River Test Drought Permit Application

1.1 Description of the proposals

19 July 2022
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Figure 1 Catchment overview
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1 Background

Southern Water is applying for a drought permit under Section 79A the Water Resources Act (WRA) 1991 to make temporary amendments to abstraction licence 11/42/18.16/546 to abstract water from the River Test.

1.1 The drought permit application documents

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 permit and drought orders, which was issued in 2019 and revised in 2021 (Environment Agency, 2021), with some adjustments to the sequence of documents / sections.

Table 1 Document structure for drought permit application

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Section 20 Agreement
Summary of the Section 20 Agreement
Monitoring plan
Mitigation Plan
Reasons for the permit
Abstraction, DI and transfer Data
Exceptional shortage of rain (ESOR) case
Evidence the Company has followed Drought Plan
Drought Communication Plan
Effectiveness of Restrictions

Monitoring and Mitigation Plan
Fish Monitoring Mitigation Plan
Water Quality Monitoring
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Section 20 monitoring and mitigation progress
HRA – Test surface water drought permit stage 2
EAR (Appendix B of Drought Plan)
EAR (appendix D of Drought Plan)
Consultation
Testwood Abstraction Licence
General Summary
1.2 Objectives of this document

This document provides a description of the proposed drought permit as required in the drought permit guidance (Environment Agency, 2021).

A draft drought permit is included as Appendix 1: document 1.1 App 1 Draft Permit 2019.

A copy of the Section 20 (S 20) agreement is included as Appendix 2: document 1.1 App 2 Section 20 Agreement.

The circumstances and a summary of the S 20 agreement are set out in Appendix 3, document: 1.1 App 3 Summary of the S 20 agreement.

1.3 Drought Permit Guidance

This set of drought permit application documents have been prepared with reference to the Environment Agency Drought permits and drought orders guidance, updated in March 2021 with the filename: Drought permits and orders guidance_updated Mar21.pdf.
1.4 Application checklist for accompanying information

The Drought Permit application form includes a checklist of accompanying information. The items on the checklist are to be found in the set of documents as set out in Table 2.

### Table 2 Application checklist

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## 2 Description of the proposals

### 2.1 Catchment overview

The River Test is a Chalk stream that rises in Overton in Hampshire. Downstream of Timsbury, the Test flows across the clays and sands discharging into Southampton Water. Approximately 50 km in length, with a catchment area of 443 ha, the River Test is longer and larger than its eastern neighbour, the River Itchen. The catchment setting is shown in Figure 1.

Like all Chalk rivers, the River Test is characterised by a baseflow dominant flow regime. The reaches downstream of Romsey are characterised by several significant flow splits, which divert water away from the main channel, for example, the Great Test-Little Test divide. This is due to the historical modifications (realignment and deepening) for land drainage, flooding of water meadows, navigation and water mills. The river is still heavily managed, with many control structures, some of which support current commercial activities, including fishing, that occur along the river.

The river is designated as a Site of Special Scientific interest (SSSI) downstream to the NTL. The transitional and estuarine water bodies downstream of the normal tidal limit have European level protection through the designations of the Solent Maritime Special Area of Conservation (SAC), Solent and Southampton Water Special Protection Area (SPA) and the Solent and Southampton Water Ramsar site. The Lower Test Valley is also designated as a SSSI.

Southern Water’s Testwood abstraction intake is located at Testwood on the Great Test, approximately 1.4 km above the normal tidal limit at Testwood Mill. The proposed Test Surface Water Drought Permit would temporarily modify the abstraction licence conditions for this water source and therefore this report is focused on the lower reaches of the Test, downstream of the M27 motorway crossing and especially downstream of the abstraction.

#### 2.1.1 Flow splits in the Lower Test

The Lower Test is characterised by a number of significant flow splits. A simplified representation of the distribution of the channels in this area is shown in Figure 2. The main splits of relevance to this Permit are the Broadlands Fish Farm Carrier, the Test Back Carrier, the Great Test-Little Test split, and the Nursling Fish Farm diversion.

#### 2.1.1.1 Broadlands Fish Farm carrier

This is an old water meadow carrier controlled by a sluice on the Broadlands estate, with the flow taken from the River Test immediately upstream of the gauging station at Broadlands and passing via the carrier to the River Blackwater downstream of the Ower gauging station. Flows in the carrier are measured at M27 TV1 gauging station (not shown on Figure 2).
2.1.1.2 Test Back Carrier

The Test Back Carrier is a small offtake from the Test just downstream of the Broadlands gauging station. The carrier is not maintained recently and under summer low flow conditions there is generally no flow in the carrier. Flows are measured by spot flow gaugings when required.

Figure 1 Catchment overview
2.1.3 Split between the Great Test and the Little Test
The flow split between the Great Test and the Little Test was set by legally binding arbitration in 1831 (the Coleridge Award), which allows one third of flow through the Little Test and two thirds through the Great Test. However, both branches of the river are in single ownership and management is at the discretion of the owners and their tenants. The flow split is controlled by Conagar sluice and is reasonably stable, but under very low flow conditions more than one third of flows has been measured at the Little Test. The Little Test is measured at Conagar Bridge gauging station.

