



2027 DRAFT Drought Plan
Appendix C
Drought Permit Options

APPENDIX C Drought Permit Options

C1 Introduction

The Environment Agency (EA) may, by means of a drought permit, authorise water companies to take water from specified sources under section 79A of the Water Resources Act 1991 as amended by the Environment Act 1995.

A drought permit application is made directly to the EA. If a drought permit application is refused by the EA a water company may re-submit the application in the form of a drought order submitted to the Secretary of State for determination. Similarly, drought options that may impact on Habitats Directive (HD) sites would also normally be applied for in the form of a drought order submitted to the Secretary of State.

The EA expects water companies to include all possible drought permit options in their Drought Plan. The following table shows a complete summary of Thames Water's possible permit options identified to date. This does not preclude the identification of further options at a later date but does represent all those known at the present time.

Drought permits are prioritised based on the magnitude of environmental impact, water resources benefit, and ease of implementation. Whilst most of Drought Permit sources would be triggered at DEL 3, KEN_0001 and SWOX_0004 are now More before Level 4 options, meaning they would be triggered later in a drought event.

Our existing permit options including existing licence limits, potential gain (MI/d) with a permit, risks and priorities are listed below in Table C1. The drought permits within our plan are prioritised based on the magnitude of environmental impact, water resources benefit and ease of implementation. The high priority options are those that are likely to be implemented ahead of the lower priority options, principally on the grounds of lesser environmental impact and water resource need. However, in an actual drought, other factors will also be considered in determining which drought permits should be applied for, such as ease of implementation and water resources contribution to areas of need. Therefore, the actual order of implementation of drought permit options in a drought may vary from this categorisation.

C1.1 Drought permit options

Table C1 drought permit options

Source	Current licence limit	Potential abstraction with Drought Permit (MI/d)	Potential Gain (MI/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(MI/d)		Min estimate	Max estimate						
River Thames @ SWOX_0006	59.1	Residual flow downstream of SWOX_0006 reduced to 47MI/d	10	30	20*	20*	20*	SWOX	Oxford Watercourses. 30 MI/d preferred. No Likely Significant Effects on the Oxford Meadows SAC. Navigation issues in extreme drought. Reductions in velocity and water quality. Short term effects with respect to Biodiversity, flora and fauna including moderate adverse effects regarding INNS, fish community and moderate risk of short-term deterioration to the fish component of 2 WFD water bodies. Other abstractors. The DO assessment is provisional and will be updated when the SWOX model is updated.	1

Source	Current licence limit	Potential abstraction with Drought Permit (M/d)	Potential Gain (M/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(M/d)		Min estimate	Max estimate						
SWOX_0010 1	0 (emergency licence)	6	6	6	6	6	6	SWOX	No likely significant effects on the North Meadow and Clattinger Farm SAC. Low flows and extension in recovery of flow in surface water (e.g. Ampney Brook). Water quality risk associated with STW_0005. Potential Cumulative effects with other Cotswolds GW options.	2
SWOX_0010 2	6 with DP (SWOX_0010 1)	11.37 (cumulatively with SWOX_0010 1)	0	5.37	9	9	9	SWOX	No likely significant effects on the North Meadow and Clattinger Farm SAC. Low flows and extension in recovery of flow in surface water (e.g. Ampney Brook). Water quality risk associated with STW_0005. Potential Cumulative effects with other Cotswolds groundwater options.	3

SWOX_0009	15 average; 20 peak	20 average	4.5	5	19.5	19.5	19.5	SWOX	No Likely Significant Effects on the North Meadow and Clattinger Farm Special Area of Conservation. Groundwater level (Great Oolite) reduction and recovery affecting Ampney Brook. Water quality risk associated with STW_0005. Other abstractors. Potential cumulative effects with other Cotswolds GW options (SWOX_0002 1 and 2).	2
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Source	Current licence limit	Potential abstraction with Drought Permit (M/d)	Potential Gain (M/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(M/d)		Min estimate	Max estimate						
SWOX_0007	101.5 (peak licence)	105	0	3.5	105	105	105	SWOX	Suspension of flow constraint to allow an increase in abstraction of 3.5 M/d.	1
SWOX_0002 1	0 (flow constraint)	6.3	6.3	6.3	6.3	6.3	6.3	SWOX	No Likely Significant Effects on the North Meadow and Clattinger Farm Special Area of Conservation. Impact on the River Churn. Potential cumulative effects with other Cotswolds groundwater options (SWOX_0009 and SWOX_0002 2).	4
SWOX_0005	0 (emergency licence)	4.55	2.62	4.55	3.33	2.99	2.62	SWOX	Hydrological impact on the Letcombe Brook	5
SWOX_0001 1	6	13.1, (unconstrained licence)	7.1	7.1	13.1	13.1	13.1	SWOX	Moderate hydrological effects of drought permit on the River Kennet. Medium risk to water quality. Potential for cumulative effects with SWOX_0011, SWOX_0012 and SWOX_0001 2 drought permits.	3

Source	Current licence limit	Potential abstraction with Drought Permit (M/d)	Potential Gain (M/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(M/d)		Min estimate	Max estimate						
SWOX_0001 2	13.1 with DP (SWOX_0001 1)	20	0	6.9	20	20	20	SWOX	Major Hydrological effects from the Drought Permit on the River Kennet. Medium risk to water quality. Potential for cumulative effects with SWOX_0011, SWOX_0012 and SWOX_0001 1 drought permits.	6
SWOX_0002 2	6.3 with DP (SWOX_0002 1)	17	5	10.7	17	17	17	SWOX	No Likely Significant Effects on the North Meadow and Clattinger Farm Special Area of Conservation. Low flows in River Churn and extended recovery with adverse effects on ecology. Potential cumulative effects with other Cotswolds gw options (SWOX_0009 and SWOX_0002 1).	6
SWOX_0011	0	3.5	0	3.5	3.5	1.3	1.2	SWOX	Moderate Hydrological impact on the River Og and minor on the River Kennet. Moderate risk to water quality.	3
LON_0011	200	100 or more	100	100+	50 *	50 *	50 *	London	Maintaining navigable levels. Water quality in the lower freshwater R. Thames and Thames Tideway. Adverse effects on ecology. Potential for adverse effects on Langham Pond SSSI, Dumsey Meadow SSSI and Syon Park SSSI. The DO assessment is subject to uncertainty and is dependent on timely introduction of the drought permit.	1

Source	Current licence limit	Potential abstraction with Drought Permit (MI/d)	Potential Gain (MI/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(MI/d)		Min estimate	Max estimate						
									This permit is assigned priority 1 despite the potential adverse effects because it is the only option to provide a significant volume of extra water in relation to the supply/demand balance for London and so needs to be implemented as high priority in a severe drought	
LON_0021	7.6	15.5	4	7.9	14.4	14.4	14.4	London	Most likely estimate 4MI/d. Waddon Ponds low levels. River Wandle low flows. Water quality. Potential for Major adverse effects on ecological features (e.g. fish). Potential for seasonal adverse effects on Wilderness Island LNR, Spencer Road Wetlands LNR and Wandle Valley Wetland LNR. Amenity value of Waddon Ponds. Potential for cumulative effects with Sutton and East Surrey Water drought options.	4
LON_0022	13.6	19.6	0	6	16.5	16.5	16.5	London	Yield, WTW capacity.	2
LON_0003	13.64	16.4	0	2.8	16.4	16.4	16.4	London	Negligible impacts on hydrology. Yield, WTW capacity.	2
LON_0011 M2 licence annual limit	665388MI(1818 MI/d)	Whatever required to avoid exceeding annual limit	0	Whatever required to avoid exceeding	0*	0*	0*	London	Provides option to allow for continued abstraction if annual licence is reached. Does not provide DO benefit. The option would be constrained by the LTOA and so does not have further adverse impact on the R. Thames. The option does not	N/A

Source	Current licence limit	Potential abstraction with Drought Permit (M/d)	Potential Gain (M/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(M/d)		Min estimate	Max estimate						
				ng annual limit					have priority as it is not linked to drought severity in the same way as other options.	
LON_0011 (LTOA to 0)	200 residual	200	100+	200	50 *	50*	50 *	London	Back pumping over LON_0027 and maintaining navigable levels. Water quality in the lower freshwater R. Thames and Thames Tideway. Adverse effects on ecology (fish migration) and invasive species. Potential for adverse effects on Langham Pond SSSI, Dumsey Meadow SSSI and Syon Park SSSI. The DO assessment is subject to uncertainty and is dependent on timely introduction of the drought permit.	3
LON_0019 1	1.36 (average)	8	5	6.64	8	8	8	London	R. Darent low flow, high sensitivity. Water quality. Potential adverse effects on Sevenoaks Gravel Pits SSSI and ecological features. Potential for cumulative effects with LON_0019 2 and LON_0008. Potential for derogation of other abstractors.	4

