

# 1.1 Description of the Proposals

October 2022



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# 1. BACKGROUND

## 1.1 Executive Summary

South West Water is applying for a drought permit under section 79A of the Water Resources Act 1991 ("**WRA 1991**") to make temporary amendments to abstraction licence SW/049/0281/001/R01 as issued on 20 November 2016 ("**the Licence**"), relating to abstraction from Stannon Lake for the purposes of replenishing the storage levels at Colliford Reservoir.

The proposed actions set out in this permit will offer support across the entire Colliford Water Resource Zone ("**WRZ**") in response to the Exceptional Shortage of Rainfall ("**ESOR**") from November 2021 to the end of September 2022, which presents an anticipated future risk to the security of supply in 2023.

This permit is applying to:

1. Increase the daily abstraction limit to 6 megalitres per day; and
2. Replace the annual limitation of 1,464 megalitres with a limit of 1,766 megalitres in respect of all water abstracted from Stannon Lake, for the abstraction year 2022/2023

For the avoidance of doubt, the increase in the annual limitation provided for by (2) will only apply in the abstraction year ending 1 April 2023.

South West Water is applying for a drought permit at Stannon Lake. This permit is part of a suite of interventions currently in progress to reduce the risk of future drought actions by supporting the winter refill of Colliford Reservoir from winter 2022 into 2023.

**Table 1 – Colliford WRZ Interventions**

Colliford WRZ – Drought Permit Interventions		
Location	Intervention Required	Drought Permit Status
Restormel WTW	Increase in Annual abstraction licence	Submitted 13 10 22. In consultation
Stannon Lake	Increase of existing daily abstraction	Submitted 27 10 22
Hawks Tor	New abstraction	To be submitted November 2022
Park Lake	Increase of existing daily abstraction	To be submitted November 2022

In addition to the suite of Colliford WRZ interventions outlined above, we are reviewing opportunity to further mitigation options outlined within our Drought Plan.

## 1.2 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 exceptionally below average rainfall between November 2021 and the end of September 2022. The amount of rain that has fallen in the Colliford WRZ for this period is the 10th lowest since 1891.

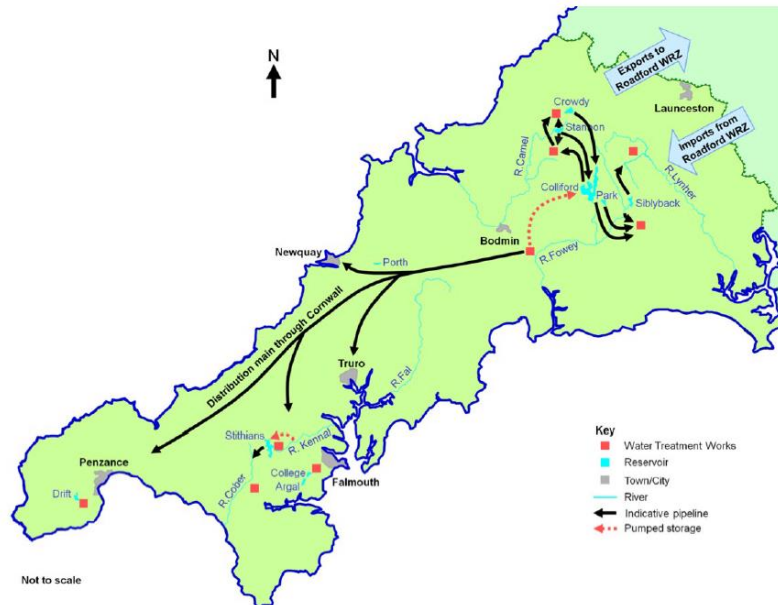
The consequence of this period of ESOR has been significantly reduced recharge and higher than normal environmental releases during 2022. This means we are currently projecting a risk to supply from winter 2022 into 2023, as recovery to acceptable storage levels by 1 April 2023 will not be possible without intervention.