2.1.4 Nursling Fish Farm
This fish farm carrier diverts water from the Great Test above Testwood (under abstraction licence 11/42/18.16/547) to Nursling Fish Farm and can then return the water to the River Test either directly downstream of the fish farm or though settling ponds to downstream of the Testwood gauging station and abstraction. The diversion can have a significant impact on flows in the downstream reaches and at the Testwood abstraction location.
2.2 Section 20 agreement

This River Test drought permit application is subject to an operating agreement between the EA and Southern Water, under Section 20 of the Water Resource Act 1991 (the ‘Section 20’ or ‘S 20’ agreement). This agreement formalizes an agreed timetable and sequence of actions for undertaking drought permit applications on the River Test.

It also includes a number of agreed undertakings between the EA and Southern Water in relation to a drought permit application, as well as a comprehensive package of monitoring and mitigation measures to be undertaken.

A copy of the S 20 agreement is provided in Appendix 2, document: 1.1 App 2 Section 20 Agreement.
The circumstances and a summary of the S 20 agreement are set out in Appendix 3, document: 1.1 App 3 Summary of the S 20 agreement.

2.3 Our abstraction on the River Test

2.3.1 The Testwood licence
The current version of the abstraction licence for our source at Testwood (licence 11/42/18. 16/546) was issued in March 2019. The licence permits us to abstract up to 3.5 Ml per hour, 80 Ml per day and 29,200 Ml per year.

2.3.2 Hands off flow condition
The licence also has a flow condition (a ‘hands-off flow’, or ‘HOF’ condition) that abstraction should not take place when the Total Test Flow, being the summation of flows as measured by the EA at Testwood Bridge (the Great Test downstream of the confluence with the River Black water), Test Back Carrier and Conagar Bridge (both branches of the Little Test) is less than 355 Ml/d. This condition is time limited in the licence to March 2027 and after then the licence conditions become more stringent in the months from March to December, with the HOF increasing to 390 Ml/d. In practice, as the EA has not yet established a real-time gauging station at Testwood Bridge, the Total Test Flow has to be summed from five flow records. (See section 2.3.3.)

2.3.3 Monitoring of river flows for the HOF condition
At Testwood Bridge there is not a continuous flow gauging station, even though it forms part of the licence condition. If and when flows fall close to the HOF, the EA intends spot flow gaugings at Testwood Bridge by the EA will inform the definitive basis for compliance with the licence conditions. As this river flow information is not available in real-time, it is unsatisfactory from the company’s perspective of ensuring compliance with licence or permit conditions. In practice, the company will use the available real time information.

Flows at Testwood Bridge can be approximated by continuously gauged and telemetered measurements of the three main channels which contribute to the Test at this point, namely the Testwood flow gauge on the River Test, River Blackwater flows as measured at Ower gauging station and the Broadlands Fish Carrier as measured at M27 TV1 gauging station.

Our monitoring of flows in relation to the licence condition is therefore based on the combined flows at the following gauging stations:

- River Great Test at Testwood
- River Blackwater at Ower
- Broadlands Fish Carrier at M27 TV1
- River Little Test at Conagar Bridge

Together these form the best estimate available for continuously monitored and telemetered flow data for the Test Total Flow (TTF) sequence in relation to the licence condition.

Data from each of these stations are available via the Environment Agency API data transfer system, although sometimes with a lag of a couple of days. We use this data transfer system to
update our monitoring of the flow recession, and our forecasts, of when flow triggers may cross in the future (see Section 3.3 of Document 1.2 Reasons for the permit).

The flow of the Test Back Carrier is also a required (a fifth component, to add to the four above) to make up the Total Test Flow as intended by the licence, but in recent years during low flow periods, its flows have been extremely low. Therefore, Southern water will (conservatively) ignore that contribution in monitoring the flow in respect of the licence flow condition.

2.3.4 Force Majeure

There is also a ‘Force Majeure’ condition on the licence, which can occur when there is ‘an unexpected threat to provision of public water supply beyond the control of the Licence Holder, arising from circumstances of natural cause or force majeure which are exceptional or could not reasonably have been foreseen…”

The force majeure clause makes provisions for the daily limit to be increased to 96 Ml/d and/or for the HOF condition to be lowered, in the event that EA is satisfied that a Force Majeure event is occurring.

The force majeure condition on the licence is not intended to supersede Southern Water’s statutory requirements to follow its Drought Plan and to apply for drought permits and drought orders at Testwood in accordance with the Section 20 (S 20) agreement (see Appendix 3 for a summary of the S 20 agreement).

2.4 The intended drought permit

2.4.1 Context

The purpose of the drought permit is to secure supplies for our customers in our Hampshire Southampton West water resource zone.

This drought permit application is being submitted in line with the S 20 Agreement and in accordance with our published Drought Plan (Southern Water, 2019). The S 20 Agreement is provided in full in Appendix 2 (doc ref: 1.1 App2 Section 20 Agreement) and is summarised in Appendix 3 (doc ref: 1.1 App3 Summary of the Section 20 Agreement).

