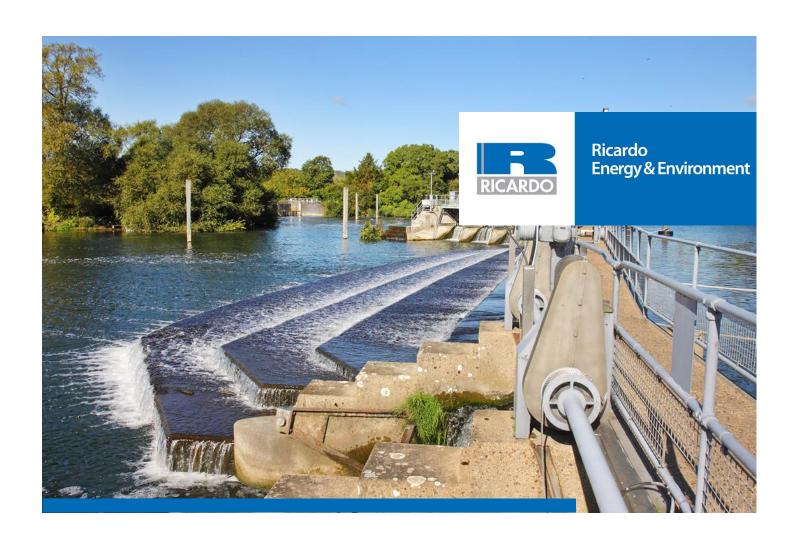
Thames Water Final Water Resources Management Plan 2019

Technical Appendices

Appendix BB: Water Framework Directive



Final Water Resources Management Plan 2019 Appendix BB: Water Framework Directive Assessment – April 2020

Report for Thames Water Utilities Ltd

Customer:

Thames Water Utilities Ltd

Customer reference:

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Contact:

Ben Stansfield Ricardo Energy & Environment Bright Building, Manchester Science Park, Pencroft Way, Manchester. M15 6GZ. United Kingdom

e: ben.stansfield@ricardo.com

Ricardo-AEA Ltd is certificated to ISO9001 and ISO14001

Authors:

Lorraine Gaston, Peter Sibley, Alexandra Scarlat, John Sanders

Approved By:

Trevor Wade

Date:

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Non-Technical Summary

A Water Framework Directive (WFD) assessment of the Thames Water Water Resources Management Plan (WRMP) 2019 (WRMP19) has been carried out as specified in government and regulatory guidance. The WFD assessment has considered all of the Thames Water WRMP option elements, and subsequently all options, a range of reasonable alternative programmes and the preferred programme. For each, a WFD compliance assessment has considered their implications against the objectives of the WFD for all potentially affected water bodies designated under the WFD. The WFD objectives include: the risk of adverse effects on WFD status; 'status deterioration' as described in the WFD; and the risk of preventing water bodies achieving their target WFD status. The findings of the WFD assessments of option elements, options and alternative programmes were used by Thames Water to help reach decisions on the preferred programme for its WRMP19.

The preferred programme is considered compliant with the WFD objectives of the relevant water bodies, now and in the future, as no WFD non-compliance has been confirmed. There is currently one compliance uncertainty in respect of the Epsom groundwater (removal of constraints) option. That option alone requires further investigation and assessment to confirm there is no WFD deterioration risk to the surface water linked to the groundwater abstraction from the aquifer. The option involves abstraction within the existing abstraction licence conditions which will be subject to review of its sustainability under the Water Industry National Environment Programme (WINEP) in AMP7. Currently impacts are mitigated by third party flow augmentation. The proposed increase in abstraction at Epsom (but within current licence) may need to be mitigated, for example through an increase in flow augmentation, however this is subject to the planned investigation and would need to be agreed with the Environment Agency following an options appraisal if required. With any required mitigation in place the scheme would be considered WFD compliant. Should the planned investigation identify the option as non-sustainable, or where the incorporating mitigation measures are considered not to be appropriate or effective, then the option programmed for operation in 2030 would be replaced in the 2024 WRMP by an alternative option.

It is noted that, operating, the South East Strategic Reservoir, the Culham to Farmoor transfer and the supported Severn-Thames Transfer scheme together will all modulate flow in the River Thames locally at Culham and downstream in the River Thames. For these options, a combined detailed operating strategy will be developed with environmental regulators and other stakeholders to manage these flow modulation effects through operating rules to ensure WFD compliance in terms of the potential ecological impacts on the River Thames locally and downstream.

The Environment Agency and Natural Resources Wales require the collection and consideration of further evidence for three of the options within the preferred programme to either confirm the provisional assessment of WFD compliance, or to identify appropriate mitigation actions to ensure this. These options are:

- The Vyrnwy support element of a Severn-Thames Transfer requires the collection and consideration of further evidence, and if necessary the provision of additional mitigation measures, prior to confirming WFD compliance in the Afon Vyrnwy WFD water bodies downstream of Vyrnwy Reservoir. It should be noted that we have included costs for this option to develop a pipeline to enable the flow support to be discharged directly from the reservoir to the River Severn if necessary, should the additional detailed survey evidence demonstrate that mitigation measures cannot secure WFD compliance.
- The Deephams Reuse option requires the collection and consideration of further evidence, and
 if necessary the provision of additional mitigation measures, prior to confirming the assessment
 of WFD compliance in the lowest freshwater water body of the River Lee and the potential for
 interaction with tidal Middle Thames estuary.
- The Oxford Canal Transfer to Cropredy option requires the collection and consideration of further evidence, and if necessary the provision of additional mitigation measures, prior to confirming the assessment of WFD compliance local to the source waters in the Birmingham groundwater (both groundwater and linked surface waters) and in the River Cherwell from the point it would receive transferred water and downstream.

There are no in-combination WFD compliance effects from Thames Water's WRMP preferred programme with information available (April 2020) from other water company WRMPs. No incombination WFD effects have been identified in respect of the Affinity Water WRMP19. The South East Strategic Reservoir option would be jointly promoted by both Thames Water and Affinity Water and the combined operation of the option is what has been assessed (as WFD compliant) within this WFD compliance assessment.

Development of the preferred programme

In helping to inform and determine the preferred programme, six "reasonable alternative" programmes were considered and subject to WFD assessment:

- the least cost programme (Phased_LC)
- favouring intergenerational equity (Min_IGEQ)
- favouring resilience and cost equally (Multi-obj_RES)
- favouring customer preference for the frequency of restrictions and cost equally (Multi-obj_FP)
- favouring resilience with a programme cost restriction of 120% of least cost (NearO_RES)
- favouring customer preference for type of options with a programme cost restriction of 120% of least cost (NearO_TP)

Following a review of these six short-listed programmes and taking into account the findings of the WFD and other environmental assessments, a **preferred programme** was identified and taken forward for further environmental assessment associated with the individual schemes that make up that programme. In developing the preferred programme, Thames Water considered the findings of the WFD assessment of the six alternative programmes as summarised below.

Least Cost programme

The Least Cost programme includes the Britwell groundwater option for which there is currently insufficient evidence to fully assess the potential impacts. The risk of adverse effects requires further investigation and is currently assessed as uncertain. Further investigations may lead to a requirement for additional mitigation measures to confirm WFD compliance, which may be challenging to achieve without affecting the deployable output of this scheme. The least-cost programme also includes the Ashton Keynes and Epsom groundwater removal of constraints options, the effects of which may need to be mitigated, for example through additional abstraction licence conditions and/or an increase in flow augmentation, following completion of further investigations. With any required mitigation in place, these two schemes would be considered WFD compliant.

The Least Cost programme also includes the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option. The Environment Agency requires the collection and consideration of further evidence, and if necessary the provision of additional mitigation measures, prior to confirming the conclusion of WFD compliance for these options.

Multi-obj_RES programme

This programme includes the same small groundwater options with WFD uncertainties as the Least Cost programme and in addition support elements for a support Severn-Thames Transfer option. The Minworth effluent transfer element of a supported Severn-Thames Transfer option carries a WFD compliance risk that requires further consideration of the effect on sanitary, nutrient and chemical water quality, as well as water temperature and consequently aquatic ecology of mixing tertiary treated effluent into the River Avon downstream of Warwick, particularly under low river flow conditions in the River Avon. At present, the ability to secure WFD compliance for this water body for this option remains a challenge and requires more extensive site environmental investigations to assess the risk in more detail and, if necessary, develop additional mitigation measures to secure compliance.

The Vyrnwy support element of a Severn-Thames Transfer option requires further site environmental surveys and investigations and, if necessary, the inclusion of additional mitigation measures prior to confirming the conclusion of WFD compliance, noting this is not as significant or as challenging as the uncertainty surrounding the Minworth effluent transfer support element.

This programme also includes the 15Ml/d Oxford Canal Transfer to Cropredy option. The Environment Agency requires the collection and consideration of further evidence, and if necessary the provision of additional mitigation measures, prior to confirming the conclusion of WFD compliance for this option.

Multi-obj_FP programme

This programme includes the same small groundwater options with WFD uncertainties as the Least Cost Programme and the same WFD compliance uncertainties of flow support elements for a supported Severn-Thames Transfer option as the Multi-obj_RES programme.

However, this programme also includes options with potential WFD compliance effects on the estuarine Thames Tideway. The Beckton Reuse (300 Ml/d) option as well as cumulative effects with the Beckton Desalination (150 Ml/d) option would directly influence freshwater flow into the middle Thames Tideway at a sensitive location for salinity ingress to the middle Thames Tideway and could therefore have inherent effects on water quality and supported ecology. A cumulative threshold volume of 275-365 Ml/d of desalination and/or water reuse schemes at which salinity issues may arise is indicative only and requires further study and analysis to confirm its validity. It is considered that this scale of freshwater reduction (450 Ml/d) could lead to salinity regime changes in the middle Tideway and the Multi-obj_FP programme may therefore not comply with WFD objectives for the ecology of the transitional water body. Further baseline understanding and site environmental investigations of the salinity regime of the middle Tideway would be required to better understand these patterns, along with improved evidence of the salinity sensitivity of certain aquatic species.

This programme includes the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in the Least Cost programme.

NearO_RES programme

This programme includes the same small groundwater options with WFD uncertainties as the Least Cost programme and the same WFD compliance uncertainties of support elements for a supported Severn-Thames Transfer option as the Multi-obj_RES programme.

This programme includes the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in the Least Cost programme.

NearO_TP programme

There are no programme level WFD effects, either from individual schemes or in-combination, for this programme.

Min_IGEQ programme.

This programme includes the same small groundwater options with WFD uncertainties as the Least Cost programme.

This programme includes the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in the Least Cost programme.

Conclusions

In summary, the preferred programme is considered compliant with the WFD objectives of the relevant water bodies, now and in the future, as no WFD non-compliance has been identified. In the preferred programme, there is currently one compliance uncertainty relating to the Epsom groundwater (removal of constraints) option, but with further site-specific investigations and application of any required mitigation measures, this scheme will be WFD compliant. The preferred programme has fewer uncertainties than the Least Cost programme or the Min_IGEQ programme, but noting that the NearO_TP programme is confirmed as WFD compliant without any uncertainty. Of the remaining "reasonable alternative" programmes considered, each contain significant uncertainty for larger elements. For the Multi-obj_RES, Multi-obj_FP and NearO_RES programmes, the additional material uncertainty relates to the Minworth effluent transfer element of a supported Severn-Thames Transfer option. Thames Water and the Environment Agency consider that this option requires a significant programme of additional evidence collection and assessment prior to the consideration of additional mitigation measures to deliver WFD compliance. The additional potential WFD compliance effects in the estuarine Thames Tideway from the Multi-obj_FP programme makes this programme unfavourable in respect to WFD compliance uncertainties when compared to the other alternative programmes.

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1. Introduction

1.1 Background and Purpose of Report

Water companies in England and Wales have a statutory requirement to prepare a Water Resources Management Plan (WRMP) every five years; the Thames Water draft WRMP 2019 (WRMP19) was submitted to the Secretary of State on 1 December 2017 and approval was given to publish the draft plan for public consultation during early 2018.

Various comments were received by Thames Water on the draft WRMP19 during the consultation period. These are set out in the Statement of Response published on the Thames Water website alongside Thames Water's response and a summary of the consequent changes made to this WFD Assessment Report. Thames Water's responses to the consultation comments in relation to the WFD assessment, and the updated information are presented in this report. The assessments has been informed by further dialogue with the Environment Agency, and with other interested stakeholders, during spring and summer 2018.

This updated WFD Assessment report supports the development of the WRMP19.

This WRMP19 also informs the regulatory water company business planning Price Review process, through which the Water Services Regulation Authority (Ofwat) sets the prices that water companies can charge their customers for water (and wastewater) services. The next Price Review will be in 2019 (PR19) and Thames Water submitted its PR19 Business Plan to Ofwat in September 2018.

In the Water Resources Planning Guideline¹ (WRPG), the Environment Agency sets out the requirement for a water company to demonstrate the compliance of its WRMP with the EU Water Framework Directive (WFD).

The WFD compliance assessment is being undertaken in parallel with, and is being used to inform, the Strategic Environmental Assessment (SEA) and Habitats Regulation Assessment (HRA) of the WRMP19 to ensure an integrated approach to environmental assessment such that environmental considerations are integral to the development of the WRMP.

This report includes an assessment of WFD compliance for the constrained list of option elements, the preferred programme and its alternatives for the WRMP.

1.2 WFD Requirements for Water Resource Management Plan

The requirements for a WFD compliance assessment of a water company WRMP are explained in the 2016 Water Resources Planning Guideline (Box 1).

Box 1: WRPG 2018 Water Framework Directive Assessment of a WRMP (Section 6.11 Water Framework Directive)

"You must take account of the requirements of the WFD, including the legally binding environmental objectives in the river basin management plans, when considering your proposed solution(s). You should consider solutions that promote the requirements of Article 4.1 of WFD (that seeks, as a minimum, to prevent deterioration of water with the aim of reducing the treatment needed to produce drinking water) and look to work in partnership with others. You should review solutions that have been identified in RBMP and this may require partnership working with others in the catchment to achieve the solution.

You should confirm that there is no risk of deterioration from a potential new abstraction or from increased abstraction at an existing source before you consider it as a feasible option. In addition, you should ensure that any options do not prevent the achievement of good status (or potential). You should

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Environment Agency and Natural Resources Wales (2018) Water Resources Planning Guideline. Interim Update. July 2018.

talk to the Environment Agency or Natural Resources Wales about any intended actions that may cause deterioration of status (or potential) or prevent the achievement of the water body status objectives in the river basin management plans or for new modifications the achievement of good status (or potential). You should do this as soon as possible before developing your plan and you should make a clear statement in your plan about any potential impacts.

Your plans should include targeted and cost-effective implementation of restoration measures required at the catchment scale, either working solely or in partnership with other catchment based organisations. Given the uncertainty over the level of confidence you should consider the principles of adaptive management, with associated pre and post project monitoring."

These WRPG requirements reflect Defra's Guiding Principles for Water Resources Planning² (May 2016) which state that companies should take account of the government's objectives for the environment "including the appropriate parts of the EU Water Framework Directive". Defra also expects that companies will:

- Have regard to River Basin Management Plans (RBMPs) and their objectives when making decisions that could affect the condition of the water environment
- Ensure that current abstractions and operations, as well as future plans, support the achievement
 of environmental objectives and measures set out in RBMPs
- Ensure plans:
 - prevent deterioration in water body status
 - support the achievement of protected area and species objectives
 - support the achievement of water body status objectives
- Continue working with the Environment Agency to take a proportionate and evidence-based approach to identify the changes needed to current abstraction licences to meet environmental requirements.

Both the WRPG and the Defra Guiding Principles refer to ensuring 'no deterioration' of water body status. The European Court of Justice (ECJ) ruling³ in 2015 clarified that 'no deterioration' in relation to the WFD means a deterioration between a whole 'status class' (e.g. 'good', 'moderate', etc.) of one or more of the relevant 'quality elements' (e.g. biological, physico-chemical, etc.). This definition applies equally to Artificial Water Bodies and Heavily Modified Water Bodies in respect of the relevant quality elements that relate to the defined uses of these water bodies. The ECJ ruling further states that if the quality element concerned is already in the lowest class, any deterioration of that element constitutes a deterioration of the status.

References to 'no deterioration' in this WFD assessment align to this ECJ ruling.

1.3 Structure of the Report

The report is divided into the following sections:

Section 1: Introduction

Section 2: WFD Assessment Approach

Section 3: Summary of Option Element WFD Compliance Assessment

Section 4: Summary of Option Level WFD Compliance Assessment, for those Options

Selected in "Reasonable Alternative" WRMP Programmes

Section 5: WFD compliance statement of the Preferred Programme

Section 6: In-combination Assessment of WFD Compliance of the Thames Water WRMP19

Preferred programme with those of other Water Companies.

Section 7: WFD compliance review of WRMP19 "Reasonable Alternative" Programmes

Defra (2016) Guiding Principles for Water Resources Planning. May 2016.

ECJ Case C-461/13: Bund für Umwelt und Naturschutz Deutschland v Bundesrepublik Deutschland http://curia.europa.eu/juris/document/document.jsf?docid=178918&mode=req&pageIndex=1&dir=&occ=first &part=1&text=&doclang=EN-&cid=175124 [accessed 30.6.16]

2. WFD Assessment Approach

2.1 Methodology

As part of the development of the options being considered for its WRMP19, Thames Water carried out a WFD compliance assessment of all supply-side options contained within the "constrained list" of option elements.

This document outlines the approach adopted and reports the findings from the WFD compliance assessment of the constrained list options and a range of alternative programmes, as well as the WRMP19 preferred programme. The assessment involves the consideration of the likely impacts of both construction and operation of each option element on WFD requirements, in particular consideration of whether there is a risk of deterioration of water body status between status class of any WFD element. The methodology, set out below, was subject to consultation with the Environment Agency in summer 2016 as set out in Section 2.3 below.

2.1.1 Sequential Steps

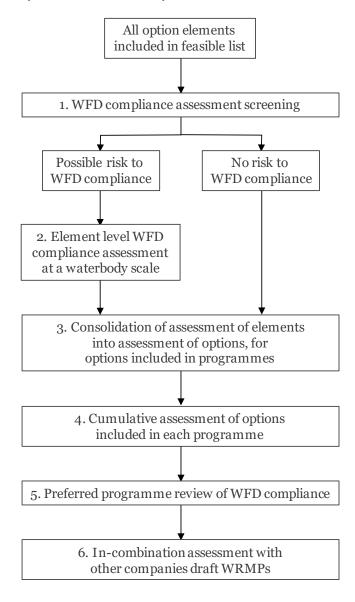
A sequential six-stage process for undertaking WFD compliance assessments has been applied in line with the methodology published by Thames Water in 2016, as illustrated in Figure 2.1.

The six sequential steps are:

- 1. WFD compliance assessment screening: a preliminary assessment of each option element included in the WRMP feasible list to identify if there is any risk of deterioration in WFD status or risk to achieving WFD objectives. For existing water resource sources, the Environment Agency and Thames Water have undertaken an assessment of their sustainability up to their fully licensed abstraction rates that assessment has been used to inform the screening of WFD compliance. For new resource options this screening step is based on expert judgement taking account of existing available evidence. Where a risk is identified, the option element is subject to the WFD compliance assessment. This step of the assessment for each option element is reported in Appendix A.
- 2. Element level WFD compliance assessment: For ecological status this involves assessment of the likely changes to the supporting hydro-morphology or water quality occurring as a result of the construction or operation of the option element and the possible risks to WFD status of biological elements, at a water body scale. In addition, the potential effects on WFD chemical status and WFD protected areas are assessed. This step of the assessment is reported in Appendix B, and together with Step 1, is summarised in Section 3.
- 3. Option level WFD compliance assessment: Where options are selected within the set of programmes, their individual elements have been consolidated into options. This includes both consolidating the water body scale WFD compliance assessments of each of the individual elements (from Steps 1 and 2) and considering whether there are cumulative impacts on a water body from the elements that comprise the option. This step of the assessment is reported in Appendix C and summarised in Section 4.
- 4. Programme level WFD compliance assessment: This involves assessment of the set of options within each reasonable alternative programme, both alone and in combination with other options within the programme. Each alternative programme is assessed separately. The alone assessment is a consolidation of the option level assessments from Step 3. That assessment is also used to identify where multiple options potentially impact on the same WFD water body, with a re-assessment of the cumulative assessment on that water body, and potentially downstream water bodies where appropriate. This step of the assessment is reported in Appendix D and Section 5.
- 5. Preferred programme WFD compliance statement. This involves a statement of the compliance of the preferred programme against each of the WFD compliance objectives set out in Section

- 2.1.2 below. Commentary is also provided on the WFD compliance of each of the alternative programmes. This step of the assessment is reported in Section 5.
- 6. In-combination assessment of the preferred programme with the latest available information of other water companies developing WRMP19s. An in-combination assessment has been included for the WRMP19 based on the latest available information (August 2018), primarily drawn from collaborative work prepared by the Water Resources South East Group. It is noted that options promoted through the WRMP may interact with options included within the Thames Water Drought Plan, with potential changes to the effectiveness of the drought measure or the environmental impact. Where there are potential changes to the Drought Plan, these would be updated as part of the cycle of Drought Plan updates at the time that the WRMP option is implemented, either by changing the suite of drought measures or changing the environmental baseline for assessing the environmental effects of the drought measure.

