 Overview of catchments

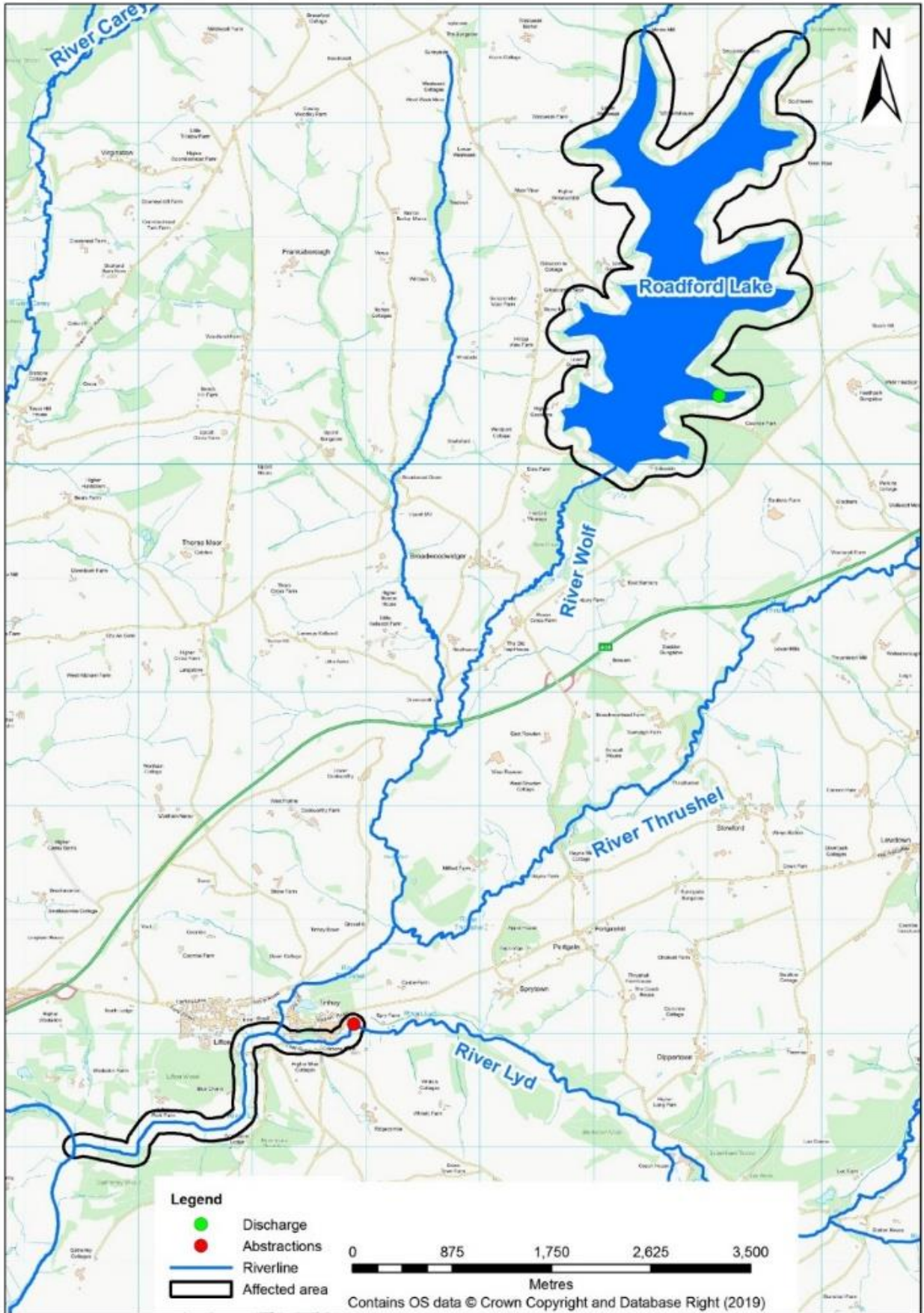
Roadford Reservoir is an important source of water supply in South West Water's Roadford WRZ in the South West of England.

South West Water is authorised to abstract water from the River Lyd, this abstraction Licence was granted on 7 February 2023.

The River Lyd is part of the eastern catchment of the River Tamar and comprises the main upland area of the Tamar catchment, with Dartmoor dominating much of the headwaters. The River Lyd rises on Dartmoor, flowing over moorland, before reaching Lydford Gorge. Site of Special Scientific Interest (SSSI). Downstream of Lydford Gorge, the landscape of the River Lyd becomes agricultural before the river meets the Tamar downstream of Lifton. The overall classification status of the Lower River Lyd (GB108047007731) was Good in 2019.