By way of explanation and without intervention, even if we were to receive 100% long term average ("**LTA**") winter rainfall, the Colliford Reservoir water level would only recover to around 35% by 1 April 2023. 80% LTA winter rainfall would provide recovery to around 25% and under a 60% LTA winter rainfall would provide recovery to only around 15%. Recent modelling has highlighted that under autumnal similar scenarios to 1995/96 the reservoir will pass into Level 3 reaching c.8% and under 1978/79 autumn scenarios could drain completely.

The Colliford WRZ serves a population of c.567,000 people or c.276,000 domestic and commercial properties.

The strategic Colliford reservoir, in conjunction with abstraction at Restormel WTW, is responsible for supplying c.65% of the total population of Cornwall via transfer along the Cornwall Spine Main. Whilst other smaller treatment works and reservoirs exist and supply local areas, they cannot substitute the supply for Cornwall in the event of Colliford Reservoir running out of water.

Figure 1 - Map showing the Colliford WRZ



Critical to the recharge of Colliford Reservoir is the Restormel abstraction point which is used as a pumped winter recharge option for Colliford Reservoir with any volume for this activity included within the daily and annual limits proscribed by the licence at Restormel. A separate drought application to increase abstraction from Restormel was submitted on 13 October 2022 in accordance with the sequencing of the Drought Plan. This application, at Stannon lake, provides further support for the recharge of Colliford Reservoir. Water released from Colliford Reservoir will flow to Restormel WTW allowing it to be abstracted for public water supply.

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 (Stithians, Wendron, Drift and DeLank). During 2022, all reservoirs in the Colliford 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 Colliford Reservoir by abstracting more at Restormel WTW to support supply to the wider Colliford WRZ.

Colliford Reservoir is a multi-season reservoir, it is designed to provide resources for more than one summer. Whilst the reservoir is resilient to a normal dry summer, the drier than average winter, spring and summer from November 2021 throughout 2022 has resulted in significant draw down of resources. Whilst the reservoir is large (28,540 MI) and is in an area with normally high annual rainfall (Bodmin Moor), it has a small catchment area of only 12.4 km<sup>2</sup>.

The Colliford 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.

In 22 July 2022 Colliford Reservoir crossed Drought Level 1. Using rainfall, storage and demand forecast we notified our customers on the 15 August that a temporary use ban ("TUB") was required for Colliford WRZ, as we had forecasted that the Drought Level 2 stage noted in

our Drought Plan would be reached. This notification was published ahead of reaching Drought Level 2 to ensure we were doing everything we could to protect the environment. Our notice came into effect on 00:01 on 23 August 2022.

We crossed the threshold for Drought Level 2 on the 30 September 2022. Undertaking the drought measures in the order set out in our Drought Plan will reduce the risk of further drought management actions being necessary during 2023.

The proposed permit, if granted, will enable us to abstract an additional 2Mld from Stannon Lake to support the recharge of Colliford Reservoir. In accordance with the order of implementation set out within our Drought Plan, this Level 2 action provides good confidence of resource benefit from water in storage to supplement natural winter refill of Colliford Reservoir, supporting the wider Colliford WRZ.

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

**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 2. 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 2 Document structure for drought permit application**

Documents: Drought Permit Proposals		
1	1.1 1.2 1.3 Appendix 1 Appendix 2	Description of Proposals Draft Permit Drinking Water Services Report 2022 – Operations Supporting Evidence Stannon Abstraction Licence National Security Notice
2	2.1 2.2	Statement of Reasons Case for Exceptional Shortage of Rain (ESoR)
3	3 3.1	Stannon Drought Permit Environmental Assessment Report Stannon Drought Permit Shadow Habitat Regulations Assessment Report
4	4 Appendix 1 Appendix 2	Evidence the Company has followed its Drought Plan Enhanced Media Campaign Leakage and pressure management
5	5	Actions taken to reduce demand and conserve supplies in line with Drought Plan
6	6 Appendix 1 Appendix 2	Consultation Process Formal Notice Email to Stakeholders

### 1.3 Objectives of this document

This document provides a description of the proposed drought permit as required in the Drought Permit Guidance.

A draft drought permit is included at **Document 1.2 Draft Permit**.