Figure 2.1 WRMP WFD compliance assessment steps



2.1.2 Environmental Objectives of the WFD

Fundamental environmental objectives of the WFD are to attain good ecological status and prevent deterioration of the status of water bodies. These objectives are set out in Article 4 of the WFD. Any new development (as well as existing operations) must ensure that these WFD objectives are not compromised. Article 4 on environmental objectives has been interpreted and further developed in EA

(2016)⁴, Defra/EA (2009)⁵, DoE NI (2012)⁶ and WRPG (2018) to give a series of objectives to test in the WFD assessment. Based on these, the following are set out as objectives to test for in the WFD compliance assessment:

Objective 1: To prevent deterioration between WFD status classes of any water body

Objective 2: To prevent the introduction of impediments to the attainment of 'Good' WFD status or potential for the water body. It is noted that for some water bodies, it is accepted that achievement of Good status or potential is currently technically infeasible or disproportionately costly. Where this is the case, the test is applied to the currently agreed objectives for that water body rather than against Good status/potential.

Objective 3: To ensure that the planned programme of measures in the 2nd cycle of RBMPs (RBMP2) to help attain the WFD objectives for the water body (or the environmental objectives in the RBMP2) are not compromised

Objective 4: To ensure the achievement of the WFD objectives in other water bodies within the same catchment are not permanently excluded or compromised.

Two further objectives are to review and document if the option element assists the meeting of WFD objectives, which is in addition to the test of WFD compliance of the option element:

Objective 5: To assist the attainment of the WFD objectives for the water body

Objective 6: To assist the attainment of the objectives for associated WFD protected areas.

Objective 5 has been added to indicate whether the option element assists with attaining WFD water body objectives, acknowledging that no water resource scheme is under any obligation to do so. Objective 6 has been added based on the specific requirement of the WRPG. A "negative" answer to testing of Objectives 5 or 6 does not indicate that the option has an adverse WFD compliance assessment but does inform the assessment of that option element relative to other option elements.

2.2 Supporting Information and Data Used

Information on the design, construction and operation of the option elements was obtained from the relevant Thames Water conceptual design reports. The WFD status and water body information has been obtained from the Environment Agency (2016)⁷ online Catchment Viewer for RBMP2 for the year 2015⁸. Water body protected areas linkages were also obtained from the Catchment Viewer, these include:

- Bathing Water Directive: Bathing waters
- Drinking Water Directive: Drinking water protected area
- Conservation of Wild Birds Directive: water dependent Special Protection Areas (SPAs)
- Habitats Directive: water dependent Special Areas of Conservation (SACs)
- Shellfish Directive⁹: Shellfish waters
- Nitrates Directive: Nitrate Vulnerable Zones

⁴ EA (2016) Protecting and improving the water environment – Water Framework Directive compliance of physical works in rivers. Doc No. 488_10.

Defra/EA (2009) WFD Expert Assessment of Flood Management Impacts. Joint Defra/ EA Flood and Coastal Erosion Risk Management R&D Programme. R&D Technical Report FD2609/TR. Report prepared by Royal Haskoning.

Department of the Environment Northern Ireland (2012) Carrying Out a Water Framework Directive (WFD) Assessment on EIA Developments. A Water Management Unit Guidance Note. March 2012

Environment Agency (2016) WFD Status for RBMP2 for the year 2015. Available from http://environment.data.gov.uk/catchment-planning/. New version released 31/03/2016. Accessed 07/10/2016.

Note 2015 is the appropriate reporting year for RBMP2, representing the status of each water body as reported to the EU by Defra for RBMP2. The EA also provide annual updates on status of each element in each water body, but these are not the published status of the water body.

The Shellfish Directive 2006/113/EC was repealed by the Water Framework Directive 2000/60/EC in 2013. The shellfish waters protected areas are waters designated by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The aim is to protect and improve water quality, to support the growth of healthy shellfish (bivalve and gastropod molluscs) and contribute to good quality edible shellfish. Note Shellfish Directive remains how this information is reported in the Environment Agency's Catchment Viewer.

Urban Waste Water Treatment Directive: Nutrient sensitive area or eutrophication sensitive area.

2.3 Consultation

Extensive consultation has been carried out as part of the overall WRMP19 planning process with government, regulators, stakeholders and customers. The WFD compliance assessment methodology, was issued for consultation to the Environment Agency and wider stakeholders in summer 2016¹⁰. Comments were received from the Environment Agency¹¹ with responses issued by Thames Water¹².

Thames Water also held a series of regulatory consultation meetings between 2015 and 2017 on specific potential options, including associated WFD issues. Meetings were additionally held on the Severn to Thames Transfer option involving Natural England and Environment Agency, on the Vyrnwy river regulation support option with Environment Agency and Natural Resources Wales and the Teddington Direct River Abstraction option with Environment Agency and Natural England (amongst others). Comments and feedback from the regulatory bodies on the WFD issues for each of these options were used to inform the assessments presented in the WFD report accompanying the draft WRMP19.

Following publication of the draft WRMP19 for consultation in early 2018, various comments have been received by Thames Water on the draft WRMP19 WFD assessments. These are set out in the Statement of Response published on the Thames Water website alongside Thames Water's response and a summary of the consequent changes made to this WFD Report. The revised draft WRMP19, including the revised WFD Assessment Report, was published for consultation in autumn 2018. Various comments have been received from a range of stakeholders by Thames Water on the revised draft WRMP19 WFD assessment. These are set out in the second Statement of Response published on the Thames Water website together with Thames Water's response summarising the consequent changes made to the WFD Assessment Report.

Thames Water's response to the WFD comments and the updated information presented in this report has been informed by further dialogue with the Environment Agency, and with other interested stakeholders, during spring and summer 2018, in particular in relation to the Teddington DRA scheme. As a result of this further consultation with the Environment Agency, Thames Water has concluded that the WFD issues relating to temperature effects of the Teddington DRA scheme cannot reliably be mitigated to prevent the risk of WFD deterioration. Consequently, this scheme has been removed as an option from the Feasible List for the WRMP19. For completeness, the WFD compliance assessment of the Teddington DRA scheme taking account of the current mitigation measures discussed with the Environment Agency is presented in Appendix E.

Discussions have also been held since publication of the draft WRMP19 with Natural Resources Wales (NRW) in respect of the Vyrnwy Reservoir flow support options for the Severn-Thames transfer scheme in light of comments raised by NRW in its representation on the draft WRMP19. Following the discussions, we have identified the need for further site-specific environmental surveys/investigations in respect of the possible effects on WFD compliance in the Afon Vyrnwy water bodies, and if necessary the consideration of additional mitigation measures.

Discussions have also been held since the publication of the revised draft WRMP19 with the Environment Agency in respect of the flow, water quality and ecological effects of the Deephams Reuse scheme in light of comments raised by the Environment Agency in its representation on the revised draft WRMP19. Following these discussions, we have scoped out further supporting environmental investigations to confirm the WFD compliance of this option in the lower freshwater River Lee and the tidal systems it contributes to and if necessary the consideration of additional mitigation measures. The scope of the environmental investigations is summarised in Section 11 of the WRMP19.

Discussions have also been held since publication of the revised draft WRMP19 with the Canal & River Trust and the Environment Agency in respect of the potential flow, water quality and ecological effects

Thames Water (2016). Water Framework Directive Assessment Methodology for the Thames Water 2019 Water Resources Management Plan. Issued 8 July 2016.

¹¹ Email from Sarah Wardell (Environment Agency) to Lesley Tait (Thames Water) 18 July 2016

Email from Lesley Tait (Thames Water) to Sarah Wardell (Environment Agency) 31 August 2016

of source water abstraction and in-river conveyance of the 15Ml/d Oxford Canal Transfer to Cropredy scheme in light of comments raised by the Environment Agency in its representation on the revised draft WRMP19. Following these discussions, we have scoped out further supporting environmental investigations to confirm the WFD compliance of this option in the Birmingham aquifers and connected surface waters as well as in the River Cherwell, and if necessary the consideration of additional mitigation measures. The scope of the environmental investigations is summarised in Section 11 of the WRMP19.

3. Summary of Option Element WFD Compliance Assessment

This section presents a summary of the option element level WFD compliance assessment for all option elements included in the constrained list. This is presented in Table 3.1 below. It is a summary of methodological Steps 1 and 2. The summary includes those option elements screened as without risk of deterioration in WFD status (Objective 1) and without risk to achieving WFD objectives (Objectives 2 and 3) (as identified in Appendix A). For those option elements screened in to assessment by Step 1, the results of the assessment of those option elements in Step 2 as assessed in Appendix B is also included.

Table 3.1 Option element WFD compliance assessment summary

			Option Element WFD Com	pliance Assessment				
Element Type	Element Name	Element	Summary					
		Reference	Summary	Reason, if not confirmed as compliant				
Conveyance: Raw Water System	KGV Res intake capacity increase	CON-RWS- KGV-360	Compliant	-				
Conveyance: Raw Water System	Queen Mary Res to Kempton WTW - 800MI/d	QMR-KEM	Compliant	-				
Conveyance: Raw Water System	TLT capacity enhancement – up to 450MI/d	CON-RWS-TLT	Compliant	-				
Conveyance: Raw Water System	Datchet intake capacity increase	CON-RWS- DAT	Compliant	-				
Conveyance: Raw Water System	Littleton Intake Capacity increase transfers to Queen Mary	CON-RWS- LTN-300	Compliant	-				
Conveyance: Raw Water Transfer	Raw Water Transfer Deerhurst to Culham 300 Ml/d	CON-RWT- DEH-CLM-300	Compliant	-				
Conveyance: Raw Water Transfer	Raw Water Transfer Deerhurst to Culham 400 Ml/d	CON-RWT- DEH-CLM-400	Compliant	-				
Conveyance: Raw Water Transfer	Raw Water Transfer Deerhurst to Culham 500 Ml/d		Compliant	-				
Conveyance: Reuse	Reuse Beckton to Lockwood 300 MI/d	CON-RU-BEC- LCK	Compliant	-				
Conveyance: Raw Water System	TLT extension from Lockwood to KGV - 800MI/d		Compliant	-				
Conveyance: Reuse	Reuse Deephams to new TLT extension	CON-RU-DPH- TLT EX	Compliant	-				
Conveyance: Reuse	Reuse Deephams to KGV intake	CON-RU-DPH- KGV	Compliant	-				
Network: Desalination	Desalination North Beckton to Coppermills 150 MI/d	NET-DES-BEC- COP	·	-				
Network: Desalination	Desalination South Crossness to Beckton 300 MI/d	NET-DES- CRO-BEC	Compliant	-				
Network: TWRM	TWRM extension - Hampton to Battersea link	NET-TWRM- HAM-BAT	Compliant	-				

Element Type	Element Name	Element	Option Element WF Summary	D Compliance Assessment
		Reference	Summary	Reason, if not confirmed as compliant
Network: TWRM	TWRM extension - Coppermills to Honor Oak	NET-TWRM- COP-HON	Compliant	-
Network: TWRM	TWRM extension - Coppermills New Header tank	NET-TWRM- COP-HEA	Compliant	-
Network: TWRM	TWRM extension - Riverhead Pump Replacement	NET-TWRM- NRV-PUM	Compliant	-
Network: TWRM	TWRM extension - Barrow Hill Pump Replacement	NET-TWRM- BAR-PUM	Compliant	-
Network: TWRM	New Shaft at Kempton	NET-TWRM- KEM	Compliant	-
Resource: Inter- Company Transfers	SEW to GUI 10 MI/d (Hogsback- Mount)	RES-ICT-SEW- GUI-MNT-10	Compliant	-
Resource: Aquifer Recharge	South London Artificial Recharge Scheme (SLARS) – Kidbrooke	RES-AR- SLARS1-7	Compliant	-
Resource: Aquifer Recharge	AR Merton (SLARS3) - 5 Ml/d	RES-AR- SLARS3	Compliant	-
Resource: Aquifer Recharge	AR Streatham (SLARS2) - 4 Ml/d	RES-AR- SLARS2	Compliant	-
Resource: Aquifer Storage & Recovery	ASR South East London (Addington) - 3 MI/d	RES-ASR-SEL	Compliant	-
Resource: Aquifer Storage & Recovery	ASR Thames Valley/Thames Central - 1 Ml/d	RES-ASR-TV	Compliant	-
Resource: Desalination	Desalination North Beckton RO Treatment Plant 150 MI/d	RES-DES-BEC	Compliant	-
Resource: Desalination	Desalination South Crossness RO Treatment Plant 100 MI/d			Potential deterioration risk from changes in salinity in water body GB530603911402 (Thames Middle) during a third implementation phase of this option. Further understanding of effect required.
Resource: Groundwater	Groundwater Mortimer disused source (recommission) - 4.5 Ml/d	RES-GW-MOR	Compliant	-
Resource: Groundwater	Groundwater London confined Chalk (north) - 2 MI/d	RES-GW-LCC	Compliant	-
Resource: Groundwater	Groundwater Southfleet/ Greenhithe (new WTW) - 8 MI/d	RES-GW-SOU	Compliant	-
Resource: Groundwater	Groundwater Dapdune Licence	RES-GW-DAP	Compliant	-

			Option Element WFD Co	mpliance Assessment
Element Type	Element Name	Element Reference	Summary Summary	Reason, if not confirmed as
	Disaggregation - 2.2 Ml/d			compliant
Resource: Groundwater	Groundwater Addington - 1 Ml/d	RES-GW-ADD	Compliant	-
Resource: Groundwater	Groundwater - Moulsford 1.0 - 3.5 MI/d	RES-GW-MOU	Compliant	-
Resource: Recommissioning Groundwater	Recommissioning Groundwater Merton	RES-RC-MTN	Compliant	-
Resource: Inter- Company Transfers	Inter-Company Transfer - Wessex Water to SWOX 2.9 Ml/d (Flaxlands)	RES-ICT-WES- FLX	Compliant	-
Resource: Inter- Zonal Transfers	Henley to SWOX 2.37 Ml/d	RES-IZT-HEN- SWX-NET-2.37	Compliant	-
Resource: Raw water transfer support	Raw Water Transfer Upper Severn Vyrnwy 180 Ml/d (Lon only)	RES-RWTS- VYR	Compliant	Provisional assessment of compliant with further work ongoing to confirm mitigation measures
Resource: Raw water transfer support	Raw Water Transfer Mythe 15 Ml/d (Lon only)	RES-RWTS- MYT	Compliant	-
Resource: Removal of Constraints	RC Datchet Main Replacement - 9.3 MI/d	RES-RC-DAT	Compliant	-
Resource: Removal of Constraints	RC Ashton Keynes borehole pumps - 2.5 Ml/d	RES-RC-ASH	Uncertain	Potential risk of deterioration to river water body (River Churn (GB106039029750)) linked to likely groundwater drawdown of GB40601G600400 (Burford Jurassic) – further investigation planned and mitigation may be needed
Resource: Removal of Constraints	RC East Woodhay borehole pumps - 2.1 Ml/d	RES-RC-EWO	Compliant	- '
Resource: Removal of Constraints	RC Dapdune - removal of constraints to DO - 3.2 MI/d	RES-RC-DAP	Compliant	-
Resource: Removal of Constraints	Eton - removal of constraints to DO - 1.3 MI/d	RES-RC-ETN	Compliant	-
Resource: Removal of Constraints	Ladymead WTW - removal of constraints to DO - 7.8 MI/d	RES-RC-LAD	Compliant	-
Resource: Reservoir	New Reservoir South East Strategic Reservoir Option 150Mm ³	RES-RRR-ABI- 150Mm ³	Compliant	-
Resource: Reservoir	New Reservoir South East	RES-RRR-ABI- 125Mm ³	Compliant	-

Florida Foot	Element Name	El	Option Element WFD Comp	oliance Assessment
Element Type	Element Name	Element Reference	Summary Summary	Reason, if not confirmed as compliant
	Strategic Reservoir Option 125Mm ³			Сотрпан
Resource: Reservoir	New Reservoir South East Strategic Reservoir Option 100Mm ³	RES-RRR-ABI- 100Mm ³	Compliant	-
Resource: Reservoir	New Reservoir South East Strategic Reservoir Option 75Mm ³	RES-RRR-ABI- 75Mm ³	Compliant	-
Resource: Reservoir	South East Strategic Reservoir Option 30+100Mm ³ Phase 1	RES-RRR-ABI- 30+100Mm ³ -P1	Compliant	-
Resource: Reservoir	South East Strategic Reservoir Option 30+100Mm ³ Phase 2	RES-RRR-ABI- 30+100Mm ³ -P2	Compliant	-
Resource: Reservoir	South East Strategic Reservoir Option 80+42Mm ³ Phase 1	RES-RRR-ABI- 80+42Mm³-P1	Compliant	-
Resource: Reservoir	South East Strategic Reservoir Option 80+42Mm ³ Phase 2	RES-RRR-ABI- 80+42Mm ³ -P2	Compliant	-
Resource: Reuse	Reuse Beckton 100 MI/d	RES-RU-BEC- 100	Compliant subject to further investigations	Further investigations required to confirm conclusions.
Resource: Reuse	IPR Reuse Beckton 100 Ml/d x 3 phases to get 300 Ml/d	RES-RU-BEC- 100	Uncertain	Potential deterioration risk from changes in salinity in water body GB530603911402 (Thames Middle) during phase 3 of option. Further understanding of effect required.
Resource: Reuse	Reuse Beckton 150 MI/d	150	Compliant	-
Resource: Reuse	Reuse Deephams 46.5 Ml/d	RES-RU-DPH	Compliant subject to further investigations	Further investigations required to confirm conclusions.
Treatment: London	new 100 MI/d	WTW-LON- KEM-100	Compliant	-
Treatment: London	new 150 MI/d	WTW-LON- KEM-150	Compliant	-
Treatment: London	new 300 MI/d	WTW-LON- KEM-300	Compliant	-
Treatment: London	Coppermills WTW extension 100 MI/d	WTW-LON- COP-100	Compliant	-
Treatment: London	Coppermills WTW extension 150 MI/d	WTW-LON- COP-150	Compliant	-
Treatment: SWOX	South East Strategic Reservoir Option WTW new 24 Ml/d (SWOX)	WTW-SWOX- ABI	Compliant	-
Treatment: SWOX	Radcot WTW new 24 MI/d (SWOX)	WTW-SWOX- RAD	Compliant	-

Element Type	Element Name	Element	Option Element WFD Summary	Compliance Assessment
Liomoni Typo		Reference	Summary	Reason, if not confirmed as compliant
Conveyance: Raw Water System	Medmenham Intake – 80Ml/d SWA South	CON-RWS- SWA-MMM	Compliant	
Treatment: SWA	Medmenham WTW – 24Ml/d SWA South	WTW-SWA- MMM	Compliant	-
Conveyance: Raw Water System	Conveyance from Break Tank to Coppermills via Res 5 – (Spine 2)	CON-RWS-BT- COP-800	Compliant	-
Conveyance: Raw Water System	RWS_Surbiton intake capacity increase	CON-RWS- SUR-100	Compliant	-
Conveyance: Raw Water System	Chingford South intake capacity increase	CON-RWS- CHS-PS-100	Compliant	
Conveyance: Raw Water System	KGV to BPT south of William Girling - 300MI/d	CON-RWS- KGV-BT-300	Compliant	
Treatment: SWOX	SWA north: South East Strategic Reservoir Option - SWA WTW (24MI/d)	WTW-SWOX- ABI-SWA	Compliant	
Network	SWA north: South East Strategic Reservoir Option treated water transfer to SWA	NET-IZT-AB- LC-72	Compliant	-
Resource: Raw water transfer support	Raw Water Transfer: Upper Severn - Vyrnwy Reservoir 148 MI/d	RES-RWTS- VYR-148	Compliant	Provisional assessment of compliant with further work required to confirm any required mitigation measures
Resource: Raw water transfer support	Raw Water Transfer: Upper Severn - Vyrnwy Reservoir 60 MI/d	RES-RWTS- VYR-60	Compliant	Provisional assessment of compliant with further work required to confirm any required mitigation measures
-	Didcot	RES-DRA-DID	Compliant	-
Resource: Raw water transfer support	Transfer of Minworth Effluent 115 MI/d	RES-RWTS- MIN	Uncertain	Potential risk of deterioration to the ecology of River Avon (Warks) - conf R Sowe to conf R Leam (GB109054043840); further assessment is required to inform development of the mitigation measures necessary to deliver compliance and which may be challenging to achieve
Resource: Raw water transfer support	Netheridge Final Effluent Transfer	RES-RWTS- NTH	Complaint	-
Resource: Raw water transfer support	Vyrnwy Transfer to Severn Trent Water 12Ml/d		Compliant	-