Source	Current licence limit	Potential abstraction with Drought Permit (M/d)	Potential Gain (M/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(M/d)		Min estimate	Max estimate						
LON_0019 2	8 with DP (LON_0019 1)	12	0	4	12	12	12	London	R. Darent low flow, high sensitivity. Potential adverse effects on Sevenoaks Gravel Pits SSSI and ecological features. Potential for cumulative effects with LON_0019 1 and LON_0008. Potential for derogation of other abstractors.	5
KEN_0002	72	72	10	20	20 *	20 *	20 *	Kennet Valley	Major adverse hydrological effects on the Holy Brook. Adverse effects on water quality and some ecological features. Angling. Potential impact on another abstractor identified.	2
KEN_0003	0	25	12	30	25	25	25	Kennet Valley	Sustainability of yield; water quality (STW_0007).	3
KEN_0004	29.1(Yield from available points of abstraction)	38	8.9	8.9	38	38	38	Kennet Valley	Sulham and Tidmarsh SSSI unlikely to be affected. Water quality risk in Sulham Brook including that associated with STW_0006. We are not permitted to use the boreholes when the flow constraint is active.	1

Source	Current licence limit	Potential abstraction with Drought Permit (MI/d)	Potential Gain (MI/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(MI/d)		Min estimate	Max estimate						
	n not restricted by HoF)									
KEN_0005	8.2	12.3	0	4.1	11.7	11.7	11.7	Kennet Valley	No adverse hydrological impacts. Network restrictions on WTW output	3
SWA_0005	9.5 (average)	16.8	7.3	7.3	16.8	16.8	16.8	SWA	Adverse hydrological impacts on the River Wye	1
GUI_0006	30	35	0	5	5*	5*	5*	Guildford	Limited treatment capacity.	1
GUI_0001	6.8	6.8	6.8	6.8	6.8	6.8	6.8	Guildford	DP only needed if flow constraint is in force to enable abstraction to continue instead of reduce to zero. Adverse effects Law Brook.	2
HEN_0001 - Aggregate HEN_0002	22.3	27.9	0	5.6	27.9	27.9	27.9	Henley	Combined treatment capacity at HEN_0001 and HEN_0002 and nitrate levels at HEN_0002	1
GUI_0004 / GUI_002 / GUI_0003	20.46 MI/d (average licence aggregation)	31.8	0	11	31.7	31.7	31.7	Guildford	Licence currently constrained by low annual average, option allows peak abstraction at each individual licence over Drought Permit duration. Network restrictions on WTW output.	3

Source	Current licence limit	Potential abstraction with Drought Permit (MI/d)	Potential Gain (MI/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(MI/d)		Min estimate	Max estimate						
LON_0018	5 MI/d (average) / 9 MI/d (peak)	Maintain 9 MI/d peak during drought	0	4	9	9	9	London	Yield and treatment capacity	3
LON_0001	31.8 MI/d (flow constraint)	36 MI/d (removal of constraint)	0.6	4.2	33	32.5	32.4	London	Removal of flow constraint	2
LON_0009**	N/A	6	3	6				London	Reinstatement of previous abstraction licence point in the LON_0031. Potential water quality issues	6
LON_0008**	11.36 (peak licence)	6.64	0	6.64				London	Groundwater levels and recovery. River Darent low flow, water quality, high ecological sensitivity. Major adverse effect on biodiversity and water. Adverse effects on other users and angling. Cultural heritage. Potential for cumulative effects with LON_0019 1 and 2. In view of the potential impact of this option and its sensitivity this option is likely to be a Drought Order rather than a drought Permit. We would prepare to apply for a Drought Permit and would expect this to be a Drought Permit unless advised	6

Source	Current licence limit	Potential abstraction with Drought Permit (M/d)	Potential Gain (M/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
	(M/d)		Min estimate	Max estimate						
									at the time by the EA that the application should be for a Drought Order in which case, we would submit a Drought Order application	
SWOX_0012**	0	4	0	4				SWOX	Low yield in drought. Adverse hydrological effects on River Og. Potential for adverse effects on the River Kennet SSSI. Potential for cumulative effects with SWOX_0001 drought permit.	7
SWOX_0003**	6.819	11.819	0	5				SWOX	Limited treatment capacity. Minor adverse effects on flows in the River Coln.	5
SWOX_0004**	0	5	5	5				SWOX	Adverse hydrological and water quality effects on Mill Brook (including Blewbury Pond) and its distributary. Potentially major adverse effects on ecological features. Nitrate removal required. Located in the North Wessex Downs AONB.	7
KEN_0001**	0	5	0	5				Kennet Valley	Nitrate. Adverse effects to hydrology of R. Pang. Possible augmentation of R. Pang as alternative. Implementation when KEN_0006 scheme is in operation would be likely to exacerbate any delay to watercourse recovery (uncertainties remain on combined effects)	7

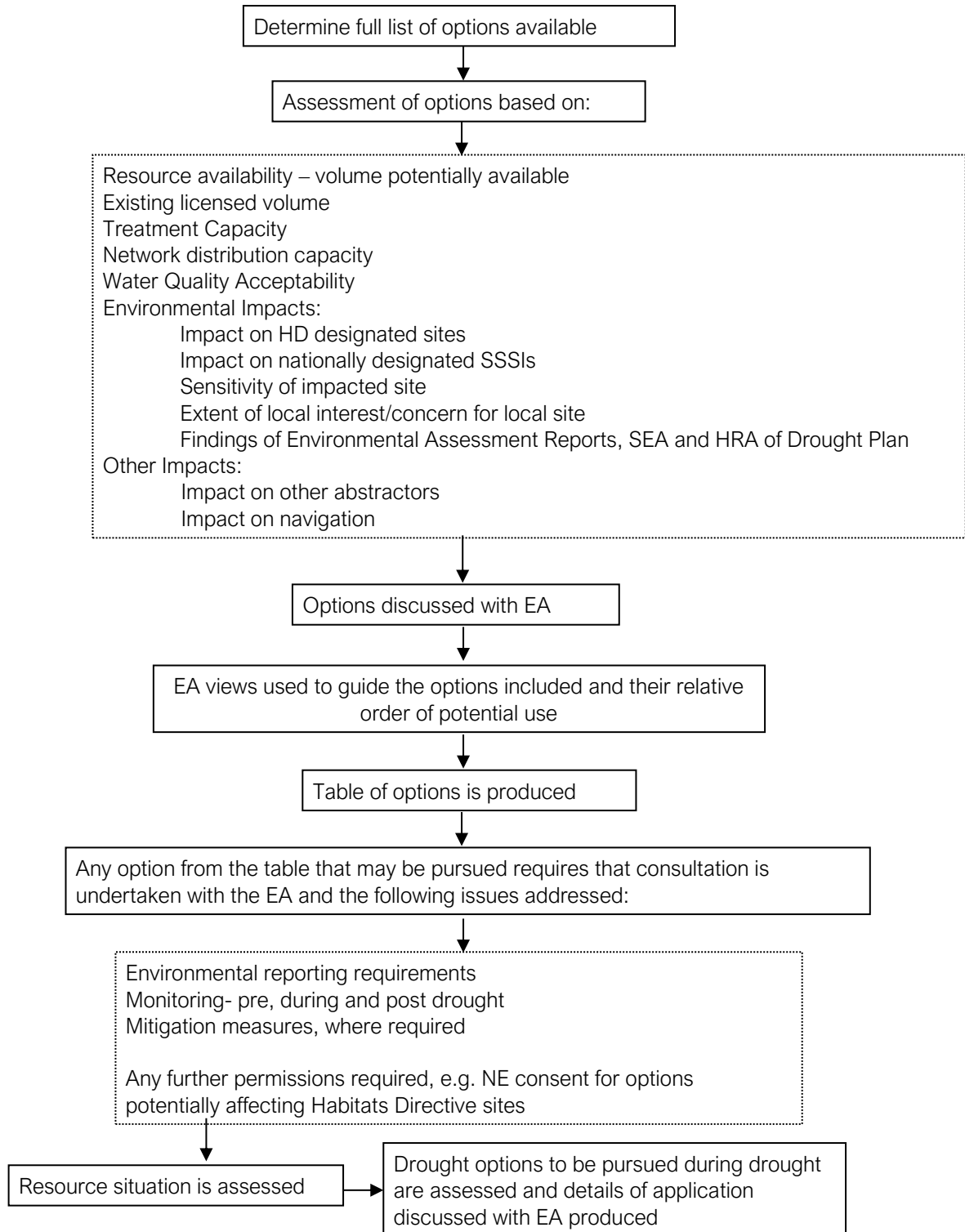
* Surface water sources are DO benefits not DO

** These options are all More Before Level 4 options in the Drought Plan, meaning their potential implementation has moved to later in the event level. See section C7 for more details

C1.2 Drought Permit Decision Process

The choice of which sources are used is based on factors outlined in Figure C1 below.