### 1.4 Drought Permit Guidance

This set of drought permit application documents have been prepared with reference to the Drought Permit Guidance.

### 1.5 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 3 Application Checklist**

	Checklist requirement	Application document reference	Section Number (where relevant)
1	A description of the proposals	Document 1.1	
2	A draft drought permit	Document 1.2	
3	A statement of reasons	Document 2.1	
4	A location map	Document 1.1	
5	Navigation authority permission	N/A	
6	Notices to local councils	Document 6	
7	Notices to protected persons	Document 6	
8	Notices to other water companies	N/A	
9	Notices to navigation authorities	N/A	
10	Notices on internal drainage boards	N/A	
11	Advertisement in local newspapers	Document 6	
12	Advertisement in London Gazette	Document 6	
13	Description of arrangements for public inspection	Document 6	
14	Current abstraction licence	Document 1: Appendix 1	

15	Statutory instrument or local Act of Parliament	N/A	
16	Water Shortage Strategy	Document 4	
17	Environmental Report	Document 3	
18	Consultation comments received	Document 6	
19	Objections received and details of agreements with objectors	Document 6	

## 2. DESCRIPTION OF THE PROPOSALS

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### 2.1 Overview of catchments

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

South West Water currently abstracts water from Stannon Lake which transfers water along the existing raw water network to a combination of Lowermoor WTW, De Lank WTW and Colliford Reservoir. Whilst the volume required at De Lank WTW is dependent on local conditions, the volume required at Lowermoor WTW is seasonal and typically occurs during the summer only, during winter periods water is used to increase storage at Colliford Reservoir supporting natural refill and inflow. Water stored at Colliford Reservoir can then be released to the River Fowey (via the St Neot River) to support abstraction at Restormel WTW.

Stannon Lake is located in the upland headwaters of the River Camel and is fed by a combination of groundwater and local surface run-off. The proposed drought permit will have a negligible impact on the hydrological regime of the River Camel (**para 5.1.3.2 of Document 3 Environmental Assessment Report**). The natural surface water catchment has been heavily modified due to the Lake’s former use as a China Clay pit with much of the run-off intercepted by a network of drainage channels, including New North Leat and Dragon Teeth Leat (“**the Leats**”), directing water around the perimeter.



Figure 2 - Map of the Stannon Stream Water Body

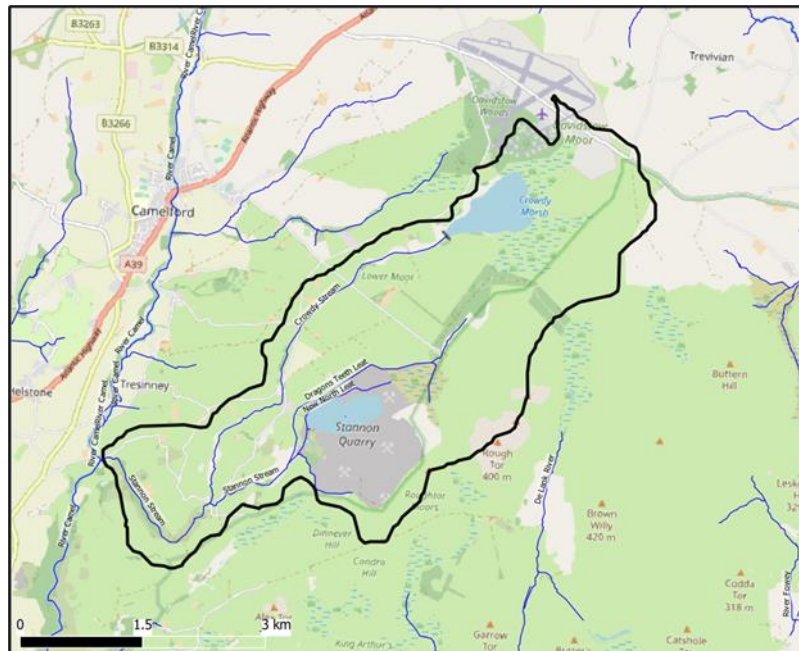


Figure 2 shows the location of Stannon Lake (Stannon Quarry), Stannon Stream and its confluence with the River Camel and the Leats.