		El		FD Compliance Assessment
Element Type	Element Name	Element Reference	Summary Summary	Reason, if not
		ivererence	Summary	confirmed as compliant
Resource: Raw water transfer support	Vyrnwy Transfer to Severn Trent Water 30Ml/d	UU/ST OPT B	Compliant	-
Resource: Raw water transfer support	River Wye to Deerhurst 60 MI/d	RES-RWTS- WYE-60.3	Compliant	Provisional assessment of compliant with further work required to confirm conclusions and determine whether additional mitigation measures are necessary to secure compliance
Conveyance: Raw Water systems	South East Strategic Reservoir Option to Farmoor 24 MI/d	CON-RWS- ABI-FMR	Compliant	-
Conveyance: Raw Water Systems	Medmenham Raw water intake and transfer	CON-RWS- MMM-53	Compliant	-
Conveyance: Raw Water System	Oxford Canal - Farmoor 15	CON-RWS- OXC-FMR-15	Compliant	-
Network	Shalford to Netley Mill	NET-GUI-SFD- NML	Compliant	-
Resource: Aquifer Storage & Recovery	Horton Kirby	RES-ASR-HTK	Compliant	-
Resource: Groundwater	Groundwater Datchet 5.7 Ml/d	RES-GW-DAT	Compliant	-
Resource: Groundwater	Groundwater Honor Oak – 2.8 Ml/d	RES-GW-HON	Compliant	-
Network	SWA North: South East Strategic Reservoir treated water transfer to SWA	NET-IZT-AB- BS-48	Compliant	-
Resource: Inter- Zonal Transfers	Henley to SWA 2.37 Ml/d	RES-IZT-HEN- SWA-HAM-2.37		-
Resource: Inter- Zonal Transfers	Henley to SWA 5 MI/d	RES-IZT-HEN- SWA-HAM-5	Compliant	-
Resource: Inter- Zonal Transfers	Henley to SWOX 5 MI/d	RES-IZT-HEN- SWX-NET-5	Compliant	
Resource: Inter- Zonal Transfers	Kennet Valley to SWOX 2.28 MI/d	RES-IZT-KEN- SWX-2.3	Compliant	-
Resource: Inter- Zonal Transfers	Kennet Valley to SWOX 6.74 MI/d	RES-IZT-KEN- SWX-6.7	Compliant	-
Resource: Removal of Constraints	Britwell - Removal of Constraints	RES-RC-BTW	Uncertain	Potential risk of deterioration to river water body (Chalgrove Brook (GB106039023740)) linked to likely groundwater drawdown of Vale of White Horse Chalk (GB40601G601000) – further investigation is planned and mitigation may be needed, which

Element Type	Element Name	Element	Option Element WFD Compliance Assessment Summary						
Lioinent Typo		Reference	Summary	Reason, if not confirmed as compliant					
				could be challenging to deliver					
Resource: Raw water transfer support	Oxford Canal Transfer to Cropredy 15Ml/d	RES-RWTS- OXC-CRP-15	Compliant subject to further investigations	Further investigations required to confirm conclusions.					
Resource: Raw water transfer support	Oxford Canal Transfer to Dukes Cut 15Ml/d	RES-RWTS- OXC-DKC-15	Compliant	-					
Resource: Removal of Constraints	Epsom - Removal of Constraints	RES-RC-EPS	Uncertain	Potential risk of deterioration to river water body (Hogsmill River (GB106039017440)) linked to likely groundwater drawdown affecting GB106039017440 (Bromley Tertiaries) – further investigation planned and mitigation may be needed, e.g. further flow augmentation					
Resource: Removal of Constraints	New River Head - Removal of Constraints – 3.45 Ml/d	RES-RC-NRV	Compliant	-					
Resource: Raw water purchase	Chingford Raw Water Purchase	RES-RWP- CHD	Compliant	-					
Resource: Reservoir	Culham to Farmoor	CON-RWS- CUL-FMR-180	Compliant	-					
Conveyance	New Gauge - River Lee	TBC	Compliant	-					
Conveyance	River Wye - Pann Mill	TBC	Compliant	-					
Conveyance	River Wandle - Waddon	TBC	Compliant	-					
Conveyance	River Cray - North Orpington	TBC	Compliant						
Network	SWA north: South East Strategic Reservoir Option treated water transfer to SWA	NET-IZT-AB- LC-48	Compliant	-					

4. Summary of Option Level WFD Compliance Assessment, for those Options Selected in Reasonable Alternative WRMP Programmes

This section presents a summary of the Step 3 option level WFD compliance assessment for all options selected in any of the WRMP "reasonable alternative" programmes, as well as the preferred programme. This includes both consolidating the water body scale WFD compliance assessments of each of the individual option elements (from Steps 1 and 2) and considering whether there are cumulative assessments on a water body from the elements that comprise a particular option. The assessments are presented in Appendix C, noting these are assessments of individual options, not the alternative programmes.

The summary of the WFD compliance assessment of the selected options included in the reasonable alternative programmes. The options selected in the WRMP19 preferred programme are also identified in Table 4.1.

Table 4.1 Option-level WFD compliance assessment summary

Table 4.1 Option-level WFD compliance assessment s	Option included in "reasonable alternative" programme or in the Preferred Programme									
Option	Phased_LC	Multi- obj_RES	Multi-obj_FP	NearO_RES	NearO_TP	Min_IGEQ	Preferred Programme			
Aquifer Storage and Recovery (ASR) Horton Kirby	✓	✓	✓	✓		✓	✓			
AR SLARS Kidbrooke (SLARS1) 7 MI/d		✓	✓				✓			
AR Streatham (SLARS2) 5 MI/d	✓	✓	✓			✓				
AR Merton (SLARS3) 5 MI/d	✓	✓	✓	✓		✓	✓			
ASR South East London (Addington) 1 MI/d	✓	✓	✓	✓						
ASR South East London (Addington) 3 MI/d							✓			
ASR Thames Valley/Thames Central 3 MI/d	✓	✓	✓	✓		✓				
Beckton Desalination 150	✓		✓	✓	✓	✓				
Beckton Reuse 200 MI/d (phased 100)		✓								
Beckton Reuse 300 MI/d (phased 150)			✓							
Chalkstream pipelines							✓			
Chingford Raw Water Purchase	✓	✓	✓	✓	✓	✓	✓			
Coppermills WTW extension 100 MI/d	✓	✓	✓	✓	✓	✓	✓			
Culham to Farmoor 180 MI/d							✓			
Deephams Reuse	✓		✓	✓		✓	✓			
Didcot Raw Water Purchase	✓	✓	✓	✓	✓	✓	✓			
Groundwater Addington 1 MI/d	✓	✓	✓	✓		✓	✓			
Groundwater Dapdune							✓			
Groundwater Datchet 6MI/d	✓	✓	✓	✓		✓	✓			
Groundwater London confined Chalk (north) 2 MI/d	✓		✓	✓		✓				
Groundwater Moulsford 1 - 3.5 MI/d	✓	✓	✓	✓		✓				
Groundwater Southfleet/Greenhithe (new WTW) 8 MI/d	✓	✓	✓	✓		✓	✓			
Honor Oak		✓				✓				
Kempton WTW new 100 MI/d	✓	✓	✓	✓	✓	✓	✓			
Medmenham intake to SWA	✓			✓	✓	✓	✓			
Merton Recommissioning	✓	✓	✓			✓	✓			
New River Head - Removal of Constraints	✓	✓	✓	✓		✓	✓			
NTC_Dapdune							✓			
NTC_Ladymead (+ Shalford to Albury transfer main)							✓			
Oxford Canal to Cropredy Resource 15 MI/d	✓	✓	✓	✓		✓	✓			
RC Ashton Keynes borehole pumps 2.5 Ml/d	✓	✓	✓	✓		✓				
RC Britwell 1.31 MI/d	✓	✓	✓	✓		✓				
RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	✓	✓	✓	✓		✓	✓			
Severn-Thames Transfer				✓						
Severn-Thames Transfer 1							✓			
Severn-Thames Transfer 2		✓								

Table 4.1 cont.

		"re			cluded i ative" p		me
Option	Phased_LC	Multi- obj_RES	Multi-obj_FP	NearO_RES	NearO_TP	Min_IGEQ	Preferred Programme
Severn-Thames Transfer 3			✓				
South East Strategic Reservoir Option 125Mm ³	✓		✓				
South East Strategic Reservoir Option 150Mm ³		✓			✓	✓	✓
Wessex to SWOX (Flaxlands)	✓	✓				✓	
ITZ_North SWX to SWA 72		✓					
ITZ_North SWX to SWA 48			✓				

Seven options included within some of the "reasonable alternative" programmes are assessed as 'uncertain' in respect of the WFD compliance test following the assessment at the option level: the Beckton 300Ml/d reuse option, three of the groundwater removal of constraints options (Ashton Keynes, Britwell and Epsom) and the three variants of a Severn-Thames Transfer that include transfer of effluent from Minworth STW. The following paragraphs give an overview of these options, with the detail presented in Appendix C.

Beckton 300 Ml/d reuse option: There is a risk of impact on WFD status relating to the Thames Middle transitional water body. The second phase of this scheme (2 x 150 Ml/d reuse option) would reduce freshwater inputs below the lower value of an indicative impact threshold on salinity (275-365 Ml/d) 13 . Further reductions in freshwater input at this sensitive location for salinity ingress to the middle Thames Tideway could have inherent effects on water quality and supported ecology (saline-sensitive species). The threshold is indicative only and requires further site-specific studies and analysis to confirm its validity.

Ashton Keynes groundwater removal of constraints option: There is a risk of impact on WFD status relating to the River Churn (from Baunton to Cricklade) river water body linked to likely groundwater drawdown in the underlying Burford Jurassic groundwater water body. Further evidence is required to confirm the extent of hydraulic connectivity and the effect of increased abstraction from the aquifer. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the Water Industry National Environment Programme (WINEP) in AMP7. With an options appraisal and development of appropriate mitigation measures following these investigations, it is likely that the option would be WFD compliant. However, until this further assessment is undertaken, there is a level of uncertainty in WFD compliance associated with this option.

Britwell groundwater removal of constraints option: There is a risk of impact on WFD status relating to the Chalgrove Brook river water body linked to likely groundwater drawdown in the underlying Vale of White Horse Chalk groundwater water body. Further evidence is required to confirm the extent of flow reduction from increased groundwater abstraction and the linked effects on wetted habitat and dilution of nutrient pollution pressures and consequent effects on aquatic ecology. Options appraisal and development of appropriate mitigation measures for this option may be challenging without affecting the deployable output benefit of this option. Until further assessment is undertaken, there is an elevated level of uncertainty in WFD compliance associated with this option.

Epsom groundwater removal of constraints option: There is a risk of impact on WFD status relating to the Hogsmill River river water body linked to abstraction likely impacting the underlying Bromley Tertiaries groundwater water body. The extent of impact of the licence (including to maximum licence capacity which this option would enable) will be subject to review of its sustainability under the WINEP in AMP7. Currently, impacts are mitigated by 3rd party flow augmentation of a tributary of the Hogsmill River at Ewell. The proposed increase in abstraction at Epsom (within current licence) may require mitigation measures. This could include an increase in flow augmentation at Ewell, however this is subject to the planned investigation and if required an options appraisal, and would need to be agreed with the Environment Agency. With further assessment and development of appropriate mitigation

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¹³ Freshwater contributions and salinity effects as set out in the Feasibility Report.

measures, such as extension of the existing river flow augmentation scheme, the option is considered likely to be WFD compliant. However, until further assessment is undertaken, there is a level of uncertainty in WFD compliance associated with this option.

Severn-Thames Transfer, Severn-Thames Transfer 2 and Severn-Thames Transfer 3: There is a material risk of impact on the WFD status of the River Avon (from the confluence of the River Leam to Tramway Bridge, Stratford) river water body. This relates specifically to the transfer of Minworth Effluent (115 Ml/d) flow support element. Currently, there is a level of uncertainty surrounding the level of adverse impacts on the river's water quality and ecology and further site-specific environmental assessment is required to quantify this. With further assessment and development of appropriate mitigation measures, the option may be shown to be WFD compliant but there are some challenges remaining to achieve this conclusion with certainty.

As identified above and following further dialogue with NRW, it is noted that the Vyrnwy Reservoir flow support element of a Severn-Thames Transfer (a component part of all four Severn-Thames Transfer variants) requires the collection and consideration of further environmental evidence prior to confirming WFD compliance in the first three water bodies of the Afon Vyrnwy downstream of Vyrnwy Reservoir to the Afon Tanat confluence. Additional mitigation measures may be required to protect these water bodies, particularly for the larger flow support option element variants. However, we have included in the costs of this option provision of a new pipeline to discharge water directly to the River Severn, should it not be possible to achieve WFD compliance for the Afon Vyrnwy water bodies. In this respect, the risks to WFD compliance can be addressed.

In addition, it is noted that the River Wye (on the England/Wales border) support element of a Severn-Thames Transfer (a component part of Severn-Thames Transfer and Severn-Thames Transfer 2 variants) requires the collection and consideration of further evidence prior to confirming WFD compliance in the River Wye water body from Hampton Bishop to Kerne Bridge. Should this element be included in the preferred programme, further investigation would be undertaken by the donor water company Dwr Cymru Welsh Water.

There is no risk of deterioration or adverse effect on water body status or objectives for any other WFD water bodies in relation to any of the other options when operating alone. Further details of the assessment process for other WFD water bodies are contained within Appendices A, B and C.

As identified above and following further dialogue with Environment Agency we have scoped out further supporting environmental investigations to confirm the assessment of WFD compliance of three options: Deephams Reuse; Beckton Reuse (~70Ml/d); and 15Ml/d Oxford Canal Transfer to Cropredy. Where necessary, additional mitigation measures may need to be considered as part of these further investigations. The scope of the environmental investigations is summarised in Section 11 of the WRMP19.

5. WFD compliance statement of WRMP19 preferred programme

This section tests the impacts of the preferred programme against the WFD objectives described in Section 2.1.2 and describes the WFD compliance statement for the preferred programme. The Step 5 detailed assessment of the WFD compliance for the preferred programme is presented in Appendix D. A review of the WFD compliance of each of the "reasonable alternative" programmes that were used to develop the preferred programme is included in Section 7.

The Preferred Programme comprises the following options (schemes) with their programmed commission-by dates. The constituent option elements are listed in Appendix C:

- Aquifer Storage and Recovery (ASR) Horton Kirby; 2024
- AR SLARS Kidbrooke (SLARS1) 7 Ml/d; 2030
- AR Merton (SLARS3) 5 MI/d; 2031
- ASR South East London (Addington) 3 Ml/d; 2030
- "Chalk stream" pipelines (South East London; South West London; SWA; River Lee New Gauge); 2037
- Chingford Raw Water Purchase, 2035
- Coppermills WTW extension 100 Ml/d; 2055
- Culham to Farmoor (chalk streams) 180 Ml/d; 2037
- Deephams Reuse; 2030
- Didcot Raw Water Purchase; 2020
- Groundwater Addington 1 MI/d; 2030
- Groundwater Dapdune; 2091
- Groundwater Datchet 6MI/d; 2038
- Groundwater Southfleet/Greenhithe (new WTW) 8 Ml/d; 2024
- Kempton WTW new 100 Ml/d; 2075
- Medmenham intake to SWA; 2066
- Merton Recommissioning; 2030
- New River Head Removal of Constraints; 2020
- NTC_Dapdune; 2081
- NTC_Ladymead (+ Shalford to Albury transfer main); 2024
- Oxford Canal to Cropredy Resource 15 Ml/d; 2030
- RC Epsom borehole pumps 2.13 Ml/d (groundwater scheme); 2030
- Severn-Thames Transfer 1; 2083
- South East Strategic Reservoir Option 150Mm³; 2037

Demand management options were screened out for WFD compliance assessment as no risks to WFD compliance were identified. The demand management programmes may have beneficial effects on WFD objectives by improving the local water environment and slowing the growth in demand for water.

In consideration of the six compliance assessment objectives, the WFD compliance assessment of Thames Water's WRMP19 Preferred Programme has concluded that:

Objective 1:

The Preferred Programme is considered compliant with WFD Objective 1 relating to water body deterioration risk, now and in the future, as no WFD non-compliance has been confirmed.

Based on current information available, it is not considered that the potential impacts of the Epsom groundwater removal of constraints option would be WFD non-compliant. It is identified, as set out in Appendix B, that this option could influence groundwater water body dependent surface water body test in the Bromley Tertiaries groundwater water body (potential impacts are to fish and macroinvertebrates in the Hogsmill River) and that there is a need for further investigation of the option because the information/data set is insufficient to be categorically sure about WFD compliance. The extent of impact

from increased abstraction at Epsom (but within licence capacity) will be subject to review of its sustainability under the WINEP in AMP7. In the event that further investigations indicate that there is a larger risk of WFD non-compliance than is currently assumed to be the case, then mitigation measures will be delivered, subject to options appraisal if required. Such mitigation could include an increase in flow augmentation at Ewell, although this is subject to the planned investigation and would need to be agreed with the Environment Agency following an options appraisal if required. With any required mitigation in place the scheme would be considered WFD compliant. However, should the planned investigation identify the option as not sustainable, or where the incorporating mitigation measures are considered not to be appropriate or effective, then the option programmed for operation in 2030 would be replaced with another option from the feasible list in the 2024 WRMP.

As set out in Appendix D, locally on the River Thames at Culham, Thames Water would manage incombination abstractions for the South East Strategic Reservoir (from 2037), the Culham to Farmoor transfer (from 2037), regulating releases from the South East Strategic Reservoir (from 2037) and finally much later in the plan period, the supported Severn-Thames Transfer scheme (from 2083). Supporting environmental evidence has identified that the continuous nature of these discharges during low flow periods presents fewer risks to fish and aquatic invertebrates, albeit the cumulative magnitude of the flow increase would be to the indicative threshold identified. The Culham to Farmoor transfer and abstraction for a South East Strategic Reservoir Option would operate within licence conditions including hands-off flow conditions to protect low river flows and limit daily maximum abstraction rate. Combined operation would therefore modulate the flow regime of the River Thames, with reduced high flows or enhanced low flows regularly and for long periods. A combined operating strategy would be developed with regulators and other stakeholders to manage these effects in terms of the potential ecological impacts on the River Thames locally and downstream. A modulated flow regime would be most apparent until the next significant tributary, the River Thame, although modulation of the flow regime of downstream waterbodies cannot be ruled out at this stage. The in-combination effect with any reduction in upper Thames catchment groundwater abstractions and cessation of abstraction from the River Thames at Farmoor (during low flow periods, with the Culham to Farmoor transfer) would also need considering, noting that these would be flow-neutral in the River Thames downstream of Culham. Subject to development of an appropriate operating strategy the combined effect on the River Thames at Culham and downstream is assessed as WFD compliant.

As set out in Appendix C, the Vyrnwy support element of a Severn-Thames Transfer requires the collection and consideration of further evidence prior to confirming any necessary mitigation measures and WFD compliance in the Afon Vyrnwy downstream of Vyrnwy Reservoir.

Further supporting environmental investigations will be undertaken to confirm the assessment of WFD compliance of the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option. Where necessary, additional mitigation measures may need to be considered as part of these further investigations. The scope of the environmental investigations is summarised in Section 11 of the WRMP19.

The preferred programme is considered compliant with the WFD objectives of the relevant water bodies, now and in the future, as no WFD non-compliance has been identified. This will be confirmed through the collection of further evidence and the inclusion of additional mitigation measures where appropriate.

Objective 2:

None of the schemes included in the Preferred Programme, alone or in combination, have the potential to impede the achievement of WFD water body objectives. The Preferred Programme is therefore compliant with respect to Objective 2 of the WFD.

Objective 3:

None of the schemes in the Preferred Programme, alone or in combination, hinder the planned RBMP2 programme of measures to help attain WFD objectives for any water body. The Preferred Programme is therefore compliant with respect to Objective 3 of the WFD.