Document 3 Environmental Assessment Report provides further detail alongside our monitoring and mitigation plans.

Figure 2 - Map of the Lyd, Thrushel and Wolf operational catchments, location of South West Water's proposed abstraction point on the River Lyd, proposed discharge point on Roadford Reservoir, and the extent of the affected area



3.2 River Lyd Licence

South West Water is applying for a drought permit under section 79A of the Water Resources Act 1991 ("**WRA 1991**") to temporary extend the abstraction period, to abstraction licence SW/047/0051/003 issued on 7 February 2023.

Abstraction, by means for pumps, from the inland water known as the River Lyd at Lifton Devon was authorised by the Environment Agency for the purpose of filling a reservoir for subsequent abstraction for public water supply.

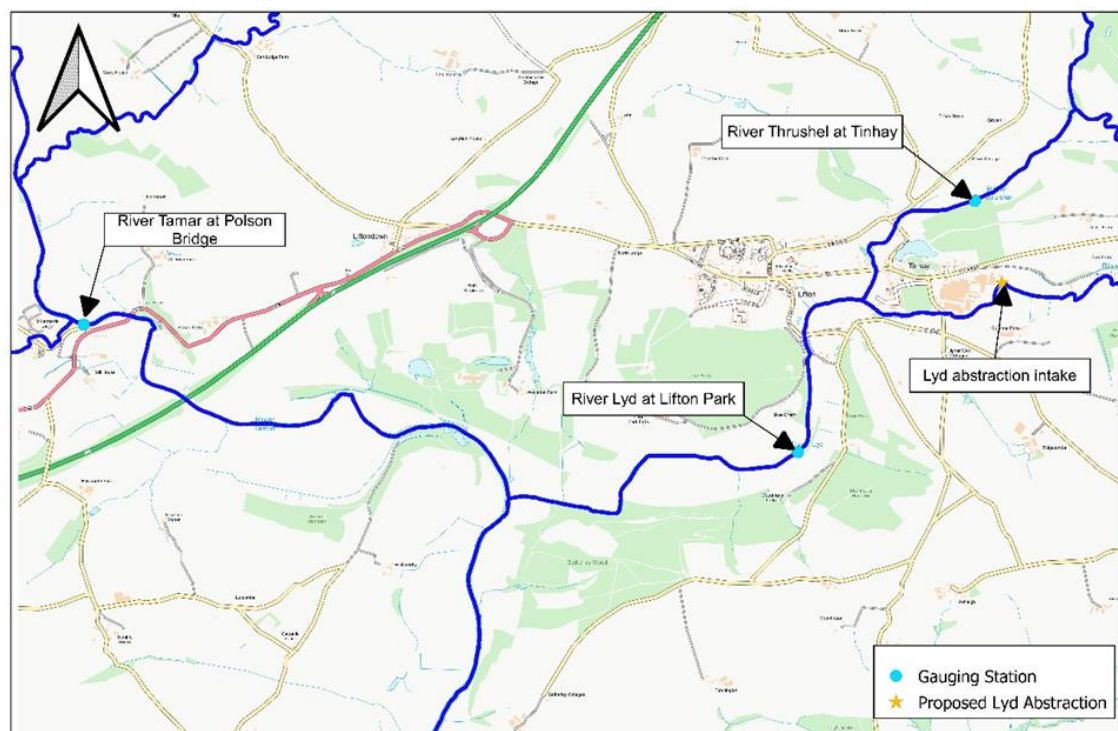
The period of abstraction is from 1 November to 31 March inclusive at an instantaneous rate not exceeding 556 litres per second with the maximum quantity of water to be abstracted being 2,000 m³ per hour, 40,000 m³ per day, 6,000,000 m³ per year.

The aggregate quantity of water authorised to be abstracted under this licence and under licence serial number 15/47/013/S/020 shall not exceed 148,000 m³ per day.

Requirements for the means of measurement and records are also specified within the Licence together with further conditions specifying the rate of flow required in the River Lyd at point 'A':

- From 1 November to 15 January is equal to or greater than 1,343litres per second and the abstraction shall not cause the flow immediately downstream of the said abstraction point to fall below that rate.
- From 16 January to 31 March is equal to or greater than 537litres per second and the abstraction shall not cause the flow immediately downstream of the said abstraction point to fall below that rate.

