2022 FINAL Drought Plan
Appendix C
Drought Permit Options

C1. Tables Showing Possible Drought Permits and Drought Orders

C1.1 Introduction

The Environment Agency 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 Environment Agency. If for whatever reason a drought permit application is refused by the Environment Agency 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 Habitat Directive (HD) sites would also normally be applied for in the form of a drought order submitted to the Secretary of State.

A drought permit is a supply-side option. The Environment Agency expects water companies to include in their Drought Plans all possible drought permit options. The following table shows a complete summary of Thames Water's possible drought 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. This is described in more detail in section C3.

Source	Current licence limit (Ml/d)	Potential abstraction with Drought Permit (Ml/d)	Potential Gain (Ml/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
			Min estimate	Max estimate						
River Thames @ Farmoor	59.1	59.1 + whatever flow is available	10	30	20	20	20	SWOX	Oxford Watercourses. 30 Ml/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 (Ml/d)	Potential abstraction with Drought Permit (Ml/d)	Potential Gain (Ml/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
			Min estimate	Max estimate						
Meysey Hampton	0	Previous summer limit (Ml/d)	11.37	11.37	11.37	11.37	11.37	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 St Peter STW. Potential Cumulative effects with other Cotswolds GW options.	2

Source	Current licence limit (Ml/d)	Potential abstraction with Drought Permit (Ml/d)	Potential Gain (Ml/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
			Min estimate	Max estimate						
Latton	15 ave (17 month)	20 ave	3	5	2.3	2.3	2.3	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 St Peter STW. Other abstractors. Potential cumulative effects with other Cotswolds GW options (Baunton 1 and 2).	2
Gatehampton	101.5	105	3.5	3.5	3.5	3.5	3.5	SWOX	Suspension of flow constraint to allow an increase in abstraction of 3.5 Ml/d.	1
Oxford Canal	0	5 or 10	0	5 to 10	5	5	5	SWOX	Canal and River Trust Agreement required.	1
Pangbourne	31	38	7	7	7	7	7	Kennet Valley	Sulham and Tidmarsh SSSI unlikely to be affected. Water quality risk in Sulham Brook including that associated with Pangbourne STW.	1
Baunton 1	0 (flow constraint)	6.3	0	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 gw options (Latton and Baunton 2).	3
Bibury	6.819	11.819	0	5	5	5	5	SWOX	Limited treatment capacity. Minor adverse effects on flows in the River Coln.	5

Source	Current licence limit (Ml/d)	Potential abstraction with Drought Permit (Ml/d)	Potential Gain (Ml/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
			Min estimate	Max estimate						
Childrey Warren	0 (emergency licence)	4.546	4.546	4.546	3.33	2.99	2.62	SWOX	Hydrological impact on the Letcombe Brook	5
Axford 1	6	13.1, (unconstrained licence)	0	7.1	7.1	7.1	7.1	SWOX	Moderate hydrological effects of drought permit on the River Kennet. Medium risk to water quality. Potential for cumulative effects with Ogbourne, Ogbourne emergency boreholes and Axford 2 drought permits.	10
Axford 2	13.1 (with DP)	20	0	6.9	6.9	6.9	6.9	SWOX	Major Hydrological effects from the Drought Permit on the River Kennet. Medium risk to water quality. Potential for cumulative effects with Ogbourne, Ogbourne emergency boreholes and Axford 1 drought permits.	11
Baunton 2	6.3 with DP	17	0	10.7	10.7	10.7	10.7	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 (Latton and Baunton 1).	8
Ogbourne emergency boreholes	0	4	0	4	4	4	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 Axford drought permit.	9

Source	Current licence limit (Ml/d)	Potential abstraction with Drought Permit (Ml/d)	Potential Gain (Ml/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
			Min estimate	Max estimate						
Ogbourne	0	3.5	0	3.5	1.2	1.2	1.2	SWOX	Moderate Hydrological impact on the River Og and minor on the River Kennet. Moderate risk to water quality.	7
Lower Thames	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. 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	1
Waddon	7.6	15.5	4	7	6	6	6	London	Most likely estimate 4Ml/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