Southern Water is licensed to abstract water from the River Test (licence number 11/42/18.16/546). Under the terms of the Licence, Southern Water is allowed to abstract a maximum quantity of 29,200 Ml/year, 80 Ml/d or 3.5 Ml/hr, subject to the River Test flow (Total Test Flow) remaining above 355 Ml/d.

2.4.2 Start and end dates

The proposed start date is the date of determination by the Environment Agency.

The decline of flows on the River Test down to the hands-off flow condition of 355 Ml/d will determine when we need the permit. Our flow forecasts are set out in more detail in document 1.2 Reasons for the permit, section 3.4. Initial forecasts indicated that the permit may be required by 25th August 2022, and this forecast has been the basis of the timing of this application.
However, we note that there has been some variation in river flows, with flows dropping unusually rapidly in recent days, which has introduced some uncertainty to the forecast and the possibility that there may be a need for the permit to start before the 25th August. We will keep the situation under close review with the Environment Agency.

The proposed end date would be six months after the date that the permit starts, or a date mutually agreed with the EA when the threat to public water supply has passed. This could be when river flow has returned above the 60-day trigger and remained above that flow for at least four weeks.

2.4.3 Proposed drought permit
The proposed drought permit will involve an amendment to the abstraction licence to:

- Reduce the River Test ‘hands-off flow’ condition (Condition 9.1) from 355 000 cubic metres per day to 265 000 cubic metres per day.

The lowered river flow condition is the sole change to the licence intended for this Drought Permit as represented in the S 20 Agreement and our Drought Plan.

The lowered river flow condition does not mean that abstraction will be increased to reduce the flow to the lower limit, it only means that Southern Water may carry on abstracting to the flow of 265 Ml/d if necessary, depending on the recession of flows in the river.

A draft permit is included in Appendix 1 document ref: 1.1 App 1 Draft Permit which is based on a previous draft drought permit application submitted in 2019.

2.4.4 Further conditions to the Permit
When a drought permit for the Testwood abstraction was granted by the EA in September 2019, a number of further conditions were added to the Permit. These included:

- A condition (1.1.3) that the aggregate quantity of water should not exceed 55 000 m³/day over a rolling 30 day period
- A condition (1.2) that Temporary Use Bans should be in place before the permit is implemented A condition (2.1) setting out when / under what conditions the permit would cease to be in force
- Conditions (3.1 – 3.2) for a number of automated water quality monitoring sites to be installed and operational, with trigger thresholds for actions
- Conditions (4.1) for further spot water quality sampling and monitoring at a number of locations
- Conditions (5.1 – 5.10) for fisheries and biodiversity monitoring

We anticipate that further to this application, discussions will be held with the EA to review the need for the above or other conditions before any further conditions are finalised for a 2022 drought permit. We suggest these discussions should include reflection on whether the ‘55 000 m³/day – 30-day rolling average’ is desirable relative to the implications of reduced flexibility of transfer support to the River Itchen supply area should the River Itchen flows also decline and, also reflection as to implications of reduced flexibility to cover risks to supplies on the Isle of Wight.

Our monitoring and mitigation plan for the River Test drought permit has been updated and is included with the application (Document ref: 2.2 Monitoring and mitigation plan). We encourage
the EA and Natural England to consider this before concluding what conditions may be necessary to the 2022 River Test drought permit.

We also remind the EA of the access constraints we have in the Lower Test area for monitoring and mitigation work and, the EA should consider using its power of entry to undertake essential monitoring.

2.5 Summary of impacts

The proposed drought permit will reduce the hands-off flow licence condition from 355 000 m$^3$/day to 265 000 m$^3$/day. This means Southern Water will be able to continue abstracting water from the River Test abstraction when river flows fall below 355 000 m$^3$/day.

No other abstractors hold licences to water from the River Test downstream of Southern Water’s abstraction point on the River Test. There is one groundwater abstraction in Southampton, but this source should not be affected by changes in flows in the River Test.

An environmental statement setting out a summary of the environmental assessments which have been undertaken for this drought permit is included as document ref: 2.1 Environmental Statement.

The other documents with the environmental assessments and monitoring plans are:

2.2_Environmental Monitoring & Mitigation Plan
2.3 Section 20 implementation Progress
2.4 Test Surface Water Drought Permit Stage 2
2.5 EAR Appendix B of Drought Plan - Hydrology and Physical Environment Assessment
2.6 EAR Appendix D of Drought Plan - Environmental Features Assessment

3 Copy of abstraction licence

A copy of the abstraction licence is included as Appendix 6, document ref: 1.1 App 6 Testwood abstraction licence.
References

Environment Agency, 2011, Lower Test Project


Southern Water, 2019, Final Drought Plan 2019, Southern Water Services Ltd. Available at: https://www.southernwater.co.uk/our-story/water-resources-planning/our-drought-plan

Southern Water, 2022, Revised draft Drought Plan 2022, Southern Water Services Ltd. (unpublished at time of application)