Objective 4:

None of the schemes in the Preferred Programme, alone or in combination, affect the WFD objectives

of other water bodies, beyond those uncertain risks listed above. The Preferred Programme is therefore neutral with respect to Objective 4 for the WFD.

Objective 5:

None of the schemes in the Preferred Programme, alone or in combination, can be confirmed to contribute positively to the attainment of good status or good potential objectives for any waterbodies. To date, the assessment of the potential environmental benefits of reducing or relocating abstraction made possible by the various "chalk stream" pipelines (Culham to Farmoor; South East London; South West London; SWA; River Lee New Gauge) have not been set out in terms of specific WFD benefits. However, these options will reduce abstraction pressures on sensitive chalk streams on aquatic ecology and therefore build aquatic ecology resilience. It is therefore considered that the Preferred Programme will be compliant with respect to Objective 5 for the WFD.

Objective 6:

None of the schemes in the Preferred Programme, alone or in combination, contribute to the attainment of objectives for WFD protected areas. The Preferred Programme is therefore neutral with respect to Objective 6 for the WFD.

In-combination Assessment of WFD Compliance of the Thames Water WRMP19 Preferred programme with those of other Water Companies

Table 6.1 presents the in-combination WFD assessment between the Thames Water WRMP19 and the preferred programmes of other water companies where potential in-combination effects have been identified.

Table 6.1 Summary of in-combination WFD compliance assessment of the Thames Water WRMP19

preferred p	rogramme	with those	of selected	other water	companies

	ed programme with those of selected of vater body	mor wate	. 00			red F	rog	ramr	nes	(Apri	1 202	20)	
Туре	ID and name	River Basin District	Southern Water	Affinity Water	Severn Trent Water	Dŵr Cymru Welsh Water	United Utilities	Bristol Water	SES Water	South East Water	Wessex Water	Anglian Water	Essex & Suffolk Water
River	GB106039037310 – Cherwell (Cropredy to Nell Bridge)	Thames	-	-	-	-	-	-	-	-	-	-	-
	GB106039037431 - Cherwell (Nell Bridge to Bletchingdon)	Thames	-	-	-	-	-	-	-	-	-	-	-
	GB106039037432 - Cherwell (Bletchingdon to Ray)	Thames	-	-	-	-	-	-	-	-	-	-	-
	GB106039023360 - Cow Common Brook and Portobello Ditch	Thames	-	✓	-	-	-	-	-	-	-	-	-
	GB106039030334 - Thames (Evenlode to Thame)	Thames	-	✓	-	-	-	-	-	-	-	-	-
	GB106039030331 - Thames (Wallingford to Caversham)	Thames	-	✓	-	-	-	-	-	-	-	-	-
	GB106039023233 - Thames (Reading to Cookham)	Thames	-	✓	-	-	-	-	-	-	-	-	-
	GB106039023231 – Thames (Cookham to Egham)	Thames	-	✓	-	-	-	-	-	-	-	-	-
	GB106039023232 – Thames (Egham to Teddington)	Thames	-	✓	-	-	-	-	-	-	-	-	-
	GB106039017440 - Hogsmill	Thames	-	-	-	-	-	-	-	-	-	-	-
	GB106039017630 - Wey (Shalford to River Thames confluence at Weybridge)	Thames	-	-	-	-	-	-	-	-	-	-	-
	GB106038027910 – Pymmes and Salmon Brooks – Deephams STW to Tottenham Locks	Thames	-	-	-	-	-	-	-	-	-	-	-
	GB106038027950 – Lea Navigation Enfield Lock to Tottenham Locks	Thames	-	-	-	-	-	-	-	-	-	-	-
	GB106038077852 – Lee Tottenham Locks to Bow Locks/Three Mills Locks	Thames	-	-	-	-	-	-	-	-	-	-	-
	GB109054049880 - Vyrnwy - Lake Vrynwy to conf Afon Cownwy	Severn	-	-	-	-	-	-	-	-	-	-	-
	GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy	Severn	-	-	-	-	-	-	-	-	-	-	-
	GB109054049852 - Afon Vyrnwy DS of Banwy confluence	Severn	-	-	-	-	-	-	-	-	-	-	-
	GB109054049800 - Afon Vyrnwy - conf Afon Tanat to conf R Severn	Severn	-	-	-	-	-	-	-	-	-	-	-
	GB109054044404 - Severn - conf R Avon to conf Upper Parting	Severn	-	-	-	-	-	-	-	-	-	-	-
	GB104028046930 - Tame (W/ton Arm)	Humber	-	-	-	-	-	-	-	-	-	-	-
	Source to conf Oldbury GB104028046842 - Tame – conf two arms to	Humber	-	-	-	-	-	-	-	-	-	-	-
Lake	R Rea GB30641523 – King Georges Reservoir	Thames	-	-	-	-	-	-	-	-	-	-	-

WFD water body				Pi	efe	red F	rog	ramr	nes	nes (April 2020)									
Type	ID and name	River Basin District	Southern Water	Affinity Water	Severn Trent Water	Dŵr Cymru Welsh Water	United Utilities	Bristol Water	SES Water	South East Water	Wessex Water	Anglian Water	Essex & Suffolk Water						
	GB30641659 – William Girling Reservoir	Thames	-	-	-	-	-	-	-	-	-	-	-						
Ground water	GB40601G602200 - Epsom North Downs Chalk	Thames	-	-	-	-	-	-	-	-	-	-	-						
	GB40601G501800 - West Kent Darent and Cray Chalk	Thames	-	-	-	-	-	-	-	-	-	-	-						
	GB40601G500300 - North Kent Medway Chalk	Thames	-	-	-	-	-	-	-	-	-	-	-						
	GB40601G601000 - Vale of White Horse Chalk	Thames	-	-	-	-	-	-	-	-	-	-	-						
	GB40601G500500 – Kent Greensand Western	Thames	-	-	-	-	-	-	-	-	-	-	-						
	GB40602G602300 - Bromley Tertiaries	Thames																	
	GB40402G992400 - Tame Anker Mease – Coal Measures Black Country	Humber	-	-	-	-	-	-	-	-	-	-	-						
	GB40401G301000 - Tame Anker Mease – PT Sandstone Birmingham Lichfield	Humber	-	-	-	-	-	-	-	-	-	-	-						

Key: All WFD water bodies identified in Thames Water preferred programme listed.

As seen from Table 6.1 following review of the latest available information (April 2020) in respect of other water company's WRMP19 preferred programmes, there is an option in the Affinity Water plan which affects the same water bodies as those considered for assessment of the effects of Thames Water's WRMP preferred programme.

The relevant option in Affinity Water's WRMP preferred programme is the same South East Strategic Reservoir option included in Thames Water's plan. This option would be jointly promoted by both water companies and the combined operation of the option is that set out within this WFD compliance assessment. Therefore, there are no further in-combination effects of this option with respect to WFD compliance.

No other in-combination adverse effects have been identified in relation to any other water companies' preferred WRMP19 programmes as available at April 2020.

⁻ indicates where other water company WRMPs Preferred Programme options do not affect same water body

[✓] indicates where other water company WRMPs Preferred Programme options affect same water body

7. WFD compliance review of WRMP19 "Reasonable Alternative" Programmes

Six "reasonable alternative" programmes were short-listed by Thames Water for WFD assessment (as well as for HRA and SEA):

- the least cost programme (Phased_LC)
- favouring intergenerational equity (Min_IGEQ)
- favouring resilience and cost equally (Multi-obj_RES)
- favouring customer preference for the frequency of restrictions and cost equally (Multi-obj_FP)
- favouring resilience with a programme cost restriction of 120% of least cost (NearO_RES)
- favouring customer preference for type of options with a programme cost restriction of 120% of least cost (NearO_TP)

Options included in each of these alternative programmes are presented in Table 7.1, together with the preferred programme for completeness. The Step 5 assessment of the WFD compliance for these "reasonable alternative" programmes is presented in Appendix D. This section tests the impacts of these programmes against the WFD objectives described in Section 2.1.2.

Table 7.1 Options included in the WRMP19 "reasonable alternative" programmes

Option	Phased_LC	Multi- obj_RES	Multi-obj_FP	NearO_RES	NearO_TP	Min_IGEQ
Aquifer Storage and Recovery (ASR) Horton Kirby	✓	✓	✓	✓		✓
AR SLARS Kidbrooke (SLARS1) 7 MI/d		✓	✓			
AR Streatham (SLARS2) 5 MI/d	✓	✓	✓			✓
AR Merton (SLARS3) 5 MI/d	✓	✓	✓	✓		✓
ASR South East London (Addington) 1 MI/d	✓	✓	✓	✓		
ASR Thames Valley/Thames Central 3 MI/d	✓	✓	✓	✓		✓
Beckton Desalination 150	✓		✓	✓	✓	✓
Beckton Reuse 200 MI/d (phased 100)		✓				
Beckton Reuse 300 MI/d (phased 150)			✓			
Chingford Raw Water Purchase	✓	✓	✓	✓	✓	✓
Coppermills WTW extension 100 MI/d	✓	✓	✓	✓	✓	✓
Deephams Reuse	✓		✓	✓		✓
Didcot Raw Water Purchase	✓	✓	✓	✓	✓	✓
Groundwater Addington 1 MI/d	✓	✓	✓	✓		✓
Groundwater Datchet 6 MI/d	✓	✓	✓	✓		✓
Groundwater London confined Chalk (north) 2 MI/d	✓		✓	✓		✓
Groundwater Moulsford 1 - 3.5 Ml/d	✓	✓	✓	✓		✓
Groundwater Southfleet/Greenhithe (new WTW) 8 MI/d	✓	✓	✓	✓		✓
Honor Oak		✓				✓
Kempton WTW new 100 MI/d	✓	✓	✓	✓	✓	✓
Medmenham intake to SWA	✓			✓	✓	✓
Merton Recommissioning	✓	✓	✓			✓
New River Head - Removal of Constraints	✓	✓	✓	✓		✓
Oxford Canal to Cropredy Resource 15 MI/d	✓	✓	✓	✓		✓
RC Ashton Keynes borehole pumps 2.5 Ml/d	✓	✓	✓	✓		✓
RC Britwell 1.31 MI/d	✓	✓	✓	✓		✓
RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	✓	✓	✓	✓		✓
Severn-Thames Transfer				✓		
Severn-Thames Transfer 2		✓				
Severn-Thames Transfer 3			✓			
South East Strategic Reservoir Option 125Mm³	✓		✓			
South East Strategic Reservoir Option 150Mm ³		✓			✓	✓
Wessex to SWOX (Flaxlands)	✓	✓				✓
ITZ_North SWX to SWA 72		✓				
ITZ_North SWX to SWA 48			✓			

7.1 Least cost alternative programme

As identified in Table 7.1, the least cost programme includes several small groundwater options for which there is currently insufficient evidence to fully assess the potential impacts, as set out in Section 4: Ashton Keynes, Epsom and Britwell. For the Ashton Keynes groundwater removal of constraints option, further evidence is required to confirm the extent of hydraulic connectivity and the effect of increased abstraction from the aquifer as part of planned WINEP investigations in AMP7. With an options appraisal and development of appropriate mitigation measures following these investigations, it is likely that the option would be WFD compliant. However, until this further assessment is undertaken, there is a level of uncertainty in WFD compliance associated with this option.

For the Epsom groundwater removal of constraints option, the extent of impact of the licence (including to maximum licence capacity which this option would enable) will be subject to review of its sustainability under the WINEP in AMP7. Currently impacts are mitigated by 3rd party flow augmentation of a tributary of the Hogsmill River at Ewell. The proposed increase in abstraction at Epsom (within current licence) may require mitigation measures. This could include an increase in flow augmentation at Ewell, however this is subject to the planned investigation and if required options appraisal, and would need to be agreed with the Environment Agency. With further assessment and development of appropriate mitigation measures, such as extension of the existing river flow augmentation scheme, the option is considered likely to be WFD compliant. However, until further assessment is undertaken, there is a level of uncertainty in WFD compliance associated with this option.

For the Britwell groundwater removal of constraints option, further evidence is required to confirm the extent of flow reduction from increased groundwater abstraction and the linked effects on wetted habitat and dilution of nutrient pollution pressures and consequent effects on aquatic ecology. Options appraisal and development of appropriate mitigation measures for this option may be challenging without affecting the deployable output benefit of this option. Until further assessment is undertaken, there is an elevated level of uncertainty in WFD compliance associated with this option.

For the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option, further supporting environmental investigations are required by the Environment Agency to confirm the assessment of WFD compliance.

7.2 Multi-obj_RES programme

As identified in Table 7.1, this programme includes the same small groundwater options as the least cost programme for which there is currently insufficient evidence to fully assess some of the potential impacts as described in Section 7.1.

The Minworth effluent transfer element of a supported Severn-Thames Transfer option carries a WFD compliance risk that requires further consideration. The effect on sanitary, nutrient and chemical water quality, as well as water temperature and consequently the aquatic ecology from mixing tertiary treated effluent into the River Avon downstream of Warwick, particularly under low river flow conditions in the River Avon, requires further assessment. At present, the ability to secure WFD compliance of this water body for this option remains a challenge and requires more extensive environmental investigations to assess the risk in more detail and, if necessary, develop additional mitigation measures to secure compliance, as set out in Section 4.

In addition, the Vyrnwy support element of a Severn-Thames Transfer option requires the collection and consideration of further evidence prior to confirming any additional mitigation measures necessary to secure WFD compliance in the first three water bodies of the Afon Vyrnwy downstream of Vyrnwy Reservoir as set out in Section 4. However, we have included costs for this option to develop a pipeline to enable the flow support to be discharged directly from the reservoir to the River Severn, should the additional detailed survey evidence demonstrate that mitigation measures cannot secure WFD compliance.

This programme includes the 15MI/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in Section 7.1.

7.3 Multi-obj_FP programme

As identified in Table 7.1 and set out in Appendix D, this programme includes the potential for programme level in-combination effects between the Beckton Reuse (300 Ml/d) option and the Beckton Desalination (150 Ml/d) option. These options directly influence freshwater flow into the middle Thames Tideway, with the Beckton Desalination (150 Ml/d) option programmed first (2065) followed by the larger Beckton Reuse option (2085). The cumulative effect of these two options from 2085 is a reduction in freshwater flows to the middle Tideway of around 450Ml/d, which is greater than the indicative impact threshold on salinity of 275-365 Ml/d¹⁴. Further reductions in freshwater input at this sensitive location for salinity ingress to the middle Thames Tideway could have inherent effects on water quality and supported (saline-sensitive) ecology. The threshold is indicative only and requires further study and analysis to confirm its validity. It is considered that this scale of freshwater reduction could lead to salinity regime changes in the middle Tideway and the Multi-obj_FP programme may not comply with WFD objectives for the ecology of the transitional water body. Further baseline understanding of the salinity regime of the middle Tideway would be required to better understand these patterns.

The programme also includes the same small groundwater options as the least cost programme for which there is currently insufficient evidence to fully assess the potential impacts as described in Section 7.1.

The Minworth effluent transfer element of a support Severn-Thames Transfer option is also included in this programme, and the WFD issues are the same as those set out in Section 7.2.

In addition, the Vyrnwy and River Wye (England/Wales border) support elements of a Severn-Thames Transfer option require the collection and consideration of further evidence prior to confirming any required mitigation measures to secure WFD compliance in the first three water bodies of the Afon Vyrnwy downstream of Vyrnwy Reservoir (as set out in Section 7.2) and a reach within two water bodies of the River Wye as set out in Section 4.

This programme includes the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in Section 7.1.

7.4 NearO_RES programme

As identified in Table 7.1, this programme includes the same small groundwater options as the least cost programme for which there is currently insufficient evidence to fully assess some of the potential impacts as described in Section 7.1.

The Minworth effluent transfer element of a support Severn-Thames Transfer option is also included in this programme, and the WFD issues are the same as those set out in Section 7.2.

This programme includes the Vyrnwy (England/Wales border) support elements of a Severn-Thames Transfer option with the same WFD issues as set out in Section 7.3

This programme includes the Deephams Reuse option and the 15MI/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in Section 7.1.

7.5 NearO_TP programme

There are no programme level alone or in-combination WFD effects for this programme.

7.6 Min_IGEQprogramme

As identified in Table 7.1, this programme includes the same small groundwater options as the least cost programme for which there is currently insufficient evidence to fully assess some of the potential impacts as described in Section 7.1.

¹⁴ Freshwater contributions and salinity effects as set out in the Feasibility Report.

This programme includes the Deephams Reuse option and the 15MI/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in Section 7.1.

APPENDIX A:

OPTION ELEMENT WFD COMPLIANCE ASSESSMENT SCREENING OUTCOMES (STEP 1)

Table 1 in this Appendix presents the results of the WFD compliance assessment screening outcomes for all of the option elements included in the WRMP19 feasible list and indicates whether they were screened in for a WFD compliance assessment based on the potential risk of deterioration of WFD status. The WFD compliance assessment for elements scoped in for assessment are presented in Appendix B. The table also identifies where the Environment Agency's Sustainable Catchments Programme has identified existing licences as sustainable or subject to investigation of sustainability in the WINEP, noting that the full existing abstraction licence capacity is included in that assessment.

Catchment management schemes and demand management options have been screened out for WFD compliance assessment; these options may have beneficial effects on WFD objectives by improving the local water environment through land-use management and reducing the growth in demand for water

Table 1 WRMP19 Option Elements: Screening for risk of deterioration in WFD Status

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
Conveyance: Raw Water System	KGV Res intake capacity increase	CON-RWS-KGV-360	Lea Navigation Enfield Lock to Tottenham Locks	GB106038027950	River	Υ	-
Conveyance: Raw Water System	Queen Mary Res to Kempton WTW - 800MI/d	CON-RWS-QMR-KEM	King Georges Reservoir N/A	GB30641523 N/A	Lake N/A	N	Pipeline element only. No likely impact on WFD water bodies during construction subject to good practice construction methods.
Conveyance: Raw Water System	TLT capacity enhancement – up to 450MI/d	CON-RWS-TLT	N/A	N/A	N/A	N	Conveyance element only. No likely impact on WFD water bodies during construction subject to good practice construction methods.
Conveyance: Raw Water System	Datchet intake capacity increase	CON-RWS-DAT	Thames (Cookham to Egham)	GB106039023231	River	N	This element involves an increase in abstraction capacity within existing licence limits and the aggregate limit of the Lower Thames licence. Negligible risk to WFD status.
Conveyance: Raw Water System	Littleton Intake Capacity increase transfers to Queen Mary	CON-RWS-LTN-300	Thames (Egham to Teddington)	GB106039023232	River	N	This element involves an increase in abstraction capacity within existing licence limits and the aggregate limit of the Lower Thames licence. Negligible risk to WFD status.
Conveyance: Raw Water Transfer	Raw Water Transfer Deerhurst to Culham 300 MI/d	CON-RWT-DEH-CLM- 300	Severn - conf R Avon to conf Upper Parting Thames (Evenlode to Thame) Thames Wallingford to Caversham Thames (Reading to Cookham) Thames (Cookham to Egham) Thames (Egham to Teddington)	GB109054044404 GB106039030334 GB106039023233 GB106039023231 GB106039023232	Rivers	Y	-
Conveyance: Raw Water Transfer	Raw Water Transfer Deerhurst to Culham 400 Ml/d	CON-RWT-DEH-CLM- 400	Severn - conf R Avon to conf Upper Parting	GB109054044404 GB106039030334	Rivers	Y	-

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
			Thames (Evenlode to Thame) Thames Wallingford to	GB106039030331			
			Caversham Thames (Reading to Cookham)	GB106039023233			
			Thames (Cookham to Egham)	GB106039023231			
			Thames (Egham to Teddington)	GB106039023232			
			Severn - conf R Avon to conf Upper Parting	GB109054044404	Rivers		
	Raw Water Transfer Deerhurst to Culham 500 Ml/d	CON-RWT-DEH-CLM- 500	Thames (Evenlode to Thame)	GB106039030334		Υ	
Conveyance: Raw Water Transfer			Thames Wallingford to Caversham	GB106039030331			
			Thames (Reading to Cookham)	GB106039023233			-
			Thames (Cookham to Egham)	GB106039023231			
			Thames (Egham to Teddington)	GB106039023232			
Conveyance: Reuse	Reuse Beckton to Lockwood 300 MI/d	CON-RU-BEC-LCK	N/A	N/A	N/A	N	There is no new abstraction or discharge to a WFD water body associated with this element. Therefore, there is no risk of deterioration in WFD status. No likely impact on WFD water bodies during construction subject to good practice construction methods.
Conveyance: Raw Water System	TLT extension from Lockwood to KGV - 800MI/d	CON-RWS-LCK-KGV- 800	Lee Navigation Enfield Lock to Tottenham Locks King George V Reservoir	GB106038027950 GB30641523	River Lake	Υ	-
Conveyance: Reuse	Reuse Deephams to new TLT extension	CON-RU-DPH-TLT EX	N/A	N/A	N/A	N	There are no abstractions or discharges associated with the conveyance element. Any impacts