Source	Current licence limit (Ml/d)	Potential abstraction with Drought Permit (Ml/d)	Potential Gain (Ml/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
			Min estimate	Max estimate						
Horton Kirby (Aquifer Storage and Recovery)	0	2.4	0	2.4	2.4	2.4	2.4	London	Tested but not yet licensed. Requires pump and pipeline; assumes discharge to R. Darent for augmentation sustaining abstraction from other Darent sources. There are no adverse hydrological impact associated with the drought permit.	2
Wansunt	13.6	19.6	0	6	6	6	6	London	Yield, WTW capacity.	3
Crayford	13.64	16.4	0	2.8	2.8	2.8	2.8	London	Negligible impacts on hydrology. Yield, WTW capacity.	3
Lower Thames M2 licence annual limit	665388Ml(1818 Ml/d)	What ever required to avoid exceeding annual limit	0	What ever required to avoid exceeding annual limit	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 have priority as it is not linked to drought severity in the same way as other options.	N/A
Lower Thames (LTOA to 0)	200 residual	200	100+	200	50	50	50	London	Back pumping over Teddington Weir 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.	2

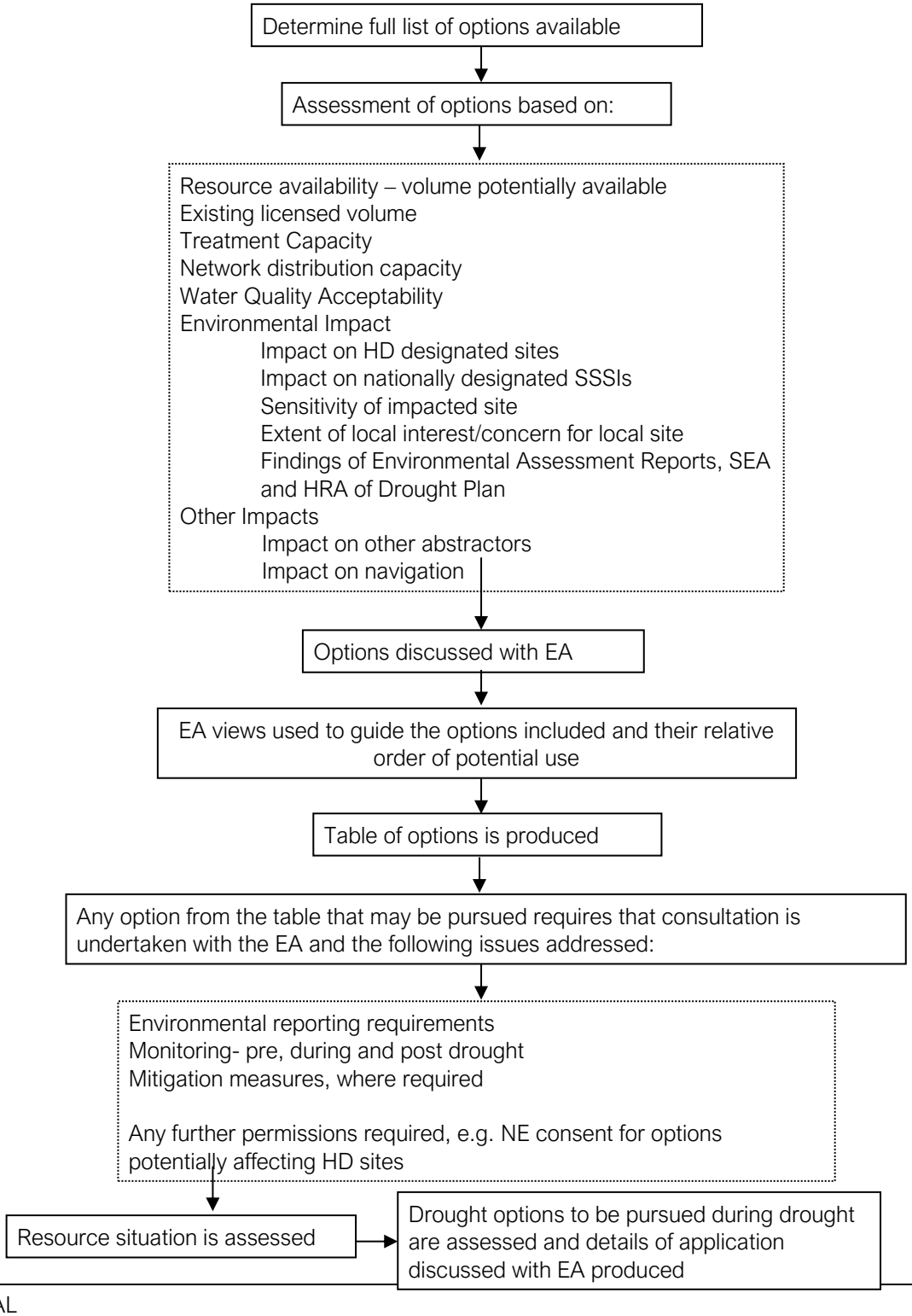
Source	Current licence limit (Ml/d)	Potential abstraction with Drought Permit (Ml/d)	Potential Gain (Ml/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
			Min estimate	Max estimate						
Eynsford	7.3	11.36	0	11.36	4	4	4	London	Groundwater levels and recovery. R. Darent low flow, water quality, high ecological sensitivity. Major adverse effect on biodiversity and water. Adverse effects on other users and angling. Cultural heritage. Potential for cumulative effects with Sundridge 1 and 2. In view of the potential impact of the Eynsford 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 at the time by the Environment Agency that the application should be for a Drought Order in which case, we would submit a Drought Order application	7
Sundridge 1	1.36 (average)	8	0	6.64	6.64	6.64	6.64	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 Sundridge 2 and Eynsford. Potential for derogation of other abstractors.	5
Sundridge 2	1.36	12	0	10.64	4	4	4	London	R. Darent low flow, high sensitivity. Potential adverse effects on Sevenoaks Gravel Pits SSSI and ecological features. Potential for cumulative effects with Sundridge 1 and Eynsford. Potential for derogation of other abstractors.	6