Figure C1 Drought Permit Decision Process



C1.1 Description of Options for Drought Permits

C1.3.1 Identification of Options

The process diagram above summarises the decision making involved in the choice of drought permits for our Drought Plan. The selection of options needs to include the critical factors relating to water supply provision. This means that the options are generally restricted to existing sources due to the lead times involved in development of new options where there is no existing infrastructure. Clearly therefore, the potential for increased resource availability is the principal factor in the choice of which sources are to be selected as potential drought permit options.

There are other factors besides the resource availability that also need to be considered when considering the potential for potable supply, notably raw water quality and water treatment works available capacity. Having established that the option can provide raw water to meet potable standards, it is also important that the option can be used to provide water where it is required to help meet demand and alleviate the effects of the drought on critical supplies. This process will lead to the production of a provisional list of sources for which applications for drought permits may be made.

C1.3.2 Environmental and Other Impacts

Following identification of a list of options the potential impact of each of the options needs to be considered. The principal consideration will be the impact on the environment although impact on water levels for navigation and on other licensed abstractors is also clearly important. We consider the relative environmental impact of the options available and assign a priority for the option. This priority is based on the potential yield of the option together with the potential environmental impact, which is assessed in detail in the SEA and HRA. The priority level assigned is indicative only and may change depending on circumstances at the time of requirement and may also be influenced through discussions with the EA.

Higher priority options are those that are likely to be implemented ahead of those lower down the priority order, principally on the grounds of lesser environmental impact although in some cases it may be necessary to implement lower priority options in advance of higher priority options if the specific drought conditions require it. The level of environmental impact is determined in liaison with the EA and other statutory SEA consultees (Natural England and English heritage) and HRA consultees (Natural England).

C1.2 Consultation with EA

The list of identified options and associated details is submitted to the EA for their views and the options are discussed in more detail. The EA's views on potential impacts are used to help determine the priority assigned to the options and this will be a key component of decision making in relation to the order in which the options are pursued. In all cases higher priority Environmental Assessment Reports (EARs) and Baseline Monitoring Reports (BMRs) have been shared with the EA in advance of publishing the draft Drought Plan with lower priority EARs to be shared later according to a prioritised programme.

C1.3 Implementation of Options During a Drought

During a drought the implementation of options will depend upon the development of the drought situation and its impact in different water resource zones. It is important to retain flexibility in the choice of options that will be taken forward to application during a drought.

There is no single time criterion for specifying the lead time for preparing and submitting drought permit applications. The lead time required will depend upon the environmental sensitivity of the option being considered along with the preparatory monitoring needed to satisfy EA requirements. As a working rule our plan assumes a 3-month preparation period prior to the need for implementation of drought permits. For such environmentally sensitive permits, the trigger for submission to the EA for the London WRZ is normally the point of introduction of the Temporary Use Ban (Level 2 of Levels of Service). In the case of SWOX, the trigger is either the introduction of the Temporary Use Ban or the 200MI/d flow threshold at SWOX_0006, whichever is the earliest, see Sub-section 4.4.1.

The drought permit options that may need to be implemented in the London and SWOX WRZs and their timing will be determined in line with our DEL methodology (Section 2 of the main report). In London, the latest implementation of drought permits is Level 3 on the Lower Thames Control Diagram (LTCD). We plan for up to 10 weeks from application to granting of permit, though potentially longer for more environmentally sensitive permits. For SWOX, drought permit preparation is triggered with river Thames flow at SWOX_0006 falls to 200 ML/d (5 day mean) under DEL2. Drought permits should be implemented when river Thames flow at SWOX_0006 falls to 100 MI/d (5 day mean) under DEL3 or storage drops to 70%, whichever occurs first. In Kennet Valley drought permit application are submitted following the closure of the Holy Brook Gate 1. The Guildford drought permit trigger is for flow in the river Wey at Tilford to be 75 MI/d (5 day average). As SWA and Henley are groundwater dominated zones, drought permits are considered when groundwater levels at Stonor Park OBH fall below Exceptionally Low.

As described above drought permits are prioritised based largely on environmental impact. However, in an actual drought event other factors would be considered such as ease of implementation and water resources contribution to areas of need. Therefore, the actual order of implementation in a drought may vary slightly from this priority order, although this would form the initial basis of the order in which options are used in a drought.

In line with EA guidelines we have included an allowance for negligible impact permits to be triggered at Level 2. The negligible impact drought permits that would potentially fall into this category are:

WRZ	Option	Physical Environment Impact	Ecology Impact (worst case)
Kennet	KEN_0005	Negligible	N/A
Guildford	GUI_0006	Negligible	N/A

Henley	HEN_0001 / HEN_0002	Negligible	N/A
London	LON_0003	Negligible	N/A
London	LON_0022	Negligible	N/A
London	Increase in M2 annual licence	Negligible	N/A
SWOX	SWOX_0007	Negligible	N/A

Since the production of our last Drought Plan in 2022 we have worked to update our EARs for each Drought Permit option to be as close to ‘application ready’ as we can make them. However, in the event of a drought requiring submission of drought permit applications some elements of the EARs would have to be updated with the latest information prior to application.

It has been agreed with Natural England and the EA that in the event of a future drought option application, EARs will refer to up-to-date SSSI conservation objectives or targets for favourable condition (noting that these are subject to review and change by Natural England on a regular basis). The basis for the assessment against the conservation objectives, including quantification of the impacts, will be agreed in consultation with Natural England.

C1.4 Potential Need for Further Options

The drought permit options list is based on consideration of the available potential options following consideration of drought scenarios and water supply capability criteria. Whilst it is intended that this list is as comprehensive as possible, it is possible that further options may become viable as drought options in the future and that a specific drought situation might necessitate the consideration of further options. Therefore, it is intended that the list is part of a live document, which is amended with the addition or removal of options as they become available.

C2 London Drought Permit Options

C2.1 Increased Abstraction from the LON_0011

The options selected for London are outlined in Table C1. The principal option is to increase the availability of raw water for abstraction from the river Thames during periods of exceptionally low flow and low storage levels in the London reservoir complex. This option has been selected as priority 1 as it has a direct impact on the critical strategic reservoir storage in the LON_0011 and provides the greatest potential volumetric benefit of the options available. However, the infrastructure to abstract the water available would be required and would need to be implemented at an early stage in order to deliver the significant water resource gains.

The further reduction to a residual flow of 0 Ml/d is assigned priority 2 reflecting the potential environmental impact associated with the option. The existing Environmental Assessment Report

(EAR) and the SEA identify the potential for exacerbating water quality issues in the upper Tideway. The LON_0011 option has not been implemented in the recent past and so the detail of how it would be delivered and the impacts that would result are not well understood. Therefore, we would be likely to take a flexible approach and allow for a staged reduction towards a residual flow at LON_0027 of 0 MI/d which would allow for close liaison with the EA regarding the detail of the option implementation. However, in practice an application for a drought permit would likely be for a reduction to 0 MI/d in view of the time constraints that would restrict the scope for two separate applications.

There is also an option to allow increased abstraction from the LON_0011 if the annual licence limit is close to being exceeded (LON_0011 annual licence limit). This option would entail increased abstraction towards the end of the calendar year under circumstances when the LON_0011 storage is refilling and so would be under conditions where river flows are likely to have recovered and so would be unlikely to have adverse environmental impact. This option does not provide DO benefit (no change to the daily limit) but avoids the exceedance of the M2 annual licence limit and so has not been assigned a priority.

The remainder of options available are abstractions from groundwater, except for the new permit option which is currently being developed for LON_0009 which would allow a potential gain of up to 6 MI/d. This was previously licensed under the LON_0031 surface water licence) but since the licence was re-issued in 2026 the point was removed. In a severe drought we would consider reinstating this source to give a potential benefit of 6 MI/d. The EAR for this option will be available to accompany our revised draft Drought Plan following consultation.

C2.2 Other London Groundwater Options

LON_0021. The LON_0021 abstraction licence has a very low average limit compared to the peak licence limit. The drought permit option is to increase the annual limit to allow abstraction at greater rates over a longer period. This option does not require capital works, however, the EAR and SEA identify the potential for major adverse effects on hydrology (Waddon Ponds levels and River Wandle), adverse effects on water quality and the potential for major adverse effects on ecological features (e.g. eel). There is also the potential for seasonal adverse effects on Wilderness Island LNR, Spencer Road Wetlands LNR and Wandle Valley Wetland LNR. There is amenity value associated with the Waddon Ponds.

LON_0022 & LON_0003. The output from the sources at LON_0022 and LON_0003 in the lower Cray could potentially be increased temporarily under a drought permit. These options are priority 2 as the EARs and SEA did not identify any significant adverse effects. However, they require infrastructure modifications in order for the resource benefit to be realised.