## 2.2 Increased Abstraction from Stannon Lake

### 2.2.1 Stannon Lake Licence

South West Water is applying for a drought permit under section 79A of the Water Resources Act 1991 ("**WRA 1991**") to make temporary amendments to abstraction licence 049/0281/001/R01 as issued on 20 November 2016 ("**the Licence**"), relating to abstraction from Stannon Lake for the purposes of replenishing the storage levels at Colliford Reservoir. This abstraction is used for a combination of public water supply, and pumped storage (insofar as lake levels allow).

Stannon Lake is available to support the Colliford Strategic Supply Area Scheme including Colliford Reservoir as per our existing Colliford operating agreement. Operating under our current operating agreement, the last abstraction from Stannon Lake was in December 2021 into January 2022. Stannon Lake to Colliford Reservoir daily abstraction totals are submitted to the EA as part of our monthly abstraction licence returns submissions and this included the abstraction from December 2021 to January 2022.

Existing infrastructure connects Stannon Lake to Lowermoor WTW, De Lank WTW and Colliford Reservoir. During the summer months the full licence of 4Mld is required for public water supply at Lowermoor WTW, a small sweetening flow being preserved towards Colliford Reservoir. During the winter months this volume is directed towards Colliford Reservoir. Increasing the Licence for abstraction from Stannon Lake, from 4Mld to 6Mld, will provide an additional 2Mld to support the winter recharge of Colliford Reservoir.

Increasing the daily abstraction limit to 6Mld necessitates a proportionate increase to the annual abstraction limit to 1766 MI.

All other conditions and monitoring requirements of the Licence would remain the same.

Under the Licence conditions South West Water has a programme of activity to understand the characteristics of hydraulic interlinkage between the Stannon Stream and the Leats. For this purpose a six week pump test at 6Mld was successfully completed on 20 September 2022 and concluded that Stannon Lake level and the Leats' levels are not linked.

## 2.3 The intended drought permit

### 2.3.1 Context

In accordance with option C2 of the Drought Plan this drought permit is necessary to improve winter storage at Colliford Reservoir thereby assisting the securing of water for public supply during 2023. Alongside other supply side and demand side interventions it is a level 2 action, following the level 1 Restormel Drought Permit application submitted on 13 October 2022. These drought actions have been taken in response to declining levels at Colliford Reservoir.

This application seeks to increase the daily abstraction limit from 4Mld to 6Mld, and proportionately increase the annual abstraction volume from 1464 MI to 1766 MI from 1 November 2022 until 31 March 2023.

An Environmental Assessment Report (**Document Ref: 3**) has been prepared to support the drought permit application.

The water levels in Colliford Reservoir are at the lowest recorded since impoundment in the mid-1980's: 16.7% as at 08:00 on 19 October 2022. The exceptionally dry weather from November 2021 to date resulted in reduced 2021/22 winter recharge and increased draw-down of the reservoir storage throughout spring/summer 2022 with minimal inflow.

The forecast for a dry autumn/winter in 2022 combined with the current reservoir low level, represent a risk to public water supply in Winter 2022. Given the ESOR seen throughout 2022, even if we were to experience the same conditions as seen in the wettest winter on record, we would only achieve a net gain in storage between November and April of 43%, Colliford Reservoir is presently (as at 19 October 2022) at 16.7%. Target operating level at Colliford Reservoir on 1 April 2023 is 80%.

This permit application would provide up to an additional c.2% of net capacity in Colliford Reservoir by 1 April 2023. Whilst this application does not allow us to achieve our target storage, it is part of a basket of measures to support winter recharge, and we are simultaneously progressing additional supply and demand side activities for 2023, as well as further Drought Actions outlined within the Drought Plan.

The proposed application would not require any additional infrastructure.

### 2.3.2 Start and end dates

We would like the permit to increase abstraction to commence on the 1 November 2022, however the proposed start date is the date of determination by the Environment Agency.