Source	Current licence limit (Ml/d)	Potential abstraction with Drought Permit (Ml/d)	Potential Gain (Ml/d)		1:100 DO	1:200 DO	1:500 DO	WRZ	Issues/ Risks	Priority
			Min estimate	Max estimate						
Fobney	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
Fobney - emergency BH's	0 in drought	25	12	30	25	25	25	Kennet Valley	Sustainability of yield; water quality (Reading STW).	1
Playhatch	8.2	12.3	2.8	4.1	3.5	3.5	3.5	Kennet Valley	No adverse hydrological impacts. Network restrictions on WTW output	3
Pann Mill	9.5	16.8	7.3	7.3	7.3	7.3	7.3	SWA	Adverse hydrological impacts on the River Wye	1
Shalford	30	35	0	5	5	5	5	Guildford	Limited treatment capacity.	1
Albury	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
Harpsden - Aggregate Sheeplands	22.3	27.9	0	5.6	5.6	5.6	5.6	Henley	Combined treatment capacity at Harpsden and Sheeplands and nitrate levels at Sheeplands	1

C2. Statutory Drought Plan – Drought Permit Decision Process

The choice of which sources are used as potential drought permit options is based on a number of factors. These are outlined in the flow diagram below.

Figure C1 Drought Permit Decision Process



C3. Description of Options for Drought Permits

C3.1 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 taken into account 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 affects 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.

C3.2 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. TWUL takes into account the relative environmental impact of the options available and assigns a priority for the option. 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, for example if the Oxford Canal option is not available due to drought in the Midlands region. The level of environmental impact is determined in liaison with the Environment Agency and the statutory SEA consultees (Environment Agency, Natural England and English heritage) and HRA consultees (Natural England).

C3.3 Consultation with Environment Agency

The list of identified options and associated details is submitted to the Environment Agency for their views and the options are discussed in more detail. The Environment Agency'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 Environmental Assessment reports and baseline monitoring reports have been shared with the Environment Agency in advance of publishing the draft Drought Plan.

C3.4 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 Environment Agency requirements. In general, for the most sensitive permits, a minimum lead in time of 10 weeks is specified. For such environmentally sensitive permits, the trigger for submission to the Environment Agency 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 200Ml/d flow threshold at Farmoor, 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 through using the control diagrams and Thames river flows for guidance. The trigger for the implementation of this set of options is the Level 3 control curve for London and for SWOX reaching at Farmoor a trigger threshold flow of 100Ml/d,.

For the other zones the implementation of drought permits would be consistent with a Level 3 control curve trigger.

As described above drought permits are prioritised with high priority permits being generally less environmentally damaging than low priority permits and therefore more likely to be implemented earlier. However, in an actual drought, other factors will also be taken into account 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 slightly from this priority order although the priority order given in this Appendix (C) would form the initial basis of the order in which options are used in a drought.