LON_0019 1 and 2. An increase in abstraction at the LON_0019 source could be obtained under a drought permit or order. The source is licensed with a low average licence in relation to the peak abstraction limit and abstraction limits have been reduced following low flow investigations. A drought permit to increase the permitted annual abstraction limit would allow greater abstraction at the peak rate for a greater duration. We would prepare to apply for a drought permit, but if advised by the EA would submit a drought order application.

LON_0008. In a very severe drought we would consider increasing abstraction from our boreholes at LON_0008 by 6.64 Ml/d. This would require the use of a Drought Permit and would also require additional treatment capacity to be installed on site.

The LON_0019 1 & 2 and LON_0008 options are priority 4, 5 & 6 respectively because of the potential to have significant adverse impact on the River Darent as identified by the EARs and the SEA.

Two new groundwater permit options for London are being developed too, and the EARs for these will be available to accompany our revised draft Drought Plan following consultation. These are options at LON_0018, giving a potential gain of 9 Ml/d, and LON_0001, which involves the removal of the flow constraint, giving a gain of up to 4 Ml/d. These are detailed in Table C1.

C3 SWOX Drought Permit Options

The options selected for SWOX are outlined in Table C1. The principal option is to increase the availability of raw water for abstraction from the river Thames during periods of low flow and low storage levels at SWOX_0006 reservoir. As stated above, the trigger for the requirement for drought permits is linked to the flow in the river Thames.

The SWOX_0006 option has been selected as the principal option because the infrastructure exists to abstract the water available and it has a direct impact on the critical strategic reservoir storage at SWOX_0006, providing the greatest potential benefit of the options available. This would need to be implemented at an early stage in order to deliver potentially significant water resource gains. The SEA does identify the potential for some adverse environmental effects, for example in extreme circumstances, the drought option may potentially make navigation more difficult to maintain resulting in adverse effects with respect to recreation and tourism.

The remainder of options available are abstractions from groundwater with the preferred initial option the introduction of SWOX_0007 in view of the low environmental impacts. This would be followed by the options at SWOX_0001 and then SWOX_0002.

Another potential option is SWOX_0005, which was closed in 2020 and is only licensed for emergency use. The SWOX_0005 drought permit option would be used in the event of severe drought in the SWOX WRZ. This option would have potential adverse impacts on the Letcombe Brook.

The SWOX_0010 1 and SWOX_0009 options are priority 2 in view of the importance of these options to the drought resources that might be needed for SWOX. These options have potential to have adverse effects on watercourses, but these effects are likely to be less severe than the options that would follow. The remaining options are in priority order based on potential environmental impact, as shown in Table C1.

C4 Kennet Valley and Henley Drought Permit Options

The principal option identified in the Kennet Valley (Table C1) is the option to vary the flow constraint condition at KEN_0004 so that the use of boreholes 5 & 6 is permitted after the flow constraint has come into force. This option would be required when the supply/demand balance in the Kennet Valley is at risk due to reduced output at other sources. The SEA identified this option as having few adverse environmental effects relative to most other options in the Kennet Valley WRZ.

The KEN_0002 option provides a significant gain to the principle WTW serving the major demand area in the WRZ. However, the EAR and SEA identify a major hydrological impact on the Holy Brook between the KEN_0007 and its confluence with the River Kennet and moderate adverse effects for a range of environmental features.

Other options identified in the Kennet Valley are to abstract from the KEN_0003 to supplement supplies during drought periods rather than under short-term emergency conditions. The option of increased abstraction at KEN_0005 has also been identified in the event of severe drought and would result in negligible environmental effects, however, it provides lower potential yield and does not provide water to the main supply source for the zone.

In more severe droughts the option to reduce the residual flow down the Holy Brook would be considered, however this may be possible through agreement with the EA rather than through a drought permit. This is because the residual flow requirement down the Holy Brook is not required by an abstraction licence condition.

An option considered for the Henley zone is the increase of abstraction from the HEN_0001 and HEN_0002 sources which are licensed in aggregate. This is the only option for Henley and so is considered a priority 1, although risks include the combined treatment capacity at HEN_0001 and HEN_0002 and nitrate levels at HEN_0002. Environmental impacts of the option are assessed in the SEA.

C5 Slough/Wycombe/Aylesbury Drought Permit Options

The option considered for the Slough/Wycombe/Aylesbury zone is a drought permit option to allow increased abstraction at SWA_0005 pumping station. Environmental impacts have been assessed in detail in the associated EAR, SEA and HRA, but there is a potentially adverse risk on the river Wye.

C6 Guildford Drought Permit Options

The options considered for the Guildford zone are a variation to the abstraction licence at GUI_0001 and additional abstraction from the GUI_0006 source. Both sources have been proven to be robust to drought.

The GUI_0006 option identified for Guildford is priority 1 because it is the option that provides potential benefit to the principal demand area of Guildford. It is also likely to have significantly less adverse impact than the GUI_0001 option which has the potential to impact on the flows in the Law Brook, which has suffered from low flows in the past. GUI_0006 would have greater adverse effects on material assets, resource use and emissions due to its construction works.

A new option for the 2027 Drought Plan is the disaggregation of the GUI_0004/GUI_0002/GUI_0003 licence. The EAR for this option will be available to accompany our revised draft Drought Plan following consultation.

C7 Review of Drought Permit Options

Following the 2022 and 2025 drought events we undertook a review of all our drought permit options, resulting in three existing options being moved to More before Level 4 (MB4) due to the complexities of bringing them back into supply.

The SWOX_0003 option would give up to an additional 5 MI/d benefit but would likely require additional treatment capacity such as an Amazon filter plant. This would extend the likely time required to bring this option online.

SWOX_0012 are located near to a decommissioned WTW, used in emergencies only, that have the potential to provide water resource benefit in a very severe drought. The boreholes have no existing infrastructure nor pumps and therefore significant investment would be required to bring the option online.

In a very severe drought we would consider increasing abstraction from our boreholes at LON_0008 (by 6.64MI/d). This would require the use of a Drought Permit and would also require additional treatment capacity to be installed on site.

Recommissioning of SWOX_0004 and KEN_0001 are included as MB4 options in our Drought Plan 2022. Previously, these were permit options but due to the substantial re-commissioning required in order for the sources to be used, we chose to no longer include them as a drought permit option for level 3. We have retained the EARs previously produced for both sources in case the options are needed in a severe drought. These two sources remain as MB4 options in our 2027 plan.

C8 Compensation

Where a Drought Order has been made, no compensation is payable except in the limited circumstances set out in Schedule 9 of the Water Resources Act 1991 and Condition Q of Thames Water's Instrument of Appointment.

Where any Drought Order authorises the use and occupation of land, the owners and occupiers of the land and any person interested in it, or injuriously affected by entry onto it, or its use or occupation, may claim for any loss or damage caused as a result of that entry as a result of that occupation or use.

Any claim for compensation must be made within the time limits set out in Schedule 9 by serving notice on Thames Water setting out the grounds of the claim and the amount claimed. Compensation disputes may be referred to the Upper Tribunal.

Additional compensation may be available in respect of an ordinary Drought Order (but not an Emergency Drought Order) by those affected by its particular provisions. For example, if the order prohibits or limits the taking of water from a specific source, the persons to whom that restriction applied may claim for loss or damage sustained as result.

No compensation is payable for prohibitions on the use of water. However, where an order provides for supplies to be interrupted or cut off then daily payments must be made (£10 for domestic customers subject to a maximum equal to the previous years' charges and £50 for business

customers, subject to a maximum of £500) if the cut off or interruption of supply could not reasonably have been avoided. This is set out in Condition Q of Thames Water's Instrument of Appointment.

We will look to support any abstractors who may be adversely affected by supply side drought measures by working with them to look at ways of improving their water efficiency and facilitating finding of alternative sources of raw water.

Assessment of any potential derogation resulting from our Drought Permit (DP) options has been undertaken to determine the impact on downstream abstraction licence holders. This is required to understand the potential for the DP options to result in claims for compensation.