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
							associated with the construction of the tunnel or outfall will be mitigatable. Therefore, there is no risk of WFD deterioration.
Conveyance: Reuse	Reuse Deephams to KGV intake	CON-RU-DPH-KGV	Lee Navigation Enfield Lock to Tottenham Locks	GB106038027950	River	Y	-
			King George V Reservoir	GB30641523	Lake		
Network: Desalination	Desalination North Beckton to Coppermills 150 MI/d	NET-DES-BEC-COP	N/A	N/A	N/A	N	There are no abstractions or discharges associated with the transfer element. No likely impact on WFD water bodies during construction subject to good practice construction methods.
Network: Desalination	Desalination South Crossness to Beckton 300 Ml/d	NET-DES-CRO-BEC	N/A	N/A	N/A	N	There are no abstractions or discharges associated with the transfer element. No likely impact on WFD water bodies during construction subject to good practice construction methods.
Network: TWRM	TWRM extension - Hampton to Battersea link	NET-TWRM-HAM-BAT	N/A	N/A	N/A	N	Conveyance option only. No likely impact on WFD water bodies during construction subject to good practice construction.
Network: TWRM	TWRM extension - Coppermills to Honor Oak	NET-TWRM-COP-HON	N/A	N/A	N/A	N	Conveyance option only. No likely impact on WFD water bodies during construction subject to good practice construction.
Network: TWRM	TWRM extension - Coppermills New Header tank	NET-TWRM-COP-HEA	N/A	N/A	N/A	N	No likely impact on WFD water bodies during construction subject to good practice construction.
Network: TWRM	TWRM extension - Riverhead Pump Replacement	NET-TWRM-NRV-PUM	N/A	N/A	N/A	N	No likely impact on WFD water bodies during construction subject to good practice construction.
Network: TWRM	TWRM extension - Barrow Hill Pump Replacement	NET-TWRM-BAR-PUM	N/A	N/A	N/A	N	No likely impact on WFD water bodies during construction subject to good practice construction.
Network: TWRM	New Shaft at Kempton	NET-TWRM-KEM	N/A	N/A	N/A	N	No likely impact on WFD water bodies during construction subject to good practice construction.
Resource: Inter- Company Transfers	SEW to GUI 10 MI/d (Hogsback-Mount)	RES-ICT-SEW-GUI- MNT-10	N/A	N/A	N/A	N	There is no new abstraction or discharge to a WFD water body. No likely impact on WFD water bodies

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
							during construction subject to good practice construction.
			N/A	N/A	N/A		The option involves equipping two existing Kidbrooke abstraction/ recharge boreholes approximately 130m apart in the confined Chalk aquifer in south London, with associated headworks, borehole pumps and control buildings.
Resource: Aquifer Recharge	South London Artificial Recharge Scheme (SLARS) – Kidbrooke	RES-AR-SLARS1-7				N	A monitoring programme will be undertaken during test pumping to check potential impacts on groundwater resources but no likely risk of deterioration to WFD groundwater bodies because the recharge water will be injected into a confined Chalk aquifer [non-WFD aquifer]. The scheme will not interact with any surface water features or terrestrial ecosystems. No likely impact on WFD water bodies during construction subject to good practice construction.
Resource: Aquifer Recharge	AR Merton (SLARS3) - 5 Ml/d	RES-AR-SLARS3	Thames (Egham to Teddington)	GB106039023232	River	Υ	-
Resource: Aquifer Recharge	AR Streatham (SLARS2) - 4 Ml/d	RES-AR-SLARS2	Thames (Egham to Teddington)	GB106039023232	River	Υ	-
Resource: Aquifer Storage & Recovery	ASR South East London (Addington) - 3 Ml/d	RES-ASR-SEL	Epsom North Downs Chalk Kent Greensand Western	GB40601G602200 GB40601G500500	Groundwaters	Υ	Note the source water would be abstracted within current abstraction licence conditions and recharged from groundwater source assessed by EA as sustainable.
Resource: Aquifer Storage & Recovery	ASR Thames Valley/Thames Central - 1 Ml/d	RES-ASR-TV	Thames (Egham to Teddington)	GB106039023232	River	Υ	-
Resource: Desalination	Desalination North Beckton RO Treatment Plant 150 Ml/d	RES-DES-BEC	Thames Middle	GB530603911402	Transitional water	Υ	-
Resource: Desalination	Desalination South Crossness RO Treatment Plant 100 Ml/d	RES-DES-CRO	Thames Middle	GB530603911402	Transitional water	Y	-
Resource: Groundwater	Groundwater Mortimer disused source (recommission) - 4.5 Ml/d	RES-GW-MOR	N/A	N/A	N/A	N	This abstraction is from the confined chalk aquifer [non-WFD aquifer] with no impact on any WFD surface water

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
							or groundwater bodies and no risk of WFD deterioration. The licence is due for AMP7 investigation but there is currently understood to be no risk of WFD deterioration. Any residual deterioration risk identified by the investigation would be mitigated by minimising the duration of peak period abstraction.
Resource: Groundwater	Groundwater London confined Chalk (north) - 2 MI/d	RES-GW-LCC	N/A	N/A	N/A	N	The proposed abstraction is from the confined chalk aquifer with no interaction with any surface water features or terrestrial ecosystems. Therefore, there is no risk of WFD deterioration.
Resource: Groundwater	Groundwater Southfleet/ Greenhithe (new WTW) - 8 MI/d	RES-GW-SOU	West Kent Darent and Cray Chalk (Greenhithe) North Kent Medway Chalk (Southfleet) Middle and Lower Darent	GB40601G501800 GB40601G500300 GB106040024222	Groundwaters River	N	The abstraction from the West Kent Darent and Cray Chalk is a peak licence increase and assessed by EA as a sustainable water resource. The North Kent Medway Chalk is poor quantitative and chemical status but anticipated to recover with cessation of Eastern Quarry dewatering. This option is considered sustainable in the context of the dewatering ceasing.
Resource: Groundwater	Groundwater Dapdune Licence Disaggregation - 2.2 MI/d	RES-GW-DAP	Wey (Shalford to River Thames confluence at Weybridge)	GB106039017630	River	N	Option element involves the disaggregation of peak rates within existing licences with no overall increase in abstraction from the WFD ground water body. The short-term minor increases in the peak rate by its nature will only be for relatively infrequent and limited durations and so has negligible impact compared to the average abstraction rate, and is even less likely to have impact in the context of the impact pathway in this case. Licences are assessed by EA as sustainable, noting the average and total rate retained.
Resource: Groundwater	Groundwater Addington - 1 MI/d	RES-GW-ADD	Epsom North Downs Chalk	GB40601G602200	Groundwater	N	Abstraction within existing licence limits and no impact of surface water bodies is anticipated. Licence assessed by EA as sustainable.

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
Resource: Groundwater	Groundwater - Moulsford 1.0 - 3.5 Ml/d	RES-GW-MOU	Vale of White Horse Chalk Thames Wallingford to Caversham	GB40601G601000 GB106039030331	Groundwater River	Υ	Note current abstraction licence assessed by EA as sustainable.
Resource: Recommissioning Groundwater	Recommissioning Groundwater Merton	RES-RC-MTN	N/A	N/A	N/A		This option to recommission the currently disused groundwater source, abstracts from the confined chalk aquifer [non- WFD aquifer] and therefore no risk of deterioration in WFD status.
Resource: Inter- Company Transfers	Inter-Company Transfer - Wessex Water to SWOX 2.9 MI/d (Flaxlands)	RES-ICT-WES-FLX	N/A	N/A	N/A	N	There is no new abstraction or discharge to a WFD water body. No likely impact on WFD water bodies during construction subject to good practice construction.
Resource: Inter- Zonal Transfers	Henley to SWOX 2.37 MI/d	RES-IZT-HEN-SWX- NET-2.37	South-West Chilterns Chalk Thames (Reading to Cookham)	GB40601G601100 GB106039023233	Groundwaters River	Υ	Note the source water would be abstracted within current licence conditions at the Sheeplands source assessed as a sustainable licence by EA.
Resource: Raw water transfer support	Raw Water Transfer Upper Severn Vyrnwy 180 Ml/d (Lon only)	RES-RWTS-VYR	Vrynwy - Lake Vrynwy to conf Afon Cownwy Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy Afon Vyrnwy DS of Banwy confluence Afon Vyrnwy - conf Afon Tanat to conf R Severn	GB109054049880 GB109054049720 GB109054049852 GB109054049800	Rivers	Υ	-
Resource: Raw water transfer support	Raw Water Transfer Mythe 15 MI/d (Lon only)	RES-RWTS-MYT	N/A	N/A	N/A	N	Option element is (part) licence transfer and no new abstraction from a WFD water body as part of this element.
Resource: Removal of Constraints	RC Datchet Main Replacement - 9.3 Ml/d	RES-RC-DAT	N/A	N/A	N/A	N	There is no new abstraction or discharge to a WFD water body. No likely impact on WFD water bodies during construction subject to good practice construction.
Resource: Removal of Constraints	RC Ashton Keynes borehole pumps - 2.5 MI/d	RES-RC-ASH	Burford Jurassic Churn (Baunton to Cricklade)	GB40601G60040 GB106039029750	Groundwater River	Υ	Note the existing licence is due for AMP7 WFD investigation under WINEP

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
Resource: Removal of Constraints	RC East Woodhay borehole pumps - 2.1 MI/d	RES-RC-EWO	N/A	N/A	N/A	N	The proposed abstraction is from the confined chalk aquifer [non-WFD aquifer] and will not interact with any surface water features or terrestrial ecosystems. The existing licence is due for AMP7 investigation but there is currently understood to be no risk of WFD deterioration.
Resource: Removal of Constraints	RC Dapdune - removal of constraints to DO - 3.2 Ml/d	RES-RC-DAP	N/A	N/A	N/A	N	This option abstracts from the confined chalk aquifer [non- WFD aquifer] and therefore no risk of deterioration in WFD status. Licence assessed by EA as sustainable.
Resource: Removal of Constraints	Eton - removal of constraints to DO - 1.3 MI/d	RES-RC-ETN	N/A	N/A	N/A	N	No new abstraction or discharge to a WFD water body with no likely risk of deterioration in WFD status. Licence assessed by EA as sustainable.
Resource: Removal of Constraints	Ladymead WTW - removal of constraints to DO - 7.8 MI/d	RES-RC-LAD	N/A	N/A	N/A	N	No new abstraction or discharge to a WFD water body with no likely risk of deterioration in WFD status. Licence assessed by EA as sustainable. No likely impact on WFD water bodies during construction subject to good practice construction.
Resource: Reservoir	New Reservoir South East Strategic Reservoir Option 150Mm ³	RES-RRR-ABI-150Mm ³	Cow Common Brook and Portobello Ditch Thames (Evenlode to Thame) Thames Wallingford to Caversham Thames (Reading to Cookham) Thames (Cookham to Egham) Thames (Egham to Teddington)	GB106039023360 GB106039030334 GB106039030331 GB106039023233 GB106039023231	Rivers	Υ	-
Resource: Reservoir	New Reservoir South East Strategic Reservoir Option 125Mm ³	RES-RRR-ABI-125Mm ³	Cow Common Brook and Portobello Ditch Thames (Evenlode to	GB106039023360 GB106039030334	Rivers	Y	-

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
			Thame)				
			Thames Wallingford to Caversham	GB106039030331			
			Thames (Reading to Cookham)	GB106039023233			
			Thames (Cookham to Egham)	GB106039023231			
			Thames (Egham to Teddington)	GB106039023232			
			Cow Common Brook and Portobello Ditch	GB106039023360	Rivers		
			Thames (Evenlode to Thame)	GB106039030334			
	New Reservoir South East Strategic Reservoir Option 100Mm³		Thames Wallingford to Caversham	GB106039030331		Y	
Resource: Reservoir			Thames (Reading to Cookham)	GB106039023233	Y		-
			Thames (Cookham to Egham)	GB106039023231			
			Thames (Egham to Teddington)	CD406020022222			
			Cow Common Brook and Portobello Ditch	GB106039023232 GB106039023360	Rivers		
			Thames (Evenlode to Thame)	GB106039030334			
	New Reservoir South East Strategic Reservoir Option	RES-RRR-ABI-75Mm ³	Thames Wallingford to Caversham	GB106039030331	Y	Υ	-
	/5Mm ³		Thames (Reading to Cookham)	GB106039023233			
			Thames (Cookham to Egham)	GB106039023231			

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
			Thames (Egham to Teddington)	GB106039023232			
			Cow Common Brook and Portobello Ditch	GB106039023360	Rivers		
			Thames (Evenlode to Thame)	GB106039030334			
	South East Strategic	RES-RRR-ABI-	Thames Wallingford to Caversham	GB106039030331		V	
	Reservoir Option 30+100Mm ³ Phase 1	30+100Mm ³ -P1	Thames (Reading to Cookham)	GB106039023233		Υ	-
			Thames (Cookham to Egham)	GB106039023231			
			Thames (Egham to Teddington)	GB106039023232			
			Cow Common Brook and Portobello Ditch	GB106039023360	Rivers		
		RES-RRR-ABI-	Thames (Evenlode to Thame)	GB106039030334		Υ	
	South East Strategic		Thames Wallingford to Caversham	GB106039030331			
	Reservoir Option 30+100Mm³ Phase 2	30+100Mm ³ -P2	Thames (Reading to Cookham)	GB106039023233			-
			Thames (Cookham to Egham)	GB106039023231			
			Thames (Egham to Teddington)	GB106039023232			
			Cow Common Brook and Portobello Ditch	GB106039023360	Rivers		
Resource: Reservoir	South East Strategic Reservoir Option 80+42Mm³ Phase 1	RES-RRR-ABI-	Thames (Evenlode to Thame)	GB106039030334		Υ	_
		80+42Mm ³ -P1	Thames Wallingford to Caversham	GB106039030331			
			Thames (Reading to	GB106039023233			

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
			Cookham)				
			Thames (Cookham to Egham)	GB106039023231			
			Thames (Egham to Teddington)	GB106039023232			
			Cow Common Brook and Portobello Ditch	GB106039023360	Rivers		
			Thames (Evenlode to Thame)	GB106039030334			
D	South East Strategic	RES-RRR-ABI-	Thames Wallingford to Caversham	GB106039030331		Y	
Resource: Reservoir	Reservoir Option 80+42Mm³ Phase 2	80+42Mm ³ -P2	Thames (Reading to Cookham)	GB106039023233		Y	-
			Thames (Cookham to Egham)	GB106039023231			
			Thames (Egham to Teddington)	GB106039023232			
Resource: Reuse	Reuse Beckton 100 MI/d	RES-RU-BEC-100	Thames Middle	GB530603911402	Transitional water	Υ	-
Resource: Reuse	IPR Reuse Beckton 100 Ml/d x 3 phases to get 300 Ml/d	RES-RU-BEC-100	Thames Middle	GB530603911402	Transitional water	Υ	-
Resource: Reuse	Reuse Beckton 150 MI/d	RES-RU-BEC-150	Thames Middle	GB530603911402	Transitional water	Υ	-
			Pymmes and Salmon Brooks	GB106038027910	Rivers		
Resource: Reuse	Reuse Deephams 46.5 MI/d	RES-RU-DPH	Lea Tottenham Locks to Bow Locks/Three Mills Locks	GB106038077852		Y	
Treatment: London	Kempton WTW new 100 Ml/d	WTW-LON-KEM-100	N/A	N/A	N/A	N	No abstraction or discharge to a WFD water body so no risk of deterioration in WFD status. No likely impact on WFD water bodies during construction subject to good practice construction. Any potential requirement for diversion of watercourses to be agreed with the EA to ensure no deterioration of WFD

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
							status and avoiding adverse effects on river environment.
Treatment: London	Kempton WTW new 150 Ml/d	WTW-LON-KEM-150	N/A	N/A	N/A	N	No abstraction or discharge to a WFD water body so no risk of deterioration in WFD status. No likely impact on WFD water bodies during construction subject to good practice construction. Any potential requirement for diversion of watercourses to be agreed with the EA to ensure no deterioration of WFD status and avoiding adverse effects on river environment.
Treatment: London	Kempton WTW new 300 MI/d	WTW-LON-KEM-300	N/A	N/A	N/A	N	No abstraction or discharge to a WFD water body so no risk of deterioration in WFD status. No likely impact on WFD water bodies during construction subject to good practice construction. Any potential requirement for diversion of watercourses to be agreed with the EA to ensure no deterioration of WFD status and avoiding adverse effects on river environment.
Treatment: London	Coppermills WTW extension 100 MI/d	WTW-LON-COP-100	N/A	N/A	N/A	N	No abstraction or discharge to a WFD water body so no risk of deterioration in WFD status. No likely impact on WFD water bodies during construction subject to good practice construction.
Treatment: London	Coppermills WTW extension 150 MI/d	WTW-LON-COP-150	N/A	N/A	N/A	N	No abstraction or discharge to a WFD water body so no risk of deterioration in WFD status. No likely impact on WFD water bodies during construction subject to good practice construction.
Treatment: SWOX	South East Strategic Reservoir Option WTW new 24 MI/d (SWOX)	WTW-SWOX-ABI	N/A	N/A	N/A	N	No new abstraction from a WFD water body as part of this element. Water treatment process water discharges and the emergency overflow arrangements to be consented by the EA which will ensure no adverse effects on the environment or WFD status. No likely impact on WFD water bodies during

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
							construction subject to good practice construction.
Treatment: SWOX	Radcot WTW new 24 MI/d (SWOX)	WTW-SWOX-RAD	N/A	N/A	N/A	N	No new abstraction from a WFD water body as part of this element. Water treatment emergency overflow arrangements to be consented by the EA which will ensure no adverse effects on the environment or WFD status. No likely impact on WFD water bodies during construction subject to good practice construction.
Conveyance: Raw Water System	Medmenham Intake – 80MI/d SWA South	CON-RWS-SWA-MMM	Thames (Reading to Cookham)	GB106039023233	River	Υ	-
Treatment: SWA	Medmenham WTW – 24Ml/d SWA South	WTW-SWA-MMM	N/A	N/A	N/A	N	No abstraction or discharge to a WFD water body so no risk of deterioration in WFD status. No likely impact on WFD water bodies during construction subject to good practice construction.
Conveyance: Raw Water System	Conveyance from Break Tank to Coppermills via Res 5 – (Spine 2)	CON-RWS-BT-COP-800	Lee (Tottenham Locks to Bow Locks/Three Mills Locks)	GB106038077852	River	N	There are no abstractions or discharges associated with the transfer element. No likely impact on WFD water bodies during construction subject to good practice construction methods.
Conveyance: Raw Water System	RWS_Surbiton intake capacity increase	CON-RWS-SUR-100	Thames (Egham to Teddington)	GB106039023232	River	N	No increase in total abstraction rate from River Thames or change to residual flows over Teddington Weir which remain within existing licence.
Conveyance: Raw Water System	Chingford South intake capacity increase	CON-RWS-CHS-PS-100	Lea Navigation Enfield Lock to Tottenham Locks	GB106038027950	River	N	Minor change in location of abstraction within existing licence rates and volumes. Impacted length of watercourse between the Chingford South and Chingford Supply Channel intakes is short (~1.8km and of negligible ecological value (currently Bad ecological status in this concrete channel). No likely WFD compliance risks.
Conveyance: Raw Water System	KGV to BPT south of William Girling - 300Ml/d	CON-RWS-KGV-BT-300	Lee (Tottenham Locks to Bow Locks/Three Mills Locks)	GB106038077852	River	N	This option provides alternative raw water distribution from King George V Reservoir with no WFD risks.