Since the production of our last Drought Plan in 2017 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.

C3.5 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.

C3.6 London Drought Permit Options

C3.6.1 Increased Abstraction from the Lower Thames

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. As stated above, the trigger for the requirement for drought permits is storage reaching Level 3 on the LTCD. The Lower Thames option has been selected as the principal option because it has a direct impact on the critical strategic reservoir storage in the Lower Thames although the infrastructure to abstract the water available would be required. This option also provides the greatest potential volumetric benefit of the options available.

There is also an option to allow increased abstraction from the Lower Thames if the annual licence limit is close to being exceeded (Lower Thames annual licence limit). This option would entail increased abstraction towards the end of the calendar year under circumstances when the Lower Thames 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.

C3.7 Other London Groundwater Options

Waddon. The Waddon 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.

Wansunt & Crayford. The output from the sources at Wansunt and Crayford in the lower Cray Valley could potentially be increased temporarily under a drought permit.

Horton Kirby ASR. TWUL intends to develop an ASR (Aquifer Storage and Recovery) option at Horton Kirby. The scheme has been started but has not yet been fully developed and is not yet licensed. There is the potential to obtain water from this source under a drought permit subject to water treatment being installed.

Sundridge 1 and 2. An increase in abstraction at the Sundridge 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 and would expect this to be a Drought Permit unless advised at the time by the Environment Agency that the application should be for a Drought Order in which case we would submit a Drought Order application

Eynsford. There is the potential to increase the output of the Eynsford source above its current licensed volume during periods. We would prepare to apply for a Drought Permit and would expect

this to be a Drought Permit unless advised at the time by the Environment Agency that the application should be for a Drought Order in which case we would submit a Drought Order application

The priority order for the London options is based on the potential yield of the option together with the potential environmental impact. The key issues/risks to the environment are identified in the sixth column of Table C1, the environmental impacts have been 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 Environment Agency. The only significant option available in London is increased abstraction from the Lower Thames to reduce the residual flow over Teddington weir. This option is therefore priority 1 to deliver a reduction to 100Ml/d because it would need to be implemented at an early stage in order to deliver the significant water resource gains it could potentially provide. The further reduction to a residual flow of 0 Ml/d is assigned priority 2 reflecting the potential environmental impact associated with the option. For example, the existing Environmental Assessment Report (EAR) and the SEA identify the potential for exacerbating water quality issues in the upper Tideway. The Lower Thames 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, Thames Water would be likely to take a flexible approach and allow for a staged reduction towards a residual flow at Teddington of 0 Ml/d which would allow for close liaison with the Environment Agency regarding the detail of the option implementation. However, in practice an application for a Drought Permit would probably need to be for a reduction to 0 Ml/d in view of the time constraints that would restrict the scope for two separate applications.

The Horton Kirby ASR option (priority 2) has relatively few effects on the environment, as identified by the EAR and SEA. However, the option is dependent on the development of a store of groundwater within the aquifer that could be used for potable supply. Therefore, it is included in the Drought Plan so that it can be invoked if available which may be in advance of the option being licensed for use as part of normal operations.

The Wansunt & Crayford options are priority 3. The EARs and SEA did not identify any significant adverse effects. They are situated in the lower reaches of the River Cray catchment and negligible effects on hydrology and other environmental features were identified. However, they require infrastructure modifications in order for the resource benefit to be realised.

The Waddon 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.

The Sundridge and Eynsford options are priority 6&7 respectively because of the potential to have significant adverse impact on the River Darent as identified by the Environmental Assessment Reports and the SEA of the Drought Plan. The Environment Agency has stated that they would expect to see all other options taken forward prior to these options in view of the potential impacts on the River Darent which has suffered from low flows in the past. The Sundridge option is selected in preference to the Eynsford option because it is able to provide benefit to the storage in the west London reservoirs whilst the Eynsford option does not provide this benefit due to restrictions on the network.

C3.8 SWOX Drought Permit Options

The options selected for SWOX are outlined in Tables 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 Farmoor reservoir. As stated above, the trigger for the requirement for drought permits is linked to the flow in the River Thames. The Farmoor 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 Farmoor. This option also provides the greatest potential benefit of the options available.

The remainder of options available are abstractions from groundwater with the preferred initial option the introduction of the disused Meysey Hampton summer boreholes. This would be followed by the options at Latton and then Baunton which is in Category 2.