The only third-party licence holder identified that is likely to be materially derogated is RWE Generation UK in respect of the abstraction for cooling water at Didcot Power Station. In view of this potential impact, we have undertaken an assessment of the likelihood of this occurring and have determined from an initial review that in the severe drought of 1976 it is likely that the abstraction by RWE Generation UK would have been reduced from the 2nd lowest abstraction tier on its licence to the lowest tier for a total of 4 days more than would have been the case if the drought permit were not implemented. Since undertaking this review RWE Generation UK has closed Didcot A power station and so has reduced its abstraction requirement which means the likely reduction in flows to the lowest tier will have less impact on RWE Generation UK's ability to abstract the water it requires in a drought. However, we note that RWE Generation UK has stated that this reduced abstraction requirement will only be likely until the middle/end of this decade and so we will need to review this position for our next Drought Plan in 2027, RWE have not confirmed any change since this position and so no change in our assumption has been included and RWE will be approached for confirmation. RWE indicated that they were satisfied that this covers their position for the duration of our Drought Plan 2022 (email from RWE 2-11-2021). We have previously discussed the potential drought permit impact with RWE Generation UK to agree a position in relation to the potential impact on its abstraction. RWE Generation UK has indicated that in a severe drought derogation of its licence would be likely to result in significant commercial impact on the power generation activities at Didcot. Together we considered that the impact could be addressed through the provision of insurance against the derogation impact in the event of a severe drought and that we would pursue the option of insurance against the potential for compensation in liaison with RWE Generation UK. This requirement will be again be reviewed now that Didcot A has been closed and their abstraction requirement has been reduced in the short term.

Through the environmental assessment process, we have identified potential impacts on other licensed abstractors as a result of drought permit implementation. The impact on their abstraction capability has been determined by assessing if the drought permit will have a low, medium, high or no risk to the ability of the abstractor to continue abstraction. These are not considered to be material but will be reviewed with the third parties to determine the significance of impact. Appropriate mitigation and/or compensation measures will be agreed if necessary. This will be conducted during the process of drought permit/order application. Mitigation and/or compensation will only be provided if it is clearly demonstrated that the 3rd party abstraction is compromised as a result of the Drought Permit implementation and not as a result the natural effect of drought.

In the event that the Drought Permits were implemented we would contact the abstractor at least 2 weeks before the Drought Permit application to discuss the risk to the abstractor and would agree any measures to mitigate the impact of the Drought Permit option and to address the potential issue of compensation should it arise.

This applies to the following drought options:

Table C2 Abstractors potentially requiring compensation/mitigation

Drought permit or order option	Abstractor/ Licence Holder	Risk to licence
SWOX_0002	William Gilder Limited (GW abstraction)	Low
LON_0019 (options)	Sevenoaks District Council (Wildfowl Reserve) (surface water transfer between sources)	Uncertain

C9 Drought permit application requirements

C9.1 Exceptional Shortage of rainfall

In order to obtain a Drought Permit or Order it is a legal requirement to establish that there is an exceptional shortage of rainfall such that a serious deficiency of supplies of water in any area exists or is threatened. Our Drought Management methodology sets out how reservoir storage, groundwater levels and river flows are all used to determine the onset of drought and how droughts are managed in each water resource zone. This information together with rainfall data will be used to demonstrate an exceptional shortage of rainfall and a serious deficiency of supplies. As stated in the EA guidance, (Hydrological guidance for the assessment of an Exceptional Shortage of Rain (EsoR), 2025) every drought is different, therefore it is not possible to define the area or time period of data that will be used to justify an exceptional shortage of rainfall in advance.

The monthly water situation reports produced during business as usual include information on monthly rainfall, deficit over the preceding year, annual summaries of rainfall as a percentage of long-term average and a map to show the variation across our supply area, see Appendix D for further detail. During a drought this assessment would be completed more frequently and would include enhanced drought metric calculations.

When the water resource situation reaches the point where drought permits or orders are required an exceptional shortage of rainfall assessment would be completed at either a Thames regional scale and/or for each Water Resource Zone depending on the extent of the drought.

The need to demonstrate an exceptional shortage of rainfall could apply across the whole Thames catchment if drought permits or orders are required for London and so the rainfall pattern over the

whole catchment would be used to demonstrate the exceptional shortage. It may also be necessary to demonstrate the exceptional shortage of rainfall over one or more of the other WRZs. In either case it is more appropriate to use areal rainfall which is indicative of the whole area rather than at individual points where gauges are located. Areal rainfall is calculated using a network of rain gauges to determine rainfall for the Thames catchment and its sub-catchments. This enables the effect of the rainfall deficit to be used to more comprehensively demonstrate the impact on water resources, than if isolated rain gauges are used. The areal rainfall pattern may also be supplemented by individual rain gauge records if this is useful in indicating the exceptional shortage at the time of the drought.

Areal rainfall data covers the following areas:

- Cotswold West
- Cotswold East
- Berkshire Downs
- Chiltern West
- Upper Thames
- Cherwell
- Ock
- Thame
- North Downs – Hants
- Wey – Greensand
- North Downs – South London
- Loddon
- Lower Wey
- Upper Mole
- South London
- Chiltern East Colne
- Lee Chalk
- North London
- Lower Lee
- Roding
- Enbourne
- Cut

The period assessed to determine the exceptional shortage of rainfall would be defined during each drought event and would be applicable to the specific drought and the time that it has taken to result in a potential shortfall in supplies. Typically, this could include assessments over periods of 6, 12, 18 months or longer. The appropriate techniques for demonstrating an exceptional shortage of rainfall would vary according to the nature of the drought event in terms of its duration and the severity of the deficit. A combination of the following techniques would be used along with other measures if appropriate:

- Monthly and cumulative rainfall deficits;
- Monthly and cumulative percentage of long-term average rainfall;
- Geographical extent of rainfall deficit;
- Comparison/ranking of rainfall deficit with other drought events within the Thames Region, for example 1976;

- Standard Precipitation Index assessment;
- Calculation of SPI and SPEI for relevant catchments and relevant durations (e.g. SPI- and SPEI- 6, 12, 18, 24 month for the 'Thames 12 Station Average' when considering exceptional shortage of rainfall in London).

The assessments of rainfall deficit would be used to place the drought within the context of the long-term record of droughts. An approximate return period would be calculated, which would be used to demonstrate that the measures proposed to manage the drought were consistent with our levels of service.

This information for rainfall shortage would be used alongside the drought protocol for each WRZ, which includes assessment of reservoir storage, groundwater levels and river flows to demonstrate the severity of the water resource situation arising from the rainfall deficit. In the same way as the rainfall deficit is used to calculate a level of severity and approximate return period, the river flow and groundwater levels would also be analysed to determine their severity when compared to the historic record and an approximate return period would be determined.

It is not possible to set out exactly what information would be used and how it would be presented prior to the drought event occurring because each drought is different and therefore a certain amount of flexibility is required to make the case for an exceptional shortage of rainfall. We submitted Drought Permit applications in 2022 and the case for exceptional shortage of rainfall was made successfully and so a similar approach will be used in future.

C9.2 Environmental Assessment Reports

C9.2.1 Introduction

Environmental Assessment Reports (EARs) are required to be produced as part of any drought permit or order application in accordance with the EA's Drought Plan Guideline (DPG)¹. EARs consider how the proposed drought option may affect the environment in combination with the effects of existing licences, consents and plans, including the potential for cumulative impacts of drought permit/order options implemented by neighbouring water companies. These are relevant to those drought options where sensitive features are likely to be subject to a major or moderate impact, or a minor impact for designated features². EARs are not required for those drought options where there is certainty that there are no such impacts on sensitive features.

The DPG states that as much as possible of the environmental assessment work should be completed during a period of non-drought, creating "shelf-copy" EARs. Each EAR is to be prepared to assess all periods for which the drought option could be in place, the objective being to provide an independent and robust assessment of the potential environmental effects of drought permit/orders. When required for the implementation of a permit during a drought event, an application specific EAR will be produced to cover the period of impact for which the drought option would be in place, plus an agreed period of post-project monitoring to provide a comprehensive

¹ EA (2025). Water Company Drought Plan Guideline, March 2025.

² Specifically: Special Area of Conservation, Special Protection Area, RAMSAR site, Site of Special Scientific Interest, National Nature Reserve and Local Nature Reserve.

data set to record recovery. An individual drought permit/order covers up to a six-month period and the updated EARs consider the most likely period of implementation. It may be the case that a drought option is required to be implemented for a longer period, depending on the severity of the drought conditions, in which case a further application would be required to extend the drought powers.

In our Drought Plan 2027 the environmental assessment of the drought options has been prepared using the EA's 2025 DPG; specifically, the EA's July 2025 'Environmental assessment for water company – drought planning supplementary guidance'³ which includes recommendations for undertaking an Environmental Assessment of Drought Options, specifically drought permits and drought orders. The approach to environmental assessment and the bespoke assessment methodologies used have been developed and agreed in consultation with the EA and Natural England and are documented separately in the Methodology⁴.

We prepared EARs in 2022 which were updated in 2025, and currently inform the drought plan. The EARs will be periodically reviewed to ensure the conclusions and recommendations remain valid. Following the most recent review and the 2025 drought event we have identified four new drought permit options. These new drought permit options do not yet have EARs but will be produced between the development of the draft and final Drought Plan. Table C3 below details the status of these EARs.