Figure 3 - Map of the River Lyd abstraction point



Contains Ordnance Survey data © Crown copyright and database right (2019)

0 250 500 m

3.3 The intended drought permit

3.3.1 Context

Alongside demand reduction activities, this drought permit is necessary to improve storage at Roadford Reservoir thereby assisting the securing of water for public supply during 2023.

3.3.2 Delivery

This application is already enabled by the installation of pumps and pipeline from the River Lyd to Roadford Reservoir.

The realisable benefit will be dependent upon river levels and inflows.

Water would be abstracted from the River Lyd via an existing 7.5 km pipeline, which would discharge into Roadford Reservoir at a single location. There are eel compliant screens at the Lyd intake.

This application seeks extend the pumped abstraction period of up to the licenced 40 Ml/d from 1 April 2023 until 30 May 2023.

An Environmental Assessment Report has been commissioned to support this application, (Document 3).

Roadford Reservoir is at 60.7%, as at 17 March 2023, and is in Drought Level 2. Our projections illustrate a risk of entering Drought Level 3 at the 95th percentile planning projection by November 2023, and therefore both supply and demand interventions are needed.

During an average year net storage as at March 2024 would be expected to be at circa 70%. Without interventions our planning projections illustrate 2024 net storage rates of 60% (75th percentile) and 43% (95th percentile), illustrating a significant risk to Summer 2024 due to the multi-season nature the Roadford Reservoir system.

The current reservoir level, and the Exceptional Shortage of Rainfall (ESOR) seen from March 2022 to August 2022 and its subsequent impact on the hydrological and water supply system leading to this application, which presents an anticipated future risk to the security of public water supply in 2023 and 2024.

3.3.3 Start and end dates

We would like to commence abstraction on the 1 April 2023. The proposed end date would be 30 May 2023, or a date mutually agreed with the EA.

3.3.4 Proposed drought permit

The proposed drought permit application will involve extending the period of pumped abstraction from the River Lyd should river inflows allow under the existing licence conditions noted from 16 January to March 2023.

Subject to agreed conditions the permitted abstraction may only be taken between 1 April 2023 and 30 May 2023.

Any other conditions of the Licence shall remain in place.

The mitigation measures are set out in of Document 3 Environmental Assessment Report.

3.4 Further conditions of the permit

South West Water's monitoring and mitigation plan for the proposed permit is included with the Environmental Assessment Report (Document 3).

South West Water anticipates that further to this application, discussions with the Environment Agency will be held to review the need for further conditions attached to this permit.

3.5 Summary of Impacts

The predicted impacts (arranged by season and receptor) are summarised in the table 8.1 with in the Environmental Assessment Report – Document 3, page 153. The table indicates impacts for all receptors under the drought permit scenario as minor or negligible.

3.6 Monitoring and Mitigation

There is an ongoing baseline drought monitoring and mitigation programme for the River Lyd which is conducted jointly by the Environment Agency and South West Water. It is part the currently Environmental Monitoring Plan (EMP) with in the abstraction licence application EAR, which also includes proposed 'during abstraction' and 'post abstraction' monitoring . It is proposed that this EMP be modified as necessary for the purposes of monitoring associated with the proposed drought permit.

The receptors to be monitored are those stated on the abstraction licence conditions detailed in Table 9.1 (page 156) of the Environmental Assessment Report.

The environmental assessment indicates that the proposed drought permit presents a low risk to the environment. Nevertheless, monitoring has been recommended, to check the predicted degree of impact.

Weekly visual monitoring walkover are recommended upon implementation of the drought permit, reducing to fortnightly after one month in consultation with the Agency. Walkovers would look for signs of distressed/trapped fish (particularly emigrating smolts) in the vicinity of in-stream structure that may represent barriers to migration.

A pre-implementation baseline walker, as close to the drought permit operation as possible, is also recommended in order to establish baseline condition and to understand to what degree any change is attributed to the drought permit itself.

4. COPY OF ABSTRACTION LICENCE

A copy of the River Lyd abstraction licence is included in document 1.3 Appendix 1.

5. REFERENCES

Environment Agency, 2021, Drought permits and drought orders – Supplementary Guidance from the Environment Agency and Department of Environment, Food and Rural Affairs.

South West Water, 2022, Drought Plan, September 2022 .