Other options in the SWOX WRZ include increased abstraction from Gatehampton during periods when the flow constraint is in force. The drought permit option would be to allow an increase in the constrained abstraction from 101.5 to 105 Ml/d.

Further options have been identified for the SWOX WRZ in order to benefit the Banbury area. These include a potential permit to abstract water from the Oxford Canal, however this option is dependent upon the water being made available by Canal and River Trust.

The potential for increased abstraction at the Bibury source would be dependent upon the provision of sufficient treatment capability to increase the output from the source. It would also require increased network capability to enable transfer of the water to areas where it will provide benefit in reducing the impact of drought on other sources e.g. Farmoor.

A new option has been added for SWOX, this is the use of the Childrey Warren source. Childrey Warren was closed in 2020 and is only licensed for emergency use. The Childrey Warren 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 priority order for options in the SWOX WRZ is based on the potential yield of the option together with the potential environmental impact. The key issues/risks to the environment are identified in the sixth column of Table C1, the environmental impacts have been assessed in detail in the associated EARs, 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 Environment Agency. The principal significant option available in SWOX is increased abstraction from the River Thames at Farmoor through amendment of the flow constraint. This option is therefore priority one because it 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. However, the SEA highlighted three SWOX drought options as having potentially more significant environmental effects (Axford, Ogbourne, and Baunton higher abstraction). Gatehampton and the option to use the Oxford Canal are also priority 1 in view of the low environmental impacts that the options are likely to have. It should be noted that the Oxford Canal option will only be available if the water is available from the Canal and River Trust at the time of the drought). The Meysey Hampton and Latton 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 the SEA) with Bibury at priority 5 due to impact on the River Coln, Childrey Warren priority 5 due to impact on the Letcombe Brook, Ogbourne 7, Baunton higher abstraction priority 8 due to impact on the River Churn, Ogbourne emergency boreholes priority 9 due to impact on the River Og and Kennet and Axford priority 10 and 11.

C3.9 Kennet Valley Drought Permit Options

The principal option identified in the Kennet Valley (Table C1) is the option to vary the flow constraint condition at Pangbourne 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 Pangbourne as having few adverse environmental effects relative to most other options in the Kennet Valley WRZ.

Other options identified in the Kennet Valley are to abstract from the Fobney emergency boreholes to supplement supplies during drought periods rather than under short-term emergency conditions. The option of increased abstraction at Playhatch has also been identified in the event of severe drought.

In more severe drought conditions the option to reduce the residual flow down the Holy Brook would be considered, however this may be possible through agreement with the Environment Agency 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 Operating Agreement is being drawn up between TWUL and the Environment Agency to cover this residual flow requirement.

Subsequent to Pangbourne the priority order for the Kennet Valley Drought Permit options is based on the volume they are able to provide together with their potential to have adverse environmental impact. The key issues/risks to the environment are identified in the sixth column of Table C4, the environmental impacts have been assessed in detail in the associated EARs, SEA and HRA. The priority 1 option is the Fobney boreholes, they provide significant potential gain and the EAR identifies the option likely to only result in minor adverse hydrological effects and relatively minor impacts on environmental features. The Fobney Direct 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 Arrowhead control structure and its confluence with the River Kennet and moderate adverse effects for a range of environmental features. Therefore, this option would be considered lower priority to the Fobney boreholes option. The Playhatch option 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. Considering these factors the Playhatch option is considered priority 3. The SEA shows that Playhatch having limited environmental effects.

C3.10 Henley Zone Drought Permit Options

The only option considered for the Henley zone (Table C1) is the increase of abstraction from the Harpsden and Sheeplands sources which are licensed in aggregate.

There is only one option identified for Henley and so it is priority 1. The key issues/risks to the environment are identified in the sixth column of Table C1, the environmental impacts have been assessed in detail in the associated EAR, the SEA and HRA.

C3.11 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 Pann Mill pumping station.

There is only one option identified for Slough/Wycombe/Aylesbury and so it is priority 1. The key issues/risks to the environment are identified in the sixth column of Table C1, the environmental impacts have been assessed in detail in the associated EAR, the SEA and HRA.

C3.12 Guildford Drought Permit Options

The options considered for the Guildford zone (Table C1) are a variation to the abstraction licence at Albury.

The potential for increased abstraction at Shalford from the rivers Wey and Tillingbourne has been considered as an option. However it is considered very unlikely that this option would be required as the sources in the Guildford WRZ are robust to drought.