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
Treatment: SWOX	SWA north: South East Strategic Reservoir Option - SWA WTW (24MI/d)	WTW-SWOX-ABI-SWA	N/A	N/A	N/A	N	This option involves the construction of a new WTW adjacent to a South East Strategic Reservoir Option, with no WFD risks.
Network	SWA north: South East Strategic Reservoir Option treated water transfer to SWA	NET-IZT-AB-LC-72	N/A	N/A	N/A	N	This option involves treated water transfers between a new WTW adjacent to a South East Strategic Reservoir Option and several new service reservoirs. No WFD risks identified.
Resource: Raw water transfer support	Raw Water Transfer: Upper Severn - Vyrnwy Reservoir 148 Ml/d	RES-RWTS-VYR-148	Vrynwy - Lake Vrynwy to conf Afon Cownwy Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy Afon Vyrnwy DS of Banwy confluence	GB109054049880 GB109054049720 GB109054049852	Rivers	Υ	-
			Afon Vyrnwy - conf Afon Tanat to conf R Severn Vrynwy - Lake Vrynwy to conf Afon Cownwy	GB109054049800 GB109054049880	Rivers		
Resource: Raw water transfer support	Raw Water Transfer: Upper Severn - Vyrnwy Reservoir 60 MI/d	RES-RWTS-VYR-60	Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy Afon Vyrnwy DS of Banwy	GB109054049720 GB109054049852		Υ	-
			confluence Afon Vyrnwy - conf Afon Tanat to conf R Severn	GB109054049800			
-	Didcot	RES-DRA-DID	Thames (Evenlode to Thame)	GB106039030334	River	N	Option element is licence transfer and no new abstraction from a WFD water body as part of this element.
Resource: Raw water transfer support	Transfer of Minworth Effluent 115 MI/d	RES-RWTS-MIN	Tame - R Rea to R Blythe Avon (Wark) conf R Leam to Tramway Br, Stratford	GB104028046841 GB109054044402	Rivers	Y	-
Resource: Raw water transfer support	Netheridge Final Effluent Transfer	RES-RWTS-NTH	Severn - conf R Avon to conf Upper Parting	GB109054044404	River	Y	-

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
Resource: Raw water transfer support	Vyrnwy Transfer to Severn Trent Water 12MI/d	RES-RWTS-SHR-12	Severn - conf Bele Bk to conf Sundorne Bk	GB109054049142	River	Υ	-
Resource: Raw water transfer support	Vyrnwy Transfer to Severn Trent Water 30MI/d	RWP_STT UU/ST OPT B	RES-RWTS-VYR-60	GB109054049142	River	Y	-
Resource: Raw water transfer support	River Wye to Deerhurst 60 MI/d	RES-RWTS-WYE-60.3	Wye - Hampton Bishop to conf Kerne Br	GB109055037112	River	Υ	-
Conveyance: Raw Water systems	South East Strategic Reservoir Option to Farmoor 24 MI/d	CON-RWS-ABI-FMR	Farmoor Reservoir	GB30641011	Lake	Y	-
Conveyance: Raw Water Systems	Medmenham Raw water intake and transfer	CON-RWS-MMM-53	Thames (Reading to Cookham)	GB106039023233	River	Υ	-
Conveyance: Raw Water System	Oxford Canal - Farmoor 15	CON-RWS-OXC-FMR- 15	N/A	N/A	N/A	N	This is a pipeline only element and is without WFD risks. No likely impact on WFD water bodies during construction subject to good practice construction.
Network	Shalford to Netley Mill	NET-GUI-SFD-NML	N/A	N/A	N/A	N	Option element involves a treated water transfer and does not involve any increase in abstraction at Shalford (River Wey), therefore no WFD risks.
Resource: Aquifer Storage & Recovery	Horton Kirby	RES-ASR-HTK	West Kent Darent and Cray Chalk	GB40601G501800	Groundwater	Υ	Note the source water would be abstracted from a number of sources within the water supply zone, within current licence conditions from groundwater sources assessed by EA as sustainable.
Resource: Groundwater	Groundwater Datchet 5.7 Ml/d	RES-GW-DAT	Thames (Cookham to Egham)	GB106039023231	River	Υ	Note current licence assessed by EA as sustainable.
Resource: Groundwater	Groundwater Honor Oak – 2.8 Ml/d	RES-GW-HON	Ravensbourne (Catford to Deptford)	GB106039023270	River	Υ	-
Network	SWA north: South East Strategic Reservoir Option treated water transfer to SWA	NET-IZT-AB-LC-48	N/A	N/A	N/A	N	This option involves treated water transfers between a new WTW adjacent to a South East Strategic Reservoir Option and several new service reservoirs. No WFD risks identified.

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
Network	SWA North: South East Strategic Reservoir treated water transfer to SWA	NET-IZT-AB-BS-48	N/A	N/A	N/A	N	Option element involves treated water transfers between a new WTW adjacent to a South East Strategic Reservoir Option and several new service reservoirs. No WFD risks identified.
Resource: Inter- Zonal Transfers	Henley to SWA 2.37 MI/d	RES-IZT-HEN-SWA- HAM-2.37	Maidenhead chalk	GB40601G602600	Groundwater	Y	Note the source water would be abstracted within current licence conditions at the Sheeplands source assessed as a sustainable licence by EA.
Resource: Inter- Zonal Transfers	Henley to SWA 5 MI/d	RES-IZT-HEN-SWA- HAM-5	Maidenhead chalk	GB40601G602600	Groundwater	Y	Note the source water would be abstracted within current licence conditions at the Sheeplands source assessed as a sustainable licence by EA.
Resource: Inter- Zonal Transfers	Henley to SWOX 5 MI/d	RES-IZT-HEN-SWX- NET-5	South-West Chilterns Chalk Thames (Reading to Cookham)	GB40601G601100 GB106039023233	Groundwaters River	Υ	Note the source water would be abstracted within current licence conditions at the Sheeplands source assessed as a sustainable licence by EA.
Resource: Inter- Zonal Transfers	Kennet Valley to SWOX 2.28 Ml/d	RES-IZT-KEN-SWX-2.3	Kennet and Holy Brook	GB106039023140	River	N	Abstraction within existing licence conditions and small volume of abstraction relative to the flow in the River Kennet at the Fobney source. Fobney source assessed as a sustainable licence by EA. No likely WFD risks identified.
Resource: Inter- Zonal Transfers	Kennet Valley to SWOX 6.74 Ml/d	RES-IZT-KEN-SWX-6.7	Kennet and Holy Brook	GB106039023140	River	N	Abstraction within existing licence conditions and small volume of abstraction relative to the flow in the River Kennet at the Fobney source. Fobney source assessed as a sustainable licence by EA. No likely WFD risks identified.
Resource: Removal of Constraints	Britwell - Removal of Constraints	RES-RC-BTW	Vale of White Horse Chalk Chalgrove Brook	GB40601G601000 GB106039023740	Groundwater River	Y	Note the existing licence is due for AMP7 sustainability investigation
Resource: Raw water transfer support	Oxford Canal Transfer to Cropredy 15MI/d	RES-RWTS-OXC-CRP- 15	Tame Anker Mease – Coal Measures Black Country Tame Anker Mease – PT Sandstone Birmingham Lichfield	GB40402G992400 GB40401G301000	Groundwater	Υ	Interactions between canals and rivers locally along the transfer route, such as at canal overspill weirs would not change as a consequence of transfer. Normal operating water levels would be maintained

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
			Tame (W/ton Arm) source to conf Oldbury Perry Well	GB104028046930	Rivers		unchanged within the canal network. No likely WFD risks are therefore identified to river water bodies along the transfer route prior to the River Cherwell at Cropredy.
			Tame – conf two arms to R Rea	GB104028046842			Cherwell at Cropredy.
			Cherwell (Cropredy to Nell Bridge)	GB106039037310			
			Cherwell (Nell Bridge to Bletchingdon)	GB106039037431			
			Cherwell (Bletchingdon to Ray)	GB106039037432			
Resource: Raw water transfer support	Oxford Canal Transfer to Dukes Cut 15MI/d	RES-RWTS-OXC-DKC- 15	Thames (Evenlode to Thame)	GB106039030334	River	Υ	-
Resource: Removal of Constraints	Epsom - Removal of Constraints	RES-RC-EPS	Bromley Tertiaries Hogsmill	GB40602G602300 GB106039017440	Groundwater River		Note the existing licence is due for AMP7 WFD investigation under WINEP
Resource: Removal of Constraints	New River Head - Removal of Constraints – 3.45 Ml/d	RES-RC-NRV	N/A	N/A	N/A	N	The proposed abstraction is from the confined chalk aquifer [non-WFD aquifer] and will not interact with any surface water features or terrestrial ecosystems.
Resource: Raw water purchase	Chingford Raw Water Purchase	RES-RWP-CHD	William Girling Reservoir	GB30641659	Lake	N	Option element involves no new or additional abstraction from a WFD water body as part of this element. Maintains the existing bulk export agreement into the long-term.
Conveyance: Raw Water System	Culham to Farmoor	CON-RWS-CUL-FMR- 180	Thames (Evenlode to Thame)	GB106039030334	Rivers		Ů
			Thames Wallingford to Caversham	GB106039030331			
			Thames (Reading to Cookham)	GB106039023233		Υ	-
			Thames (Cookham to Egham)	GB106039023231			
				GB106039023232			

Element Type	Element Name	Element Reference	Water body Name	Water body Code	Water body Type	Screened in?	Reason for screening out of Assessment (where applicable):
Conveyance:	New Gauge - River Lee	твс	Thames (Egham to Teddington) Lea Navigation Enfield Lock to Tottenham Locks	GB106038027950	River	N	Abstracted water would be flow left in the River Lee from reduction in upstream abstraction, to the same overall flow rate. No likely WFD compliance risks.
Conveyance:	River Wye - Pann Mill	твс	N/A	N/A	N/A	N	This is a pipeline only element and is without WFD risks. No likely impact on WFD water bodies during construction subject to good practice construction.
Conveyance:	River Wandle - Waddon	твс	N/A	N/A	N/A	N	This is a pipeline only element and is without WFD risks. No likely impact on WFD water bodies during construction subject to good practice construction.
Conveyance:	River Cray - North Orpington	твс	N/A	N/A	N/A	N	This is a pipeline only element and is without WFD risks. No likely impact on WFD water bodies during construction subject to good practice construction.

APPENDIX B:

OPTION ELEMENT WFD COMPLIANCE ASSESSMENT OUTCOMES FOR OPTION ELEMENTS (STEP 2)

This section presents the outcomes of the WFD compliance assessment for those option elements screened in for further assessment for the WRMP19. A WFD compliance assessment table is provided below for each WFD water body that may be affected by the option element. The list of option elements included in this appendix are, in order:

- KGV Res intake capacity increase
- Raw Water Transfer Deerhurst to Culham (all variants)
- TLT extension from Lockwood to KGV 800MI/d
- Reuse Deephams to KGV intake
- AR Merton (SLARS3) 5 MI/d
- AR Streatham (SLARS2) 4 MI/d
- ASR South East London (Addington) 3 Ml/d
- ASR Thames Valley/Thames Central 1 Ml/d
- Desalination North Beckton RO Treatment Plant 150 Ml/d
- Desalination South Crossness RO Treatment Plant 100 Ml/d
- Groundwater Moulsford 1.0 3.5 Ml/d
- Henley to SWOX 2.37 MI/d
- Raw Water Transfer Upper Severn Vyrnwy 180 Ml/d (all variants)
- RC Ashton Keynes borehole pumps 2.5 Ml/d
- New Reservoir South East Strategic Reservoir Option (all variants)
- Reuse Beckton 100 Ml/d
- Reuse Beckton 100 Ml/d x 3 phases to get 300 Ml/d
- Reuse Beckton 150 Ml/d
- Reuse Deephams 46.5 Ml/d
- Medmenham Intake 80MI/d SWA South
- Transfer of Minworth Effluent 115 Ml/d
- Netheridge Final Effluent Transfer
- Vyrnwy Transfer to Severn Trent Water 12Ml/d
- Vyrnwy Transfer to Severn Trent Water 30Ml/d
- River Wye to Deerhurst 60 Ml/d
- South East Strategic Reservoir Option to Farmoor 24 Ml/d
- Medmenham Raw water intake and transfer
- Horton Kirby ASR
- Groundwater Datchet 5.7 Ml/d
- Groundwater Honor Oak 2.8 Ml/d
- Henley to SWA 2.37 MI/d
- Henley to SWA 5 MI/d
- Britwell Removal of Constraints
- Oxford Canal Transfer to Cropredy 15Ml/d
- Oxford Canal Transfer to Dukes Cut 15Ml/d
- Epsom Removal of Constraints
- Culham to Farmoor

Conveyance: RWS_KGV Res intake capacity increase - CON-RWS-KGV-360

WFD water body type WFD management catchment River Basin District Thames WFD Status and Objectives Basin District WFD Status and Objectives Water Body Missignation Measures Water Body Missignation Measures WFD Directive Water Body Missignation No published matigation measures WFD Directive No VES Water Body Missignation No published matigation measures WFD Protected Areas WFD Protect		WFD water body		Lea Navigation Enfield Lock to Tottenham Locks								
WFD Status and Objectives and Mitigation WFD Status and Objectives Bad Objectives Bathing Water Directive NO VES Scheme components potentially Affecting water body WFD element RBMP2 Querall Not assessed status (construction and operation) Fish Not assessed Not assessed status (construction and operation) Fish Not assessed Not assessed Nacrophytes & Phylobenthos Bad Macrophytes & Phylobenthos Bad Macrophytes & Phylobenthos Bad Directive Not assessed that the reproduct of additions of source water of the baseline rever flow rate downstream of the ownstream ownstream of the ownstream ownstrea		WFD water body	type	River								
WFD Status and Objectives Bad Objective (2021) Objective (2027) Objective		WFD manageme	nt catchment	London			ter body	GB10	6038027950			
WFD Status and part Sad Pydromorphological designation heavily modified		River Basin Dist	rict									
Objectives												
Bathing Water Directive Drinking Water Directive Drinking Directiv	>				Object	Objective (2021)		Objective (2027)				
Bathing Water Directive Drinking Water Directive Drinking Directiv	ро											
Bathing Water Directive Drinking Water Directive Drinking Directiv	고		loar designation	41	Theavily mount	, u						
Bathing Water Directive	Wat	Mitigation	No published r	nitigation measu	res							
Bathing Water Directive Di				WF	D Protected Are	eas	1					
Scheme components potentially affecting water body WFD element RBMP2 (2015) Status Fish Not assessed Macro- invertebrates Moderate Macrophytes & Phytobenthos Bad Bad Bad Bad Bad Bad Bad Ba			Water	of Wild Birds					Water Treatment			
Parallel		NO	YES						YES			
Not assessed Not assessed Not assessed Construction will be managed by good practice construction methods and any risk of suspended material, site runoff pollutants, geomorphological action working in the watercourse to the water body; is assessed as low. Temporary effects due to the construction will not cause deterioration of the water body. Macrophytes & Phytobenthos Bad Bad Bad Bad Phytobenthos Bad Bad Phytobenthos Bad Phytobenthos Bad Phytobenthos Bad Bad Phytobenthos Bad Phytobenthos Bad Phytobenthos Bad Bad Bad Phytobenthos Bad Phytobenthos Bad Phytobenthos Bad Phytobenthos Bad Phytobenthos Bad Phytobenthos Phytobenthos Bad Bad Phytobenthos Phytobenthos Bad Phytobenthos Phytobe				Operation: Ch	ange in the quali	ty and rate of ab	straction o	f wate				
Fish Moderate Moderat		WFD element										
Moderate		Fish		Not assessed								
Temporary effects due to the construction will not cause deterioration of the water body. The increased abstraction capacity would ensure that the rate of additions of source water (either reuse or River Thames water) would be re-abstracted, maintaining the baseline river flow rate downstream. The downstream quality would be amended, reflecting the blend of source waters with the baseline River Lee water quality. Tertiary treatment has been included for the reuse options as part of the option element design and it is assumed that environmental permitting will ensure the discharge quality would be appropriate for the river's environmental requirements and the downstream water uses (raw water for potable supply). On the assumption of baseline downstream flow regime and appropriate river water quality, no deterioration risk is anticipated. Discharge quality will depend on source water – either tertiary reuse water or River Thames water. It is assumed that environmental permitting will ensure the discharge quality would be appropriate for the river's environmental requirements and the downstream water uses (raw water for potable supply). Therefore, the risk of deterioration in chemical status is assessed as low. Dirinking water: The water body is a drinking water protected area (Lee Navigation Subsidiary A). Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area and additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Lee Valley SPA (and Ramsar): This site comprises a series of wetlands and reservoirs. Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. D			Moderate	Moderate	pollutants, ged	morphological a	ction from	workin	g in the			
Chemical (Overall) Good Good Be appropriate for the river's environmental requirements and the downstream water uses (raw water for potable supply). Therefore, the risk of deterioration in chemical status is assessed as low. Drinking water: The water body is a drinking water protected area (Lee Navigation Subsidiary A). Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area and additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Lee Valley SPA (and Ramsar): This site comprises a series of wetlands and reservoirs. Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Does the component comply with WFD Objective 1. No deterioration between status classes Yes; no deterioration between classes. 2. No impediments to GES/GEP Yes; no compromises to water body Yes; no compromises to water body objectives	nent (scoping)		Bad	Bad	Temporary effects due to the deterioration of the water both the increased abstraction of additions of source water (elements would be re-abstracted, main downstream. The downstream of the blend of source water quality. Tertiary treatments options as part of the option that environmental permitting would be appropriate for the and the downstream water under the control of the assumption of baseling the water of the				or the construction will not cause in body. In capacity would ensure that the rate of refither reuse or River Thames water) maintaining the baseline river flow rate tream quality would be amended, urce waters with the baseline River Lee eatment has been included for the reuse tion element design and it is assumed itting will ensure the discharge quality the river's environmental requirements er uses (raw water for potable supply).			
Navigation Subsidiary A). Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area and additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Lee Valley SPA (and Ramsar): This site comprises a series of wetlands and reservoirs. Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Does the component comply with WFD Objective 1. No deterioration between status classes Yes; no deterioration between classes. 2. No impediments to GES/GEP Yes; no compromises to water body objectives			Good	Good	reuse water or environmental be appropriate the downstrea Therefore, the	reuse water or River Thames water. It is assumed that environmental permitting will ensure the discharge quality be appropriate for the river's environmental requirements the downstream water uses (raw water for potable supply Therefore, the risk of deterioration in chemical status is						
1. No deterioration between status classes Yes; no deterioration between classes. 2. No impediments to GES/GEP Yes; no impediments to GEP. 3. No compromises to water body Yes: no compromises to water body Yes: no compromises to water body Yes: no compromises to water body objectives.		Protected Area Details		Navigation Subsidiary A). Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area and additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Lee Valley SPA (and Ramsar): This site comprises a series of wetlands and reservoirs. Additions to the source water for the abstraction would be treated to								
2. No impediments to GES/GEP Yes; no impediments to GEP. 3. No compromises to water body Yes: no compromises to water body objectives.				th WFD Objecti	ve		·					
3. No compromises to water body Yes: no compromises to water body objectives												
Yes: no compromises to water poor objectives					Yes; no impediments to GEP.							
· · · · · · · · · · · · · · · · · · ·			es to water body	Yes;	no compromises	to water body ob	jectives.					

	Yes; there are no potential effects on other water bodies including the King George V Reservoir assessed below.
objectives	No; design does not currently integrate with the package of potential river restoration measures currently under review by Thames Water as part of the AMP6 NEP abstraction investigation for the Lower Lee.
· ·	No; does not assist with the attainment of any mitigation measures
objectives	required for the protected areas.