Table C3 EAR update status

WRZ	DP option	Status of EAR
SWOX	SWOX_0006	Updated
SWOX	SWOX_0010 1	Updated
SWOX	SWOX_0010 2	Updated
SWOX	SWOX_0009	Updated
SWOX	SWOX_0007	Updated
SWOX	SWOX_0002 1	Updated
SWOX	SWOX_0002 2	Updated
SWOX	SWOX_0001 1	Updated
SWOX	SWOX_0001 2	Updated
SWOX	SWOX_0011	Updated
London	LON_0022	Updated
London	LON_0003	Updated
SWOX	SWOX_0005	Updated
London	LON_0011 Annual limit	Updated
London	LON_0019 1	Updated
London	LON_0019 2	Updated
London	LON_0011	Update required - before final submission
London	LON_0021	Update required - before final submission
London	LON_0011 LTOA to 0	Update required - before final submission

³ EA (2025). Environmental assessment for water company drought planning supplementary guidance, March 2025

⁴ Thames Water Utilities Ltd (2026). Thames Water Drought Plan 2027: Environmental Assessment Methodology Report - Prepared by Ricardo Energy & Environment (V6 31 March 2026).

Kennet	KEN_0004	Update required - before final submission
Kennet	KEN_0002	Update required - before final submission
Kennet	KEN_0003	Update required - before final submission
Kennet	KEN_0005	Update required - before final submission
SWA	SWA_0005	Update required - before final submission
Guildford	GUI_0006	Update required - before final submission
Guildford	GUI_0001	Update required - before final submission
Henley	HEN_0001 Agg HEN_0002	Update required - before final submission
SWOX	Back-pumping at KEN_0002	Update required - before final submission
Guildford	GUI_0004/GUI_0002/GUI_0003	New EAR required - before final submission
London	LON_0018	New EAR required - before final submission
London	LON_0001	New EAR required - before final submission
London	LON_0009	New EAR required - before final submission
SWA	SWA_0004	New EAR required (after 2030)
Kennet	KEN_0009	New EAR required (after 2030)
Guildford	GUI_0005	New EAR required (after 2030)
London	LON_0014	New EAR required (after 2030)

The updated draft EARs include information on:

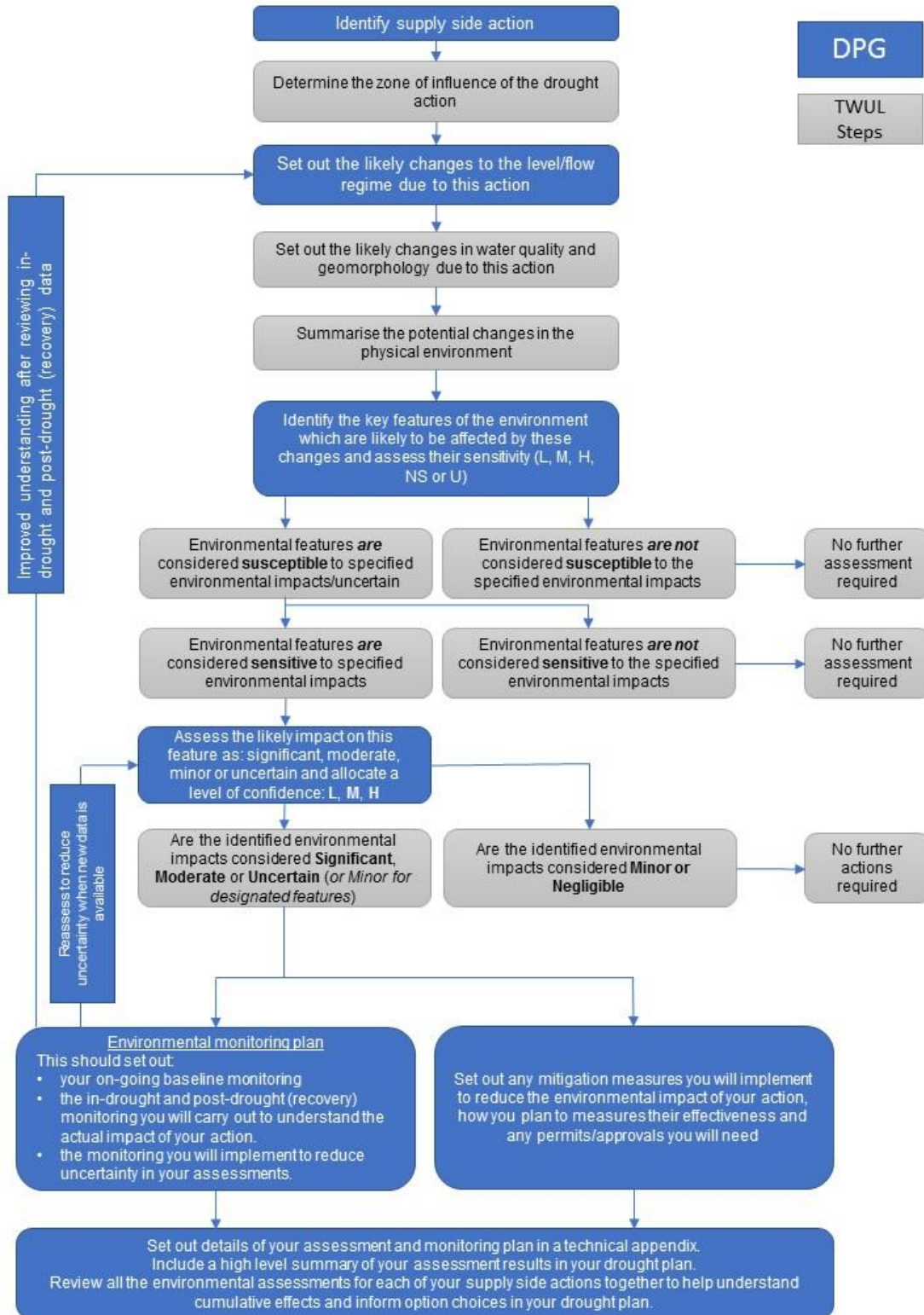
- the relevant drought management action that will be implemented (i.e. the drought permit/order details)
- likely changes in hydrology (flow/level regime), due to implementing the drought management action
- identification of the key features that are likely to be affected and their sensitivity to changes
- likely impacts on sensitive features (as major, moderate, minor or uncertain)
- mitigation that may be required to prevent or reduce impacts on sensitive features; and
- recommendations for baseline, in-drought and post-drought order monitoring.

Results of the assessments have also informed the Habitats Regulations Assessment (HRA) and Strategic Environmental Assessment (SEA) which are documented separately. Outcomes of any subsequent assessments will be continually reviewed in terms of implications for SEA and HRA.

C9.2.2 Screening of Sensitive Sites and Features and Impact Assessment

The overall approach taken in completing the environmental assessment to demonstrate an understanding of the impact on the environment of implementing the proposed drought options is illustrated in Figure C2.

Figure C2 Approach to undertaking environmental assessments as identified in the 2025 DPG. The steps identified in blue are as per the DPG and the steps indicated in grey are additional /interim steps included by Thames Water



Stage 1 – Hydrological and Hydrogeological Impact

Consideration is required of the likely changes in flow/ level regime due to implementing the drought management action, specifically:

- identify conditions which trigger your actions
- identify any changes that drought management actions are likely to bring about, specifying their length and severity
- describe the likely conditions if drought management actions are not carried out
- identify the extent of the area affected by the planned drought management actions.

The hydrological information is used together with information on the other environmental features in the study area from Stage 2 - Environmental Sensitivity (see below) to identify the environmental risk of the drought permit. For groundwater schemes, it is noted that impacts on groundwater may extend beyond the six-month period of drought option implementation.

Stage 2 - Environmental Sensitivity Screening and Impact Assessment

Potentially sensitive features that have been investigated in the screening have been drawn from the EA's "Environmental assessment for water company drought planning supplementary information" and through discussions with the EA and Natural England. This stage of the assessment fulfils the requirement to "Identify the key features of the environment which are likely to be affected by these changes and assess their sensitivity". These include:

- designated biodiversity sites (Special Area of Conservation (SAC), Special Protected Area (SPA), Ramsar, Site of Special Scientific Interest (SSSI), landscapes including World Heritage sites, European Landscape Convention, marine conservation zones (MCZs), national parks, areas of outstanding natural beauty (AONB), National Nature Reserves (NNR), Local Nature Reserves (LNR), Local Wildlife Sites (LWS) and NERC species which are located on or within 500m of the impacted reaches;
- NERC priority habitats which are located on or within 100m of the zone of influence;
- ecological communities and, where identified, Water Framework Directive (WFD) status of designated waterbodies which contain the zone of influence⁵;
- sensitive ecological features as advised by the EA and Natural England;
- invasive non-native species (INNS);
- wider features which should be taken into account in determining the potential impacts of drought action implementation – specifically other abstractors, landscape, navigation, recreation and heritage.