The proposed end date would be 1 April 2023, or a date mutually agreed with the EA. This is suggested to be when Colliford Reservoir has returned to 80% (maintained for 5 days) or 1 April 2023 whichever is the sooner.

### 2.3.3 Proposed drought permit

The proposed drought permit will involve the following amendments to the abstraction licence:

1. Increase the daily abstraction limit to 6 megalitres per day; and
2. Replace the annual limitation of 1,464 megalitres with a limit of 1,766 megalitres in respect of all water abstracted from Stannon Lake, for the abstraction year 2022/2023

Subject to the following conditions:

The permitted abstraction above may only be taken up between 1 November 2022 and 31 March 2023 inclusive.

The existing safeguards are:

- 1 An instantaneous rate not exceeding 73 l/s.
- 2 No abstraction shall take place unless the water in Stannon Lake as measured at the Stannon Lake outfall, is equal to or greater than 3.0m below the outfalls invert level and the abstraction shall not cause the level to fall below that point.

The existing conditions and safeguards will remain in place and continue as per our licence conditions, which are externally audited on an annual basis.

The following additional safeguards are also proposed as summarised as follows:

- 3 Provision to undertake controlled release(s) of compensation releases from Crowdy Reservoir as either a freshet or longer-term temporary discharge, in the unlikely event there is evidence of ecological distress, and/or if reduced flows are considered to be having detrimental environmental consequences on downstream waterbodies.
- 4 Provision to undertake controlled release(s) of additional flows from Stannon Lake to the New North Leat via temporary augmentation if significant impacts to ecological receptors are highlighted by monitoring.
- 5 South West Water will maintain a high level of operational and environmental reporting to the Environment Agency.

The mitigation measures are set out in Section 10 of **Document 3 Environmental Assessment Report**.

## 2.4 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 Environmental Assessment Report**). South West Water encourage the Environment Agency to consider this before concluding what conditions may be necessary for this permit.

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

## 2.5 Summary of Impacts

The drought permit is predicted to have minor impact on water quality at Stannon Stream and moderate impact on the habitat and geomorphology of Stannon Stream. Negligible impacts are predicted on all pathways at the Camel (De Lank to Stannon).

All receptors, except as discussed below, are predicted to have a negligible impact across both water bodies.

Minor impact for:

- Phytobenthos and Macrophytes, Macroinvertebrates due to reduced flow velocity and increased sedimentation in Stannon Stream.
- Otters as a result in the disturbance to foraging in both water bodies and potential for the exposure of holts in the event of reduced water levels.
- Fish species: Atlantic Salmon, Brown sea trout, Bullhead, Coarse Fish, Eels during the juvenile and adult stages of life if reductions in flow velocity materialise in Stannon Stream.

Moderate impact for:

- Fish species; Atlantic Salmon, Brown sea trout and Bullhead during the spawning stage of life due to reduction in flow velocity, exposure of spawning gravels and increased sediment deposition in areas of lower flow.

The following designated sites have hydrological connectivity to Stannon Lake:

- Bodmin Moor Site of Special Scientific Interest (SSSI)
- River Camel Special Area of Conservation (SAC)
- River Camel Valley and Tributaries (SSSI)

Increased abstraction from Stannon Lake will reduce the volume of stored water, reducing lake levels and the spill frequency into downstream water bodies. The drought permit is predicted to have negligible impact on the Bodmin Moor SSSI and the River Camel SAC, however the drought permit is predicted to have Minor impact on the River Camel Valley and Tributaries SSSI due to the moderate impact on spawning fish.

A Habitat Regulation Assessment (“HRA”) has been carried out which concluded that the proposed drought permit will not result in a “likely significant effect” on the interest features of the River Camel SAC (**Document 3.1 HRA**).

We have considered the impact of Stannon Lake permit application in conjunction with a number of WINEP schemes that have either been submitted or are still in development. In conclusion, it is not considered that the additional abstraction from Stannon Lake will detrimentally impact the future proposals and recommendations outlined in these WINEP schemes and conversely may provide additional beneficial data as these AMP 8 schemes are finalised.