	MED water hade		I/: C	D.						
	WFD water body			King Georges Reservoir						
	WFD water body		Lake				WED (_	
	WFD managemen		London				WFD wate	er body	GB306	641523
	River Basin Distri		Thames	anation	o Objectives o		ID			
	WED OLDER			TD Designations, Objectives and Mitigation all Status Objective (2021) Objective					(0007)	
	WFD Status and	RBMP2 Ov	oor	us	Objective	9 (202	21)		objectiv	ve (2027)
ģ	Objectives Hydromorphologi				- Artificial					-
Water body	Water Body Mitigation Measures	No published m		neasures						
				WED	Protected Areas	•				
	Bathing Water Directive	Drinking Water Directive	Conserv of Wild Direct	vation Birds	Habitats Directive	N	itrates rective	Shell Direc		Urban Waste Water Treatment Directive
	NO	YES	NC		NO		YES	NO)	YES
	Scheme compone		Construc							
	affecting water bo		Operatio	n: Char	nge in the quality	and r	ate of wate	er abstrac	cted into	o the reservoir
	WFD element	RBMP2 (2015) status			Assessed status	•		•		
	Fish	Not assessed	Not ass	essed	Water available t					
	Chironomids	Not assessed	Not ass	essed	(as baseline) tog					
	(CPET)					esource. Tertiary treatment has been included for part of the option element design and it is				
					each option as p assumed that en quality would be requirements an potable supply). There is no 2015	viron approd the	mental per opriate for t downstrea	mitting w the river's m water	ill ensu s enviro uses (ra	re the discharge onmental aw water for
WFD assessment (scoping)	Phytoplankton	Poor	Poor (und	certain)	available. Phytoplankton was assessed as Poor status in 2015 and total phosphorous as Bad. Given that the treated wastewater will be treated to high standards and that the status of the River Lea navigation is Poor for phosphate, the scheme is considered unlikely to lead to deterioration in these elements. The maintenance of higher reservoir levels and increase in rate of reservoir turnover may assist with improvements in phosphate and phytoplankton status.					
	Chemical (Overall)	Good	Goo		Water available for abstraction will be a blend of River Lee (as baseline) together with reuse water or River Thames W depending on resource. Tertiary treatment has been include each option as part of the option element design and it is assumed that environmental permitting will ensure the discl quality would be appropriate for the river's environmental requirements and the downstream water uses (raw water to potable supply). Therefore, the risk of deterioration in chem status is assessed as low.				Thames Water, een included for and it is re the discharge onmental aw water for	
	Protected Area Details		Drinking water: The water body is a drinking water protected area (King George V Reservoir). Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area and additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Lee Valley SPA (and Ramsar): This site comprises a series of wetlands and reservoirs. Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit.							
	Does the compon		h WFD O	ojective)					
	1. No deterioration	between status	classes \	Yes; no	deterioration bety		classes.			
	2. No impediments			impediments to 0						
	3. No compromises to water body objectives			Yes; no	compromises to	water	body obje	ctives.		
	4. No effects on other	her water bodies	F	River Le	re are no potenti e Navigation Enf	ield L	ock to Tott	enham L	ocks.	_
	5. Assists attainme objectives	ent of water body	. I	No; desi estorati	gn does not curre on measures cur 6 NEP abstraction	ently i rently	integrate w under rev	ith the pa iew by Tl	ackage hames	Water as part of

6. Assists attainment of protected area	No; does not assist with the attainment of any mitigation measures
objectives	required for the protected areas.

Conveyance: Raw Water Transfer - Raw Water Transfer Deerhurst to Culham - all variants (300/400/500 Ml/d) - CON-RWT-DEH-CLM

WFD water body name Severn - conf R Avon to conf Upper Parting									
		River							
		Severn Vale				er	GB1090	54044404	
River Basin Dist	rict	Severn WFD Design	ations, Objectives	and Mi	tigation	igation			
WFD Status and	RBMP2 (Objectiv	Objective (2027)		
Objectives	Me	oderate -				-			
	jical designat	ion	heavily modified						
Water Body Mitigation Measure	No published	d mitigation measu	ıres						
		· ·	NFD Protected Are	as					
Bathing Water Directive	Drinking Wat Directive	or Control	Hahitate		Nitrates Directive			Urban Waste Water Treatment Directive	
NO	NO	NO	NO	Y	'ES	1	VO.	YES	
Scheme components potentially affecting water body		Operation: Abstraction Supported by Mytother sources. The	raction of water for the WTW unused parties abstraction may a	reatmer art of lic also be	nt and tran ence – 15 unsupport	sfer. Th Ml/d; La ed at tir	ne abstrac ake Vyrnv nes and c	vy – 180 Ml/d or constrained by	
WFD element	RBMP2 (2015) status			•		•	•		
Fish	Not assessed	Not assessed	Construction of the intake will be managed by good practice construction methods and any temporary risks to the water body are						
Macro- invertebrates	Poor	Poor	assessed as low. Temporary effects due to construction will not cau deterioration of the water body.						
Macrophytes & Phytobenthos	Not assessed	Not assessed	The greatest proporeductions in the mhave a negligible el Increases to flow up from augmentation envelope. Reduction be protected by the There is unlikely to elements as there at therefore the buffer same. In addition, tremainder of the downwith the hands-off safeguard the aquadverse effects of the ecology. Overall, mostatus. Impacts to runcertain due to a line in the manufact of the cology.	Eel regulation compliant inlet screens are proposed. The greatest proportional change in the flow regime would be reductions in the moderate to low flow conditions and these would have a negligible effect on the flow regime throughout the water body Increases to flow upstream of the intake under low flow conditions from augmentation schemes would remain within the normal flow envelope. Reduction in flow downstream of abstraction intake would					
Chemical (Overall)	Good	Good	a negligible effect of capacity of the rive	on the fl r will re	ow regime main large	and the	erefore th ame.	e buffering	
		under the Nitrates Directive. The scheme will not affect the management of the protected area and no significant changes in water quality are expected. Severn Estuary SPA and SAC: The Severn Estuary has a very large tidal range and it is not anticipated that the upstream abstraction would have any adverse impact on the qualifying features of these European sites, which would be well habituated to fluctuating water levels and any losses would be replaced twice daily with the tides. Additionally, flows to the estuary will be protected by the hands-off flow conditions governing the abstraction.							
	WFD water body WFD manageme catchment River Basin District WFD Status and Objectives Hydromorpholog Water Body Mitigation Measure Bathing Water Directive NO Scheme componentially affect body WFD element Fish Macro- invertebrates Macrophytes & Phytobenthos Chemical (Overall)	WFD water body type WFD management catchment River Basin District WFD Status and Objectives Motor Hydromorphological designate Water Body Mitigation Measure Bathing Water Directive NO NO Scheme components potentially affecting water body WFD element Fish Not assessed Macro- invertebrates Macrophytes & Phytobenthos Macrophytes & Phytobenthos Chemical (Overall) Good Protected Area Details	WFD water body type WFD management catchment River Basin District Severn Vale Severn Vale Severn Vale Severn Vale Severn Vale Severn Vale Severn WFD Design WFD Status and Objectives Moderate Hydromorphological designation Water Body Mitigation Measure Bathing Water Directive NO NO NO Scheme components potentially affecting water body WFD element RBMP2 (2015) status Fish Not Assessed Macro- invertebrates Not assessed Macro- invertebrates Not assessed Severn Estuary Sonot anticipated the Nitrate protected area are Severn Estuary Sonot anticipated the surface are are solved for the surface are solved for the surface are are s	WFD water body type River Severn Vale	WFD water body type	WFD water body type River WFD management catchment Severn Vale WFD water body ID River Basin District Severn Vale WFD Designations, Objectives and Mitigation WFD Status and Objectives Moderate Moderate Hydromorphological designation heavily modified Water Body Mitigation No published mitigation measures Bathing Water Directive Drinking Water Directive Conservation of Wild Birds Directive Habitats Directive Directive No YES Scheme components potentially affecting water body No NO NO NO YES Scheme components potentially affecting water body RBMP2 (2015) Assessed status (construction of the intake and treatment and trassupported by Mythe WTW unused part of licence – 15 other sources. The abstraction may also be unsupport abstraction licence conditions and proposed hands-off downstream. WFD element RBMP2 (2015) Assessed status (construction assessed assessed as low. Temporary effects other sources. The abstraction may also be unsupport assessed as low. Temporary effects of the intake will be may be assessed as low. Temporary effects of the intake will be may be assessed as low. Temporary effects of the construction in the water body. WFD element Not assessed Not assessed as low. Temporary effects of the flow run increases to flow upstream	WFD water body type	WFD mater body type WFD mater body in Severn Vale Severn Vale WFD Designations, Objectives and Mitigation WFD Status and Objectives WFD Designations, Objectives and Mitigation WFD Status and Objectives WFD Designations, Objective (2021) Moderate Hydromorphological designation No published mitigation measures WFD Protected Areas W	

No deterioration between status classes	Yes; no deterioration between classes.
2. No impediments to GES/GEP	Yes; no impediments to GEP
3. No compromises to water body objectives	Yes; no compromises to water body objectives.
4. No effects on other water bodies	Yes; no impacts on downstream water bodies.
5. Assists attainment of water body objectives	No; does not assist with the attainment of any mitigation water body objectives.
6. Assists attainment of protected area objectives	No; does not assist with the attainment of any mitigation measures required for the protected areas.

	WED weter he by		Thomas /Firestri	do to Thoras					
	WFD water body to WFD water body to		Thames (Evenlode to Thame)						
	WFD managemen		-						
	River Basin Distri		Thames	and the vale	body ID		GB1060	39030334	
				ations, Objectives		<u> </u>			
	WFD Status and	RBMP2 C	verall Status	Objectiv	e (2021)	Objective (2027)			
≥	Objectives		oderate	-	•		-		
900	Hydromorphologi	cal designat	ion	not designated ar	tificial or heavily r	nodified			
water body	Water Body Mitigation Measure	No published	I mitigation measu	ıres					
			V	VFD Protected Ar	eas	•			
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Shellfish Directive		Urban Waste Water Treatment Directive	
	NO	YES	NO	YES	YES	NC.)	YES	
	Scheme compone		Construction: Co	onstruction of the	augmentation out	fall	d r	2: 0	
	potentially affection	ng water	Operation : Release of pre-treated transfer water abstracted from the River Severn to the River Thames at Culham						
	body	RBMP2	the River Thames	s at Cumam					
	WFD element	(2015) status		Assessed statu					
	Fish	Moderate	Moderate					y good practice	
	Macro- invertebrates	Moderate	Moderate					ater body is low.	
	invertebrates					Struction	arc ar	illicity to dauge	
sment (scoping)	Macrophytes & Phytobenthos	Not assessed	Not assessed	Temporary effects due to construction are unlikely to cal deterioration of the water body. The greatest proportion change in the flow would be increases in low flow to extreme low flow from the regulation releases, wit change to the low flow envelope in the lower reach of the water be when in operation. WRMP studies have identified that this water be would not be subject to undue flow variability beyond its character flow regime from the elevated baseflow due to the existing regula nature of the river. All variants of the option (300 to 500 Ml/d) we result in moderate to large increases in baseflow but these have be assessed as unlikely to impact on ecology. The 500Ml/d variant we include a higher rate of unsupported abstraction and transfer related to the total transfer rate, resulting in a highly variable flow regime times of low and low-moderate flow during summer and autumn, whis not the existing characteristic of this water body. The augmentation flows will be treated to environmental standards phosphorus, suspended solids, dissolved oxygen therefore there be a low risk of impacting the physico-chemical quality elemental currently moderate status). An invasive species treatment and management plan will be part of option, including rapid gravity filtration of the River Severn water profession, including larvae of invasive species) will be retained. The of spread of known and likely invasive species from the Lower Severn to the middle Thames is therefore low. The habitat types of this water body most at risk from flow change specifically the change in low flows, are the weir pools due to change in their level and flow regime. These weir pools are impornursery grounds for fish and provide for diversity of macroinvertebrahowever, the effect on the WFD status of these in the water body a whole would likely remain the same. The impact on macrophytes phytobenthos is uncertain due to lack of 2015 status classificat Overall, it is expected that the ecological status will remain the sa however there is some unce					
	Chemical (Overall)	Fail	Fail	water body. Then abstracted River form and therefor	of R Avon to confore potentially before is likely to be Severn water whe likely to be treates. There is the p	tter water of some me nich would ated at the potential fo	quality totals such tals such tals such tals such tals intake processing the content of the content tals.	han the receiving ch as zinc in the be in particulate prior to discharge organic pollutants	

Protected Area Details	under th Urban W the prote	sensitive areas: The water body is associated with a nutrient sensitive area e Nitrates Directive and the River Thames is a nutrient sensitive area under the laste Water Treatment Directive. The scheme will not affect the management of ected area and no significant changes in water quality are expected. water protected area: The Thames (Evenlode to Thame) is a drinking water				
	protecte	d area. The risk to a change in chemical status is low.				
Little Wittenham SAC: As there will be no flow variability beyond characteristic flow regime, the risk of any overtopping leading to the individual water of ponds used by great crested newt is assessed as negligible.						
Does the component comply	with WF	O Objective				
No deterioration between state classes	us	Yes; no deterioration between classes.				
2. No impediments to GES/GEF)	Yes; no impediments to GES.				
3. No compromises to water boo objectives	dy	Yes; no compromises to water body objectives.				
4. No effects on other water boo	lies	Yes; potential to affect other water bodies downstream; Thames Wallingford to Caversham: GB106039030331 assessed below as compliant				
5. Assists attainment of water be objectives	ody	No; does not assist with the attainment water body objectives.				
6. Assists attainment of protecte objectives	d area	No; does not assist with the attainment of any objectives for the protected areas.				

	WFD water body	name	Thames Walling	ford to Caversham						
	WFD water body		River	3 vvaimigiora to Gaversham						
	WFD manageme									
	catchment						vater	GB106039030331		
	River Basin Dist	rict	Thames				body ID			
			WFD Designations, Objectives and Mitigation verall Status Objective (2021)					<u>.</u>		
	WFD Status and		verall Status		Objective (2027)					
bd	Objectives		derate		-				-	
oq .	Hydromorpholog	gical designat	ion	heavily modified						
water body	Water Body Mitigation Measure	Additional tre		e concentrations of p	•	Stewkl	ey sewa	age tr	eatment works	
				WFD Protected Are	eas					
	Bathing Water Directive	Drinking Wate Directive	Conservation of Wild Bird Directive		Nitrates Directive	_	Shellfisl Directiv		Urban Waste Water Treatment Directive	
	NO	NO	NO	YES	YES		NO		YES	
	Scheme compor potentially affect body		Construction: I Operation: Cha	None nge in flow regime c	lue to impacts of	on upstr	eam wa	ater b	ody.	
	WFD element	RBMP2 (2015) status		Assessed status (construction and operation)						
	Fish	Not assessed	Not assessed	Throughout the water body, the greatest proportional change flow would be increases in the low flow to extreme low flow co				flow conditions		
	Macro- invertebrates	Moderate	Moderate	from the river regul	ughout the wate	er body	during (opera	ation. There is	
WFD assessment (scoping)	Macrophytes & Phytobenthos	Good	Good	more flow accretion (e.g. from the River Thame) in this water body and therefore the effects of the releases would be proportionally lower than in the upstream water body and there will be no undue flow variability beyond its characteristic flow regime from the elevated baseflow due to the existing regulated nature of the river. The effects on the water body relating to water quality, invasive species and risk to weir pool habitats are similar to the upstream water body (see above table).						
WFD as	Chemical (Overall)	Good	Good	The releases to the upstream water body would be subject to water quality conditions set by the EA to protect WFD status and therefore the risk to deterioration in WFD status is assessed as low.						
	Protected Area I	Details	under the Nitrate Urban Waste W of the protected Little Wittenham regime, the risk used by great cr	It sensitive areas: The water body is associated with a nutrient sensitive area whe Nitrates Directive and the River Thames is a nutrient sensitive area under the Waste Water Treatment Directive. The scheme will not affect the management protected area and no significant changes in water quality are expected. Vittenham SAC: As there will be no flow variability beyond its characteristic flow , the risk of any overtopping leading to the inundation with river water of ponds y great crested newt is assessed as negligible.						
	1. No deterioration		IIC							
	classes		Yes; no	deterioration betwe						
	2. No impediment			o impediments to GE	P.					
	3. No compromise objectives	es to water boo	Yes; n	o compromises to wa	<u> </u>					
	4. No effects on o		Cookha	Yes; potential to affect other water bodies downstream; Thames (Reading to Cookham): GB106039023233 assessed below as compliant						
	Assists attainm objectives		objectiv	No; does not assist with the attainment of any mitigation water body objectives.						
	6. Assists attainm objectives	ent of protecte		es not assist with the protected areas.	e attainment of	any mit	igation	meas	sures required	

	WFD water body	name	Thames	(Read	ding to (Cookham)						
	WFD water body		River	`		,						
	WFD manageme		Th		\4b OI	-:!!		WED				
	catchment		rnames	Thames and South Chilterns WFD water body ID						06039023233		
	River Basin Dist	rict	Thames	names								
						ns, Objectives		1				
>	WFD Status and		2 Overal		ıs	Obje	ctive (2021)		0	bjec	tive (2027)	
ро	Objectives		Moderat	-			-				-	
고	Hydromorpholog	gical designa	tion	heavily modified								
Water body	Water Body Mitigation Measures	No publishe	d mitigat	igation measures								
					WFD	Protected Are	as					
	Directive	Drinking Wat Directive	er of V	serva Vild Bi irectiv	irds	Habitats Directive	Nitrates Directive	_	Shellfish Directive		Urban Waste Water Treatment Directive	
	NO	NO		NO		NO	YES		NO		YES	
	•		Constru									
	potentially affect	ing water	Operati	on: Ch	nange ir	n flow regime du	e to impacts or	n upstre	eam wate	er bo	ody.	
	WFD element	RBMP2 (2015) status			Assessed status (construction and operation)							
	Fish	Not assessed	No assess		Throughout the water body, the greatest proportional change in would be increases in the low flow to extreme low flow condition							
	Macro- invertebrates	High	High	ו ן	through	out the water bo	ody during oper	ation. 7	There is	more		
WFD assessment (scoping)	Macrophytes & Phytobenthos	Not assessed	-	Not assessed		(e.g. from the River Thame) in this water body and therefore the effects of the releases would be proportionally lower than in the upstream water body and there will be no undue flow variability beyond its characteristic flow regime from the elevated baseflow due to the existing regulated nature of the river. The effects on the water body relating to water quality, invasive species and risk to weir pool habitats are similar to the upstream water body (see above table).						
ssessmo	Chemical (Overall)	Good	Goo	d	conditio		A to protect WF	body would be subject to water quality /FD status and therefore the risk to				
WFD as	Protected Area D	Details	under th Urban V	Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the River Thames is a nutrient sensitive area under the Urban Waste Water Treatment Directive. The scheme will not significantly affect the management of the protected area and no significant changes in water quality are								
	Does the compo	nent comply			ective							
	1. No deterioration					rioration betwee	n classes; furth	er asse	essment	requ	uired	
	classes	- t- OFO/OF		V = -								
	2. No impediment			res; r	10 impe	diments to GEP						
	objectives	No compromises to water body objectives			Yes; no compromises to water body objectives.							
	4. No effects on other water bodies			Yes; no impacts on downstream water bodies.								
	Assists attainm objectives	ent of water b	ody	-		assist with the a		, ,				
	Assists attainm objectives	ent of protect	ed area		oes not otected	assist with the a areas.	attainment of a	ny mitig	ation me	easu	res required for	

			ı													
	WFD water body	name	Thames	(Cookha	am to Egham)											
	WFD water body	type	River													
	WFD management	nt	Maidaal	haad aad	Cumhum		WFD v									
	catchment		,						GB1	3106039023231						
	River Basin Distr	rict	Thames					D								
			WF	D Desigi	and Mitigation	1										
	WFD Status and	RBMP2 C				ve (2021)		OI	bject	tive (2027)						
\	Objectives	Mo	oderate		•	-				-						
ŏ	Hydromorpholog	ical designa	tion		heavily modified			•								
water body	Water Body Mitigation Measure	No publishe		tion meas	•											
					WFD Protected Are	as										
	Bathing Water Directive	Drinking Wat Directive	er of V	nservatio Wild Bird Directive		Nitrates Directive	_	Shellfish Directive		Urban Waste Water Treatment Directive						
	NO	YES		YES	NO	YES		NO		YES						
	Scheme compon			uction: N												
	potentially affect body	ing water	Operati	i on : Chai	nge in flow regime du	ie to impacts or	n upstre	am wate	er bo	dy.						
	WFD element	RBMP2 (2015) status			Assessed status	•										
	Fish	Not assessed	Not as	sessed	The re-abstraction of the river augmentation releases would commence in this water body. Changes in flow in the water body from operation of											
	Macro- invertebrates	Good	Go	ood	the scheme will partly reflect flow augmentation and partly the re- abstraction: the increase in the extreme low flow regime (after											
	Macrophytes & Phytobenthos	High	Hi	igh	No impacts on ecological status are anticipated in this water body.											
ing)	Chemical (Overall)	Good	Go	ood	d The discharge will be treated to EA discharge permit condition sufficient mixing and dilution wadverse effects on chemical questions.			ted that iving wa	ther	e will have been						
WFD assessment (scoping)	Protected Area Details Protected Area Details Sourt suppratu			nking water protected area: The water body is a drinking water protected area. The risal change in chemical status is negligible. It in trient sensitive areas: The water body is associated with a nutrient sensitive area und a Nitrates Directive and the River Thames is a nutrient sensitive area under the Urba aste Water Treatment Directive. The scheme will not affect the management of the otected area and no significant changes in water quality are expected. In the West London water bodies SPA and Ramsar: the SPA comprises a series of water opply reservoirs and former gravel pits that support a range of man-made and sentural open-water habitats. There will be no adverse impact on the SPA because the eno impact pathways of the river augmentation scheme.					sitive area under under the Urban nagement of the a series of water made and semi-							
	Does the compo	nent comply				-										
	No deterioration classes				deterioration betwee	n classes.										
		s to GES/GEI)	Yes: no	impediments to GEF	D .										
	No impediments to GES/GEP No compromises to water body objectives				compromises to wat		ves.									
	4. No effects on of	ther water bo	dies		ential to affect other ton): GB1060390232					(Egham to						
	5. Assists attainmobjectives	ent of water b	ody	No; doe	es not assist with the	attainment of a	ny mitiç	gation wa	ater b	oody objectives.						
	6. Assists attainmobjectives	ent of protect	ed area			attainment of a	ny mitiç	gation me	easu	No; does not assist with the attainment of any mitigation measures required for the protected areas.						