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

The Shalford 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 Albury option which has the potential to impact on the flows in the Law Brook, which has suffered from low flows in the past. Shalford would have greater adverse effects on material assets, resource use and emissions due to its construction works.

C3.13 Further Detail on Specific Drought Permit Options

The drought permit options and potential impact are considered in more detail in Appendix B and the EARS.

C4. Generic approach to an Environmental Assessment Report for a Drought Permit or Order Application

C4.1 Introduction

We will undertake an environmental assessment of the drought option as part of any drought permit or order application in accordance with Government regulations and using the Environment Agency's Drought Plan Guideline (DPG)[1].

The DPG identifies that Environmental Assessment Reports (EARs) are required as supporting documents to any drought permit or drought order application. They 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 features[2]. 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 of the environmental assessment work should be completed as possible during a period of non-drought. Each EAR is to be prepared to assess all periods for which the drought option could be in place. TWUL prepared EARs in 2018, which have been updated in 2022, and currently inform the drought plan.

The environmental assessment of the drought options has been prepared using the Environment Agency's 2020 DPG; specifically, the Environment Agency's July 2020 'Environmental Assessment for Water Company DPs - 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 Environment Agency and Natural England and are documented separately in the Methodology[4].

The updated draft EARs include information on:

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

[1] Environment Agency (2020). Water Company Drought Plan Guideline, December 2020 (Version 1.2).
[2] Specifically: Special Area of Conservation, Special Protection Area, RAMSAR site, Site of Special Scientific Interest, National Nature Reserve and Local Nature Reserve.
[3] https://www.gov.uk/government/publications/drought-managing-water-supply/drought-how-water-companies-plan-for-dry-weather-and-drought
[4] Thames Water Utilities Ltd (2020). Thames Water Drought Plan 2022: Environmental Assessment Methodology Report - Prepared by Ricardo Energy & Environment (V3 02 October 2020).

In accordance with the DPG, the 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.

The EARs will form the basis of an application specific EAR should an application for a drought permit/order be required in the future and will be reviewed annually and updated at the time of application. The EARs will be periodically reviewed to ensure the conclusions and recommendations remain valid. An application specific EAR will cover a period of impact for which the drought option would be in place, plus an agreed period of post-project monitoring to provide a comprehensive 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.

C4.2 Environmental Assessment Report

The objective of each Environmental Assessment Report (EAR) is to provide an independent and robust assessment of the potential environmental effects of drought permit/orders (as summarised above). Each EAR represents the permit ready application as per the drought plan guidance (see above) and minimises the time it would take to produce an application specific EAR, which will be required to support any future drought permit / order applications by Thames Water, to the Environment Agency or Secretary of State, in accordance with the Water Resources Act 1991, as amended by the Environment Act 1995, the Water Act 2003 and subsequently the Water Act 2014.