The screening exercise establishes a study area for each drought option (alone or cumulatively with another drought option) together with identification of relevant, sensitive environmental features

⁵ Under Article 22 of the WFD, the Freshwater Fish Directive (FFD) was repealed on 22 December 2013. Protected waters under the FFD are incorporated within the WFD. Ecological status defined in the WFD sets the same protection to these protected areas for fish. In the case of Salmonid waters, this is assigned a typology in WFD status classification, specifically for dissolved oxygen saturation in rivers and dissolved oxygen concentration in lakes. Salmonid waters are rivers/lakes which, in the EA's judgement, would support a sustainable fish population dominated by salmonid species; this replaces the system of notices protecting areas through the FFD.

(see above) within those study areas (based on the sensitivity of the features to any changes as a result of the drought option during the period of its operation). Each of the identified sensitive receptors within the zone of influence is listed, alongside a brief summary of their potential susceptibility to flow impacts. For designated sites, screening includes an indication as to whether the sites have water dependent qualifying interests. The result of screening is documented as major, moderate, minor, negligible or uncertain sensitivity, in line with EA DPG requirements.

C9.2.3 Assessment of Impacts

Where screening of the drought options identified that an environmental feature is present within the zone of influence of the drought option and that it is sensitive to the impacts of a drought option, the potential impact was further investigated. The result of the impact assessment is documented as major, moderate, minor, negligible or uncertain, in line with EA DPG requirements. For each feature identified in the Screening stage, the assessment methodology that has been used in each EAR to identify the magnitude and significance of impact has been defined.

The environmental sensitivity screening identifies the outcome for each listed feature (see above and Figure C1) and identifies appropriate next steps. Outcomes have been agreed with the EA and Natural England through the consultation process in 2021. The EARS present the findings which show that a number of features were identified as either: 1) uncertain; 2) moderate-major sensitivity; or 3) minor sensitivity in a designated site⁶; consequently, the DPG identifies that further work will be required in the Drought Plan process. These features alone form the scope of monitoring, environmental assessment, and consideration of mitigation actions documented in the EARs.

The EARs document the environmental baseline, i.e. habitats and environmental pressures (including flow and water quality) in the identified zone of influence without the drought option in place, utilising a description of the catchment, geomorphology, anthropogenic features and water quality. Key changes to the physical environment as a result of implementing a drought option have been identified and described and this information is used to frame and support the assessments of features. The aim of the Environmental Assessments is to provide:

- A clear summary of the outcome of each assessment (per feature) from which the EA can readily identify the significance of the impact when determining the drought permit/order application.
- Identification of those predicted impacts which are to be taken forward to consider additional monitoring and mitigation actions.

The impact assessment for sensitive features is feature specific and dependent on the availability and resolution of available data. Where possible, quantitative assessments have been undertaken.

The assessment considers the environmental impacts of implementing the drought options during the worst environmental conditions (i.e. a natural drought). Environmental sensitivity has been assessed considering the context of the timing of drought option implementation, i.e. the baseline

⁶ Specifically: Special Area of Conservation, Special Protection Area, RAMSAR site, Site of Special Scientific Interest, National Nature Reserve and Local Nature Reserve .

environmental conditions are likely to be characteristic of severe drought. It is important to acknowledge the basis of the assessment; i.e. impacts of drought permit / order implementation are assessed against what would occur in an actual drought without drought permit implementation.

Assessment of Impacts on Habitats and Species

The assessments have considered the impacts of the changes in flows, water quality and geomorphology as a result of the drought option, and the consequent impacts on the habitats and species. Potential effects were associated with either:

1. direct reduction in river levels and/or flows;
2. a delay in the recovery of groundwater levels and the subsequent delay in the return to baseline river levels and/or flows;
3. direct reduction in groundwater levels;
4. a reduction in water quality; and
5. secondary effects of reduced velocity, for example on sediment characteristics and habitat quality.

In order to define the potential impacts on habitats and ecological communities in a readily understandable manner, a series of criteria were defined (and agreed in consultation with the EA) using both the Chartered Institute of Environmental Management (CIEEM) Ecological Impact Assessment (EclA) 2019⁷ guidance and the EA's DPG2025. These are described in further detail in the Methodology⁸.

Impacts on WFD Status / regulations

In order to define the potential WFD status impacts for the biological elements (i.e. to macroinvertebrates and/or fish) in a readily understandable manner, a series of criteria was defined (and agreed in consultation with the EA).

The assessments have also considered the water body status objectives and, where applicable, the protected area objectives and the implications of drought options on the programmes of measures required to achieve those environmental objectives. Where data are not available, the assessment has been undertaken using expert judgement and drawing on broad-scale evidence from other similar catchments within the reservoir group.

Further details on the approach to the impact assessments are provided in the Methodology⁹.

Abstractions

Regarding abstractions, "other abstractors", including other water company public water supplies and non-public water supply abstractions, are features that have been reviewed within the

⁷ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester. Updated September 2019

⁸ Thames Water Utilities Ltd (2026). Thames Water Drought Plan 2027: Environmental Assessment Methodology Report - Prepared by Ricardo Energy & Environment (V6 31 March 2026).

⁹ Thames Water Utilities Ltd (2026). Thames Water Drought Plan 2027: Environmental Assessment Methodology Report - Prepared by Ricardo Energy & Environment (V6 31 March 2026).

assessment. Other abstractors could potentially be affected by changes to groundwater levels or surface water flows and levels as a result of implementation of the drought permit / order.

Cumulative Impacts

The EARs also consider how proposed drought actions may affect the environment in combination with the effects of existing licences, permits and plans.

C9.2.4 Environmental Report Structure

The EARs have been prepared in accordance with Government regulations and good practice guidance, including:

- The updated DPG and associated appendices, issued in 2025
- Defra Drought Plan (England) Direction 2025
- Institute of Environmental Management and Assessment (2004) Guidelines for Environmental Assessment
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2019) Guidelines for Ecological Impact Assessment.
- UKWIR (2007, updated 2011) Strategic Environmental Assessment – Guidance for Water Resources Management Plans and Drought Plans. Prepared by Cascade Consulting; and UKWIR Project WR/02/S/302 - Environmental Assessments for Water Resources Planning (2020).

Section 3.8, Table 1 of the 2025 'Environmental assessment for water company drought planning - supplementary guidance' sets out as a minimum what each EAR should comprise. In summary, this includes:

- Summary
- Proposal
- Assessing the environmental impact
- Receptors to consider
- Mitigation measures
- Compliance
- Supporting evidence
- Environmental monitoring

C9.2.5 Monitoring and Data Collection

Baseline Monitoring

Each EAR is based on information available at the time of writing. This includes information provided in previous reports and studies, EA and TWUL routine monitoring data and other bespoke data.

The 2025 DPG indicates that baseline data is important to inform both the assessment of the sensitivity to drought options (screening) and assessment of impacts on sensitive features.

To assess environmental sensitivity, the DPG suggests the use of good quality, long-term environmental datasets. This is because long-term datasets are more likely to cover different flow conditions, including drought events, which will help improve the understanding of how the environment responds to changing flow conditions. Modelling tools, where available, could also be used to help assess environmental sensitivity.

The DPG also requires the use of the best available data, evidence and analysis methods to inform your environmental assessments. Types of evidence which can be used include:

- observed historical datasets;
- observed datasets from on-going monitoring programmes;
- expert judgement relating to specific habitat types;
- evidence from other nearby sites which are similar to your site of interest; and
- modelled/simulated datasets.

Understanding the environmental datasets that are required and the availability of these datasets will inform the level of confidence that can be assigned to the environmental assessments and sources of uncertainty that will have to be reduced.

The DPG indicates that the EA will have various environmental monitoring programmes which will provide data that could supplement bespoke monitoring programmes. Data for the Drought Plan has been mostly obtained from the monitoring programmes being implemented by the Kennet and South London (KSL) and Thames EA areas. In addition, we have implemented a baseline monitoring programme from 2012-2023 to supplement the EA monitoring programmes. This aims to ensure the maintenance of long-term data sets for each associated waterbody where screening and/or assessment outcomes have identified a risk as a result of the implementation of a drought permit or drought order or where data is considered availability insufficient.

The DPG also indicates that the assessments should also consider other third party sources of environmental monitoring data which. For example, the National Biodiversity Network, County Wildlife Trusts, biological records centres, angling clubs and site managers.

To assist in the development of drought permit / order applications additional baseline environmental surveys have been undertaken (2017-2023). The baseline monitoring output provides further targeted information to supplement the datasets already used in each EAR. Analysis of the additional data collected has been undertaken and where this identified any material differences to assumptions made in each EAR, the environmental assessment and / or Environmental Monitoring Plan has been updated where appropriate following discussion with the EA. This baseline monitoring is distinct from the monitoring that will be undertaken in a drought as part of a drought permit / order application, as specified in the Environmental Monitoring Plan. Baseline monitoring will comprise walkover surveys to identify the extent and location of flow sensitive habitats and inform subsequent monitoring of habitats, sensitive communities and species, where appropriate.