The current proposed WINEP schemes are:

- Fish passage and the Leats restoration - this scheme deals with improvements to fish passage in the Leats surrounding Stannon Lake. Our monitoring and mitigation plan will ensure there is no impact to the flows in the Leats that would detrimentally affect outcomes proposed in this WINEP scheme
- Woodland creation - this scheme deals with the reforestation of the area surrounding Stannon Lake and the control of invasive species associated with this scheme. Whilst this study is still ongoing it is not considered that the increased abstraction from Stannon Lake will impact either of the likely outputs from this scheme
- Camel River flow investigations - this scheme deals with the options to provide additional flow from either Crowdy Reservoir or Stannon Lake to increase the flows in the River Camel. Although these studies are ongoing the short-term drought permit abstraction from Stannon Lake will not detrimentally impact the investigations and may indeed provide further beneficial data.

An environmental statement setting out a summary of the environmental assessments which have been undertaken for this drought permit is included as **Document 3 Environmental Assessment Report**.

## 2.6 Monitoring and Mitigation

An Environmental Monitoring Plan (EMP) has been developed as part of the application process which includes baseline, pre-drought permit implementation, during-drought permit implementation and post-drought permit implementation (**Section 9 Document 3 Environmental Assessment Report**).

We shall undertake the following monitoring steps:

- i. Monitor flow downstream of Stannon Lake at two locations on Stannon Stream (upstream and downstream of the Crowdy Brook confluence) and at the New North Leat with spot flow gauges
- ii. Monitor Stannon Lake and Leat hydrology at existing locations on Stannon Stream and New North Leat

- iii. Implement visual monitoring walkover surveys of the Stannon Lake and the reach between Stannon Lake and Stannon Stream upstream of the Crowdy Brook confluence, and New North Leat
- iv. Undertake water quality monitoring surveys at Stannon Stream upstream and downstream of the Crowdy Brook confluence
- v. Review of level logger and piezometer data at New North Leat

In order to mitigate the impacts of this drought permit we shall:

- i. Seek to provide additional releases from Stannon Lake to the New North Leat via temporary augmentation if significant impacts to ecological receptors are highlighted by monitoring. This shall be achieved through the installation of temporary pumps and pipework between Stannon Lake and the New North Leat
- ii. Undertake controlled release(s) of compensation releases from Crowdy Reservoir to supplement the Stannon Stream reach downstream of the Crowdy Brook confluence, in the unlikely event there is evidence of ecological distress, and/or if reduced flows are considered to be having detrimental environmental consequences on downstream waterbodies
- iii. Increase monitoring of the New North Leat if the flow falls below 10 l/s, including additional walkover surveys and increased frequency of data review from level loggers
- iv. During the salmonid spawning season if walkover surveys identify the presence of salmonid redds potentially at risk of exposure then additional releases either from Stannon Lake to the New North Leat via temporary augmentation and/or Crowdy Reservoir compensation releases will be implemented as preventative steps, rather than restorative to avoid the loss of spawning gravels and/or desiccation of eggs.
- v. To facilitate movement of fish past any river structures or barriers, excluding barriers already known to be largely impassable to upstream and downstream movements of migratory fish, then additional releases either from Stannon Lake to the New North Leat via temporary augmentation and/or releases from Crowdy Reservoir compensation release.

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

3. Drinking Water Services Report 2022 – Operations Supporting Evidence (**Document Ref: 1.3**)
4. Stannon Drought Permit Environmental Assessment Report (**Document Ref: 3**)

## 3 COPY OF ABSTRACTION LICENCE

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A copy of the abstraction licence is included as Appendix 1.

## 4 REFERENCES

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

Environment Agency, 2021, Map of the Stannon Stream (GB108049007040) water body <https://environment.data.gov.uk/catchment-planning/WaterBody/GB108049007040> © Crown Copyright 2021

South West Water, 2022, Drought Plan, September 2022

## 5 FIGURES

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Figure 1 Map showing the Colliford supply area

Figure 2 Map of the Stannon Stream (GB108049007040) water body

## 6 TABLES

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Table 1 Colliford WRZ intervention options

Table 2 Document structure for drought permit application

Table 3 Application Checklist