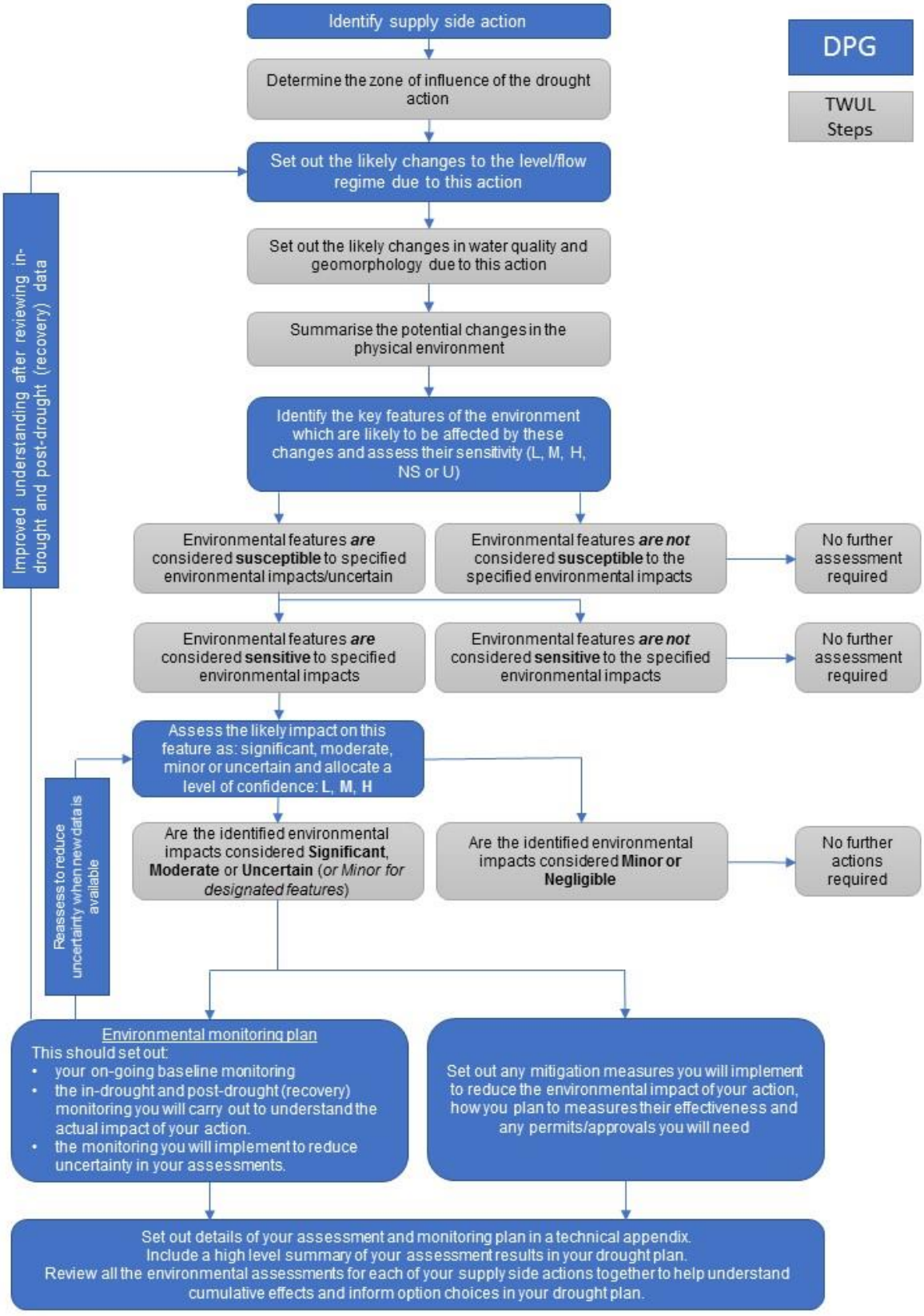
Results of the assessments have also informed the Habitats Regulations Assessment (HRA) and Strategic Environmental Assessment (SEA) which support Thames Water's revised Draft Drought Plan 2022, and are documented separately. Outcomes of any subsequent assessments will be continually reviewed in terms of implications for SEA and HRA.

The Environment Agency's 2020 DPG also requires water companies to 'consider the combined environmental effects of your supply side drought options, and where relevant, the in-combination effects of your actions with those of neighbouring water companies and other abstractors'. The SEA and HRA for a drought plan as a whole will inform these combined assessments.

C4.3 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 1.

Figure 1 Approach to undertaking environmental assessments as identified in the 2020 DPG. The steps identified in blue are as per the DPG2022 and the steps indicated in grey are additional /interim steps included by Thames Water



Stage 1 – Hydrological and Hydrogeological Impact

Consideration is required (by the DPG) 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 Environment Agency's "Environmental assessment for water company drought planning supplementary information" and through discussions with the Environment Agency 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 influence[5];
- sensitive ecological features as advised by the Environment Agency 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 (see above) within those study areas (based on the sensitivity of the features to any changes as a

[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 Environment Agency's judgement, would support a sustainable fish population dominated by salmonid species; this replaces the system of notices protecting areas through the FFD.

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 Environment Agency DPG requirements.

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 screening indicated 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 Environment Agency 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 1) and identifies appropriate next steps. Outcomes have been agreed with the Environment Agency 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 site[6]; 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 Environment Agency 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 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

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

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 Environment Agency) using both the Chartered Institute of Environmental Management (CIEEM) Ecological Impact Assessment (EcIA) 2019[7] guidance and the Environment Agency's DPG2020. These are described in further detail in the Methodology[8].

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 Environment Agency).

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 Methodology[9].

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 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.

[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 (2020). Thames Water Drought Plan 2022: Environmental Assessment Methodology Report - Prepared by Ricardo Energy & Environment (V3 02 October 2020).