Table C4 provides examples of information normally necessary to gather for the baseline. Where applicable, likely sources of supporting data are included.

Table C4 Examples of Monitoring and Data Collection for Drought Permits/Orders

Data	Method	Required frequency & location	Source
Flow gauging	In stream structures or gauge boards with rating curves	Continuous (daily) to provide flow accretion profiles	EA
Hydrometric surveys	Cross section surveys, ADCP meters, or current meters	Spot flows, velocities, levels and Cross-sectional areas.	Various or to be commissioned
Water Quality sampling	Routine sampling (various determinands)	Fortnightly or monthly depending on determinand.	EA
Water Quality samples	Spot samples for dissolved oxygen (DO), temperature and Ammoniacal N. Also Chlorophyll-a.	From weekly to monthly – measure upstream and downstream of discharges, close to ecologically sensitive reaches and to infill between EA routine samples	Various or to be commissioned
Macro-invertebrates	Kick sampling, records. (or Surber sampling if conditions appropriate)	From fortnightly to bi-monthly dependent on season for ecologically sensitive reaches. Ecological surveys to tie in with Hydrometric and water quality sampling sites.	EA or to be commissioned. Most is field surveying supported by earlier EA records
Fish Surveys	Electric fishing	Spring and late summer electric fishing of adults is a typical approach. More specific surveys of spawning habitat, fry and/or juveniles possibly required depending on period of Drought Permit operation.	EA records or to be commissioned
Macrophytes	Walkover surveys mapping in-channel flow dependent habitats and/or River Habitat Surveys (RHS)	Monthly to bi-monthly primarily from spring to later summer on reaches providing representative habitats	EA, NE or to be commissioned

Protected species (where applicable) – the presence of protected species may require consideration of additional surveys to confirm presence/absence at targeted locations.

Please note that the above table is indicative only. The components of any monitoring programme attached to a specific drought permit/order would vary according to factors such as location and seasonal impacts relating to the life stages of particular species.

Groundwater monitoring data

As well as data listed above, a observation borehole groundwater monitoring data would also be required, as outlined in table C5.

Table C5 Examples of Monitoring and Data Collection for Drought Permits/Orders

Data	Method	Required frequency & location	Source
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Aquifer water table levels	Monitoring boreholes (piezometers)	Daily (preferable) or monthly near to abstraction source and to ensure impact of fault lines creating a hydraulic barrier to groundwater flow is assessed. Allows direction of groundwater flow to be assessed.	EA
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Other Data

Once the baseline is established, it will be necessary to collect further data to assist in the impact assessment, detailed in table C6 below.

Table C6 Further data required to assist the impact assessment

Data	Method	Required frequency & location	Source
Other users	Navigation surveys	Daily to weekly information on boat movements during period of DP assessment	EA, local sailing clubs
Other Users	Angling numbers – surveys	Seasonal numbers on estimated angling activity	Angling clubs or Consultatives, NE, EA.
Abstraction licences in catchment	EA records	For both affected river catchments and aquifer watershed (for a groundwater source)	EA
Permitted discharges	EA records or from discharger	For all watercourses hydraulically linked to the surface water source or aquifer	EA or direct to discharger

C9.3 Drought Permit Monitoring and Mitigation

The DPG requires Thames Water to set out an Environmental Monitoring Plan (EMP) indicating the monitoring and mitigation required following assessment of the sensitivity and impacts associated with drought options. The EMP should set out:

- on-going baseline monitoring to inform sensitivity and impact assessments
- the monitoring that will be implemented to reduce uncertainty identified in the assessment of either the sensitivity of the environment or impacts on features considered in the detailed assessment
- the onset, in-drought and post-drought (recovery) monitoring that will be carried out to understand the actual impact of drought management actions
- the elements/features of the environment that will be monitored
- the location, in-year and between year frequency of monitoring, sampling/survey methods
- any changes in approach between stages (for example, increasing the frequency of sampling during the in-drought stage)

- who is responsible for carrying out this monitoring
- the existing environmental datasets that are available and how the additional monitoring plans will complement these and improve your environmental assessments
- how resulting monitoring datasets will be analysed, and the data analysis tools that will be used

Monitoring programmes should be designed to understand the difference between the natural impact of drought on the environment and that caused by implementing supply side drought management action and normal level of licensed abstraction. This can only be achieved by planned, effectively designed monitoring programmes. The DPG suggests using a Before-After-Control-Impact (BACI) approach. Paired control and impact sites monitored under baseline, in-drought and post-drought (recovery) stages could assist with understanding the differences between the impacts of natural droughts and drought management actions.

It may be possible to mitigate or reduce adverse effects on the environment. The guidance states a Drought Plan should, therefore, identify:

- pre-drought mitigation actions: actions you will implement before or whilst the drought is developing to reduce the likely environmental impact of your proposed actions
- in-drought mitigation actions: actions you will implement during a drought to minimise the environmental impact of your proposed actions
- post drought mitigation actions: actions you will implement following a drought to reduce any environmental impacts that may occur as a result of the actions you implement

The DPG also indicates that a Drought Plan should provide evidence that the mitigation measures that are proposed will be effective for the features that could be at risk from a drought option. The EMP should show how this will be monitored. The Drought Plan should also include details of any additional permits or approvals needed to carry out the mitigation measures.

In some cases, mitigation actions may be necessary to prevent derogation of other abstractions (for example, by providing alternative supplies).

The EMP and mitigation is documented in each drought option EAR and is site and feature specific.

C9.4 Drought Permit potential location for hearings and advertising

Table C7 below lists the potential locations for hearings if required for drought permit applications, and the newspapers they will be advertised in.

Table C7 Hearing locations and newspapers for each drought permit option

Drought Permit options	WRZ	Location for hearing	Newspaper
SWOX_0002 1	SWOX	Cirencester Town Hall	The Wilts and Gloucestershire Standard
SWOX_0002 2	SWOX		
SWOX_0010 1 & 2	SWOX		
SWOX_0009	SWOX		
SWOX_0003	SWOX		

SWOX_0001 1	SWOX		
SWOX_2	SWOX		
SWOX_0012	SWOX	Marlborough Town Hall	Wiltshire Gazette & Herald / Wiltshire Times
SWOX_0011	SWOX		
River Thames @ SWOX_0006	SWOX	Oxford Town Hall	Oxford Mail
SWOX_0007	SWOX	Goring Village Hall	Henley Standard
SWOX_0005	SWOX	Wantage	Wantage paper
LON_0006	London	Eynsford Village Hall	Kent Online
LON_0019 1	London	Sundridge Village Hall	Kent Online
LON_0019 2	London		
LON_0018	London	Croydon College	Croydon Guardian / Croydon Advertiser
LON_0021	London	Croydon College	Croydon Guardian / Croydon Advertiser
LON_0008 (Aquifer Storage and Recovery)	London	Horton Kirby Village Hall	Kent Online
LON_0022	London		Kent Online
LON_0003	London		
LON_0001	London	Bexley Library	Bexley Times
LON_0011 M2 licence annual limit	London	The Royal Society London/Royal Commonwealth Society	The Times / Evening Standard
LON_0011 (LTOA to 0)	London		
LON_0011	London		
LON_0009	London	Chingford Library	Chingford News
KEN_0002	Kennet Valley		
KEN_0003	Kennet Valley	Reading Town Hall	Reading Chronical
KEN_0004	Kennet Valley	Pangbourne Village Hall	Reading Chronical
KEN_0005	Kennet Valley	Reading Town Hall	Reading Chronical
GUI_0006	Guildford	Shalford Village Hall	Surrey Advertiser
GUI_0004 / GUI_0002 / GUI_0003 disaggregation	Guildford	Emmbrook Village Hall	Surrey Advertiser
GUI_0001	Guildford	Albury Village Hall	Surrey Advertiser
HEN_0001 -Aggregate HEN_0002	Henley	Harpsden Village Hall	Henley Standard
SWA_0005	SWA	Buckinghamshire New University	Bucks Free Press

C9.5 Indicative Activities at the time of application

Table C8 below details the tasks to be undertaken at the time of a drought permit application, and the expected timescale within which they'll be completed.

Table C8 Indicative activities at the time of application

Task	Time required	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Sites of local wildlife importance - data update	4 weeks										
Updating environmental monitoring data - EA request	4 weeks										
Liaison with stakeholders (e.g. other licence holders)	4 weeks										
Updating Environmental Assessment report	3 weeks										
Detailing antecedent conditions	3 weeks										
Advertising Drought Permit Application	2 weeks										
Organising hearing if required	2 weeks										
Inspectors Report and Determination	2 weeks										