[9] Thames Water Utilities Ltd (2020). Thames Water Drought Plan 2022: Environmental Assessment Methodology Report - Prepared by Ricardo Energy & Environment (V3 02 October 2020).

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.

C4.4 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 2020
- Defra Drought Plan (England) Direction 2020
- 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 3.6, Table 1 of the 2020 '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
- Features to consider
- Mitigation measures
- Compliance
- Supporting evidence
- Environmental monitoring

C4.5 Monitoring and Data Collection

C4.5.1 Baseline Monitoring

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

The DPG2020 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 DPG2020 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 to used help assess environmental sensitivity.

The DPG2020 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 DPG2020 indicates that the Environment Agency will have various environmental monitoring programmes which will provide data that could supplement bespoke monitoring programmes. Data for the Thames DP22 has been mostly obtained from the monitoring programmes being implemented by the Kennet and South London (KSL) and Thames Environment Agency areas. In addition, Thames Water has implemented a baseline monitoring programme since 2012 (see section 3.7), to supplement the Environment Agency 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 DPG2020 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 (2017-2022). 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 Environment Agency. 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 C2 provides examples of information normally necessary to gather for the baseline. Where applicable, likely sources of supporting data are included.

Table C2 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.

C4.5.2 Groundwater Source

As well as data listed above, a groundwater source would also require the following additional data.

Data	Method	Required frequency & location	Source
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

C4.5.3 Other Data

Once the baseline is established, it will be necessary to collect further data to assist in 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

C4.6 Drought Permit Monitoring and Mitigation

The DPG2020 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. In particular the DPG2020 indicates that any Drought Plan should be accompanied by an EMP that sets 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; and
- the onset, in-drought and post-drought (recovery) monitoring that will be carried out to understand the actual impact of drought management actions.

The DPG requires monitoring programmes to 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 DPG2020 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.

Environmental Monitoring Plan

The DPG identifies the specific requirements for monitoring. The assessments undertaken in each EAR confirm the features requiring consideration for monitoring prior to, during, or after implementation of a drought permit. The Environmental Monitoring Plan includes the following:

- 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 DPG2020 also requires that the monitoring plan sets out:

- 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.

C4.7 Drought Permit potential location for hearings and advertising.

Drought Permit options	WRZ	Location for hearing	Newspaper
Baunton 1	SWOX	Cirencester Town Hall	The Wilts and Gloucestershire Standard
Baunton 2	SWOX		
Meysey Hampton	SWOX		
Latton	SWOX		
Bibury	SWOX		
Axford	SWOX	Marlborough Town Hall	Wiltshire Gazette & Herald / Wiltshire Times
Axford 2	SWOX		
Ogbourne emergency boreholes	SWOX		
Ogbourne	SWOX		
River Thames @ Farmoor	SWOX	Oxford Town Hall	Oxford Mail
Gatehampton	SWOX	Goring Village Hall	Henley Standard
Childrey Warren	SWOX	Wantage	Wantage paper
Oxford Canal – Banbury	SWOX	Banbury Town Hall	Banbury Guardian / Oxford Mail
Eynsford	London	Eynsford Village Hall	Kent Online
Sundridge 1	London	Sundridge Village Hall	Kent Online
Sundridge 2	London		
Waddon	London	Croydon College	Croydon Guardian / Croydon Advertiser
Horton Kirby (Aquifer Storage and Recovery)	London	Horton Kirby Village Hall	Kent Online
Wansunt	London	Bexley Library	Kent Online
Crayford	London		Bexley Times
Lower Thames M2 licence annual limit	London	The Royal Society London/Royal Commonwealth Society	The Times / Evening Standard
Lower Thames (LTOA to 0)	London		
Lower Thames	London		
Fobney	Kennet Valley	Reading Town Hall	Reading Chronical
Fobney - emergency BH's	Kennet Valley		
Pangbourne	Kennet Valley	Pangbourne Village Hall	Reading Chronical
Playhatch	Kennet Valley	Reading Town Hall	Reading Chronical

Shalford	Guildford	Shalford Village Hall	Surrey Advertiser
Albury	Guildford	Albury Village Hall	Surrey Advertiser
Harpsden -Aggregate Sheeplands	Henley	Harpsden Village Hall	Henley Standard
Pann Mill	SWA	Buckinghamshire New University	Bucks Free Press

C4.8 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										