	WFD water body	name	Thames (Egham	n to Teddington)							
	WFD water body		River	r to reddington)							
	WFD managemen		Maidenhead and	d Sunbury		WFD water	CB10603	0000000			
	River Basin Distr	rict	Thames			body ID	GB10603	9023232			
				ons, Objectives	and Mitigation						
	WFD Status and		erall Status	Objec	•	Objective (2027)					
ģ	Objectives Hydromorpholog		oor	heavily modified							
99				Incavily modified							
water body	Water Body Mitigation Measure	No published mi	tigation measure	es							
			WF	WFD Protected Areas							
	Bathing Water I Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Shellfis Directiv	h te Tro	an Waste Water eatment irective			
	NO	YES	YES	NO	YES	NO		YES			
	Scheme compon		Construction:								
	affecting water b	ody	Operation: Re-	Operation: Re-abstraction of augmentation release water							
	WFD element	RBMP2 (2015) status		Assessed state		•					
	Fish	Not assessed	Not assessed								
	Macro- invertebrates	Good	Good	partly reflect flow augmentation and partly the re-abst increase in the extreme low flow regime (after accounting							
ing)	Macrophytes & Phytobenthos	Poor	Poor	re-abstraction of the augmentation flow) would be less than in the upstream water bodies. At the end of the water body, at the tidal lim (Teddington Weir), and downstream of Thames Water's abstraction intakes, the very low flow to extreme low flow regime would return to the baseline flow conditions without the flow augmentation, with the same range and frequency of pass-forward flows into the upper Thames Tideway downstream of Teddington Weir. The schem would have a negligible effect on the flow regime throughout this water body. No change in ecological status is anticipated as the flows would return to baseline conditions in this water body and therefore no							
t (scoping	Chemical (Overall)	Good	Good	impact on fish, macroinvertebrates or macrophytes & phytobenthos. The discharge will be treated to environmental standards and subject to EA discharge permit conditions; it is expected that there will have been sufficient mixing and dilution with the receiving water upstrear and no adverse effects on chemical quality in this water body.							
WFD assessment (scoping)	Protected Area D	etails	risk to a change Nutrient sensitiv under the Nitrat the Urban Was management of expected. South West Lor water supply res	Orinking water protected area: The water body is a drinking water protected area. The isk to a change in chemical status is negligible. Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the River Thames is a nutrient sensitive area under the Urban Waste Water Treatment Directive. The scheme will not affect the analogement of the protected area and no significant changes in water quality are expected. South West London water bodies SPA and Ramsar: the SPA comprises a series of water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open-water habitats. There will be no impact on the SPA because them							
	Does the compor	nent comply with			- augmontatio	. 5551115.					
	 No deterioration 			ioration between	classes						
	classes	2 to CEC/CED									
	 No impediments No compromise 		res; no impe	ediments to GEP.							
	objectives	o to water body	Yes; no com	promises to water	body objective	S.					
	4. No effects on of		flows to the dechange to hig	Yes; no effects on water bodies downstream as no change in moderate or low flows to the downstream transitional water body (Thames Tideway) and negligible change to high flows.							
	5. Assists attainme	ent of water body	No; does not	assist with the at	tainment of any	mitigation wa	ter body ob	jectives.			
	objectives 6. Assists attainment area objectives	ent of protected	No; does not the protected	assist with the at areas.	tainment of any	mitigation me	asures req	uired for			

Conveyance: Raw Water System: TLT extension from Lockwood to KGV - 800MI/d - CON-RWS-LCK-KGV-800

	WFD water body			Enfield Lock to To	ottenham Locks	Lea Navigation Enfield Lock to Tottenham Locks River						
	WFD water body				WFD water	er body						
	WFD managemen		London		ID	_	GB10	6038027950				
	River Basin Distri		Thames NFD Designatio	ns, Objectives a	nd Mitigation							
<u>></u>	WFD Status and	RBMP2 Ov	erall Status	Objective (2021) Objective (2027)								
poq	Objectives Hydromorphologi		heavily modified									
water body	Water Body Mitigation Measures	_	itigation measure	s								
			WFD Protected Areas Urban Waste									
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates She Directive Dire		ive	Water Treatment Directive				
	NO	YES	YES	NO	YES	NC -")	YES				
	Scheme components potentially affecting water body		Operation: Disc abstraction intak	Construction: Construction of the discharge outfall. Operation: Discharge to the River Lee Diversion upstream of the existing abstraction intake to the King George V Reservoir. A new permit to discharge will be required. Flow rate downstream of the abstraction intake is stated as unaffected.								
	WFD element	RBMP2 (2015) status		Assessed status	s (construction	and ope	ration)					
	Fish	Not assessed	Not assessed	Construction will								
	Macro- invertebrates	Moderate	Moderate	methods and any risk of suspended material, site runoff pollutants, geomorphological action from working in the								
WFD assessment (scoping)	Macrophytes & Phytobenthos	Bad	Bad	watercourse to the water body is assessed as low. Temporary effects due to the construction will not cause deterioration of the water body. Discharge quality will depend on source water – either tertiary treated reuse water or River Thames water. It is assumed that environmental permitting will ensure the discharge quality wou be appropriate for the river's environmental requirements and the downstream water uses (raw water for potable supply). There would be a localised flow increase in the Enfield Island Loop channel for less than 500m between the new outfall and the existing abstraction intake which could lead to some local morphological changes in the channel of this Heavily Modified water body. This change in flow will impact <3% of the total water body length of 19.4km, well below the 15% permitted derogation limit. Taking into account the steps to minimise impacts to the ecology, no features should be significantly impacted. WFD status will neither deteriorate nor improve for macrophytes and phytobenthos. There is no 2015 fish status assessment available, but the scheme is considered unlikely to								
	Chemical (Overall)	Good	Good	lead to deterioration to fish status. Discharge quality will depend on source water – either tertiary treated reuse water or River Thames water. It is assumed that environmental permitting will ensure the discharge quality would be appropriate for the river's environmental requirements and the downstream water uses (raw water for potable supply). Therefore the risk of deterioration in chemical status is assessed as low.								
	Protected Area Details		Drinking water: The water body is a drinking water protected area (Lee Navigation Subsidiary A). Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit. Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area and additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit.									

reservoi	ey SPA (and Ramsar): This site comprises a series of wetlands and rs. Additions to the source water for the abstraction would be treated to ate standards and subject to environmental permit.					
Does the component comply with WFD C	Objective					
1. No deterioration between status classes	Yes; no deterioration between classes.					
2. No impediments to GES/GEP	Yes; no impediments to GEP.					
3. No compromises to water body objectives	Yes; no compromises to water body objectives.					
4. No effects on other water bodies	Yes; there are no potential effects on other water bodies including the King George V Reservoir assessed below					
5. Assists attainment of water body objectives	No; design does not currently integrate with the package of potential river restoration measures currently under review by Thames Water as part of the AMP6 NEP abstraction investigation for the Lower Lee.					
6. Assists attainment of protected area objectives	No; does not assist with the attainment of any mitigation measures required for the protected areas.					

	WFD water body	namo	King Georges R	oconycir				Ī		
	WFD water body		Lake	eservon						
	WFD water body water b		London		WFD water	ar body				
	River Basin Distri		Thames		ID wate	bouy	GB30	641523		
	KIVCI DASIII DISTI			ns, Objectives a						
	WFD Status and		erall Status	Objectiv	Objective (2027)					
<u>></u>	Objectives		oor			j	-			
ŏ	Hydromorpholog	ical designation		Artificial		1				
water body	Water Body Mitigation			gation measures						
>	Measures									
			WF	Protected Area	S					
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Shellfish Directive		Urban Waste Water Treatment		
								Directive		
	NO	YES	NO	NO	YES	N)	YES		
	Scheme compone		Construction:							
	affecting water bo		Operation: Cha	ange in the quality	and rate of wate	er abstra	cted int	o the reservoir		
	WFD element	RBMP2 (2015) status		Assessed status	s (construction	and ope	ration)			
	Fish	Not assessed	Not assessed	Water available	for abstraction w	ıill ha a h	lend of	River Lee water		
	Chironomids			(as baseline) to						
	(CPET)	Not assessed	Not assessed	River Thames w						
	(0. 2.)				nsure the discha vironmental requ	rge quali uirements	ty would s and th	d be appropriate		
	Phytoplankton	Poor	Poor (uncertain	There is no 2015 fish or Chironomid (CPET) status assessment available. Phytoplankton was assessed as Poor status in 2015 and total phosphorous as Bad. Given that the treated wastewater will be treated to high standards and that the status of the River Lea navigation is Poor for phosphate, the scheme is considered unlikely to lead to deterioration in these elements. The maintenance of higher reservoir levels and increase in rate of reservoir turnover may assist with improvements in phosphate and phytoplankton status. Water available for abstraction will be a blend of River Lee water						
Not assesse d	Chemical (Overall)	Good	Good	(as baseline) together with reuse water or River Thames Wat depending on resource. Tertiary treatment has been included each option as part of the option element design and it is						
	Protected Area D	etails	V Reservoir). At to appropriate s Nutrient sensitivarea under the l Directive. Howe area and addition	Orinking water: The water body is a drinking water protected area (King George / Reservoir). Additions to the source water for the abstraction would be treated of appropriate standards and subject to environmental permit. Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area and additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit.						
	Does the compon 1. No deterioration	ent comply with	reservoirs. Addi appropriate star n WFD Objectiv	(and Ramsar): The tions to the source dards and subject expected by deterioration between the tions are the tions and the tions are the tions	e water for the a	bstractio	n would			
	2. No impediments			impediments to						
	3. No compromises objectives			compromises to		ctives.				
	4. No effects on ot	her water bodies		ere are no potenti Villiam Girling Re		er water	bodies	including the		
	Assists attainme objectives		Uncerta turnove	ain; potential impo er may assist with	rovements in so improvements ir	n phosph	ate and	phytoplankton.		
	6. Assists attainme	ent of protected a	rea No; do	es not assist with	the attainment o					
	objectives		require	d for the protected	d areas.					

Conveyance: Reuse - Reuse Deephams to KGV Intake - CON-RU-DPH-KGV

	WFD water body			Enfield Lock to To	ttenham Locks					
	WFD water body		River		WFD water					
	WFD managemen		London	GB106038027950						
	River Basin Distri		Thames		ID		0010	0000027300		
			NFD Designation							
	WFD Status and		erall Status	Objective	Objective (2021)			ve (2027)		
<u>></u>	Objectives		ad		-					
300	Hydromorpholog	ical designation		heavily modified						
water body	Water Body Mitigation Measures	No published mi	itigation measure	gation measures						
			WFD	Protected Area	S					
	Bathing Water Directive	Drinking Water Directive	of Wild Birds		Nitrates Directive	Shell Direc		Urban Waste Water Treatment Directive		
	NO	YES	YES	NO YES NO						
	Scheme components potentially affecting water body		built around a dit channel to prote- river flows/levels Operation: Disc abstraction intak be required. Flow	harge to the Rive e to the King Geo v rate downstrea ect to any operati	th rip-rap / conc th dissipation en or Lee Diversion orge V Reservoir of the abstract	rete prote ergies pa upstrean . A new l	ection farticula n of the permit e is sta	to the river rly when at low e existing to discharge will ated as		
	WFD element	RBMP2 (2015)			(construction	and ope	ration)		
	Fish	Status Not assessed	Not assessed	Assessed status (construction and operation) Construction will be managed by good practice construction						
	Macro-	างบเ สรรธรรษน	1101 สรรธรรษน	methods and any risk of suspended material, site rund						
	invertebrates	Moderate	Moderate							
WFD assessment (scoping)	Macrophytes & Phytobenthos	Bad	Bad	pollutants, geomorphological action from working watercourse to the water body is assessed as low. Temporary effects due to construction will not cause deterior of the water body. The discharge will be treated to tertiary standards for am phosphate and BOD and therefore there will be a low impacting the physico-chemical quality elements of this body (currently at moderate status). The discharge will be using Reverse Osmosis (for the removal of anions, metasome organics) and remineralisation is also required so the water discharged into the river will not impact the aquaticed. There would be a localised flow increase in the Enfield Loop channel between the new outfall and the eabstraction intake which could lead to local morphochanges. There would be a localised flow increase in the Island Loop channel for 100m between the new outfall a existing abstraction intake which could lead to some morphological changes in the channel of this Heavily M water body. This change in flow will impact <3% of the total body length of 19.4km, well below the 15% permitted derelimit. Overall, the impact on the ecology should not significant the WFD elements because of the RC remineralisation treatment. Fish status was not assessed in but it is considered unlikely that the scheme would lead deterioration in fish status. The scale of change in river temperature anticipated operation of this scheme is minimal, and without compror WFD standards, noting the existing downstream pressure water temperature exerted by the physical nature of the relief channel and the short zone of influence (c.500m displacement).						
	Chemical (Overall)	Good	Good	element design will ensure the	ent has been in and it is assume discharge qualit	ed that e	nvironr be ap	rt of the option nental permitting propriate for the wnstream water		

		uses (raw water for potable supply). Therefore the risk o deterioration in chemical status is assessed as low.					
Protected Area Details	Subsidia to appro Nutrient area und Directive area and	water: The water body is a drinking water protected area (Lee Navigatio ary A). Additions to the source water for the abstraction would be treate priate standards and subject to environmental permit. sensitive areas: The water body is associated with a nutrient sensitive der the Nitrates Directive and the Urban Waste Water Treatment e. However, the scheme will not affect the management of the protected dadditions to the source water for the abstraction would be treated to ate standards and subject to environmental permit.					
	Lee Valley SPA (and Ramsar): This site comprises a series of wetlands and reservoirs. Additions to the source water for the abstraction would be treated to appropriate standards and subject to environmental permit.						
Does the component comply wit	th WFD Objective						
1. No deterioration between status	classes	Yes; no deterioration between classes.					
2. No impediments to GES/GEP		Yes; no impediments to GEP.					
3. No compromises to water body objectives		Yes; no compromises to water body objectives.					
4. No effects on other water bodies	3	Yes; there are no potential effects on other water bodies, including the King George V Reservoir assessed below					
Assists attainment of water body objectives	′	No; design does not currently integrate with the package of potential river restoration measures currently under review by Thames Water as part of the AMP6 NEP abstraction investigation for the Lower Lee.					
6. Assists attainment of protected a objectives	area	No; does not assist with the attainment of any mitigation measures required for the protected areas.					

	WFD water body	name	King Ge	orges Re	eservoir						
	WFD water body t		Lake								
	WFD managemen		London				VFD wate	r body	GB306	641523	
	River Basin Distri		Thames			-	D		0200	0.1020	
	WED 04 4				ns, Objectives a					(0007)	
	WFD Status and Objectives	RBMP2 Ov	oor	itus	objective (2021)				bjectiv	ve (2027)	
र्नु	Hydromorphologi				- Artificial						
r bo	Water Body	icai designation			Artificial						
water body	Mitigation Measures	No published mi	itigation r	measure	S						
			ı	WFD	Protected Area	s					
	Bathing Water Directive	Drinking Water Directive	of Wild	rvation d Birds ctive	Habitats Directive		rates ective	Shellfish Directive		Urban Waste Water Treatment Directive	
	NO	YES	N	0	NO	Υ	′ES	NO)	YES	
	Scheme compone			ıction: N							
	affecting water bo		Operati	on: Chai	nge in the quality	and ra	te of wate	er abstrac	cted into	o the reservoir	
	WFD element	RBMP2 (2015) status		Assessed status (construction and operation)							
	Fish	Not assessed	Not ass	assessed Tertiary treatment has been included as part of the optio element design and it is assumed that environmental per							
	Chironomids (CPET)	Not assessed	Not as	sessed	will ensure the d						
	Phytoplankton	Poor	Poor (ur	ncertain)	river's environmental requirements and the downstream water uses (raw water for potable supply). There is no 2015 fish or Chironomid (CPET) status assessment available. Phytoplankton was assessed as Poor status in 2015 and total phosphorous as Bad. Given that the treated wastewater will be treated to high standards and that the status of the River Lea navigation is Poor for phosphate, the scheme is considered unlikely to lead to deterioration in these elements. The maintenance of higher reservoir levels and increase in rate of reservoir turnover may assist with improvements in phosphate and phytoplankton status.						
assessment (scoping)	Chemical (Overall)	Good	Go	Good Tertiary treatment has been included as part of the option element design and it is assumed that environmental pern will ensure the discharge quality would be appropriate for river's environmental requirements and the downstream wuses (raw water for potable supply). Therefore the risk of deterioration in chemical status is assessed as low.						ental permitting priate for the astream water ne risk of	
WFD assessn	Protected Area Details Protected Area Details Di are ap			sensitive sensitive der the Ne. However de addition atte stander SPA ers. Addition atte stander stande	The water body is ions to the source dards and subject the areas: The water bitrates Directive for, the scheme was to the source water that and subject (and Ramsar): Thous to the source dards and subject dards and subject dards and subject and subject dards and subject the source dards and subject the sou	e wate er body and the vill not water for to en nis site e water	r for the a vironment is associ e Urban W affect the or the abs vironment comprise r for the a	abstraction with a series a series bstraction with a series a series bstraction of the series and the series a series a series bstraction of the series a se	n would n a nutriter Trement of would b	d be treated to ient sensitive atment f the protected be treated to tlands and	
	Does the compon	ent comply witl									
	1. No deterioration					ween c	lasses.				
	2. No impediments				impediments to 0						
	3. No compromises				compromises to		oody obje	ctives.			
	objectives 4. No effects on other	her water bodies			re are no potenti ee Navigation Enf					including the	
	5. Assists attainme objectives	ent of water body		No; desi restorati	ign does not curre on measures cur P6 NEP abstraction	ently in rently	itegrate w under rev	ith the pa	ackage names	Water as part of	
	6. Assists attainme objectives	ent of protected a	irea	No; doe	s not assist with t for the protected	the atta	ainment of				

Resource: Groundwater - AR Merton (SLARS3) - 5 MI/d - RES-AR-SLARS3

	WFD water body	Thames	(Eghan	n to Teddington))					
	WFD water body	type	River							
	WFD managemer	nt catchment	Maidenh	ead to S	Sunbury	WFD w		GB106	039023232	
	River Basin Distr		Thames			body I	D	GD100	039023232	
			WFD Des	ignatio		jectives and Mitigation				
	WFD Status and	RBMP2 Ov		tus	Object	ive (2021)	(Objecti	ve (2027)	
<u>^</u>	Objectives		oor							
00	Hydromorpholog	ical designation	n	heavily modified						
Water body	Water Body Mitigation Measures	No published m	nitigation n	neasure	es					
			WFD Protected Ar			eas				
	Bathing Water Directive	Water Directive	Conserva of Wild B Directiv	irds	Habitats Directive	Nitrates Directive	Shell Direc	tive	Urban Waste Water Treatment Directive	
	NO	YES	YES		NO	YES	N)	YES	
			Constru							
	Scheme compone affecting water be	London of lower Riv	during p ver Tha	eriods of low de mes sources ma	echarge sourced emand. A new wir ay be required. d Chalk aquifer [n	nter abstr	raction I	icence for the		
	WFD element	RBMP2 (2015) status			Assessed stat	us (construction	and op	eration)	
	Fish	Not assessed	Not ass	essed	Hydrological as	ssessment indica	tes there	is likely	/ to be a	
	Macro-	Good	God	ad		of impact on flows				
	invertebrates	Good	Gui	Ju		B106039023232				
	Macrophytes & Phytobenthos	Poor	Pod	or	s in the	ge. This winter will not				
(Bu	Chemical (Overall)	Good	God	Given the negligible reductions in flow in the Thames due to abstraction (during the winter period), the chemical status is rexpected to deteriorate.						
WFD assessment (scoping)	Protected Area Details Protected Area Details South of water made a because			ler the Ner the Upfect the Quality and water: In flows est Lon supply d semithere we tof this	e areas: The wa Nitrates Directive Urban Waste Waste waste expected. The water body is expected, the don water bodie reservoirs and for natural open-waill be no net cha European site.	ater body is assore and the River T ater Treatment Diof the protected at is a drinking water will be no imposes SPA (and Ramormer gravel pits ater habitats. The ange to water levi	hames is irective. It is irea and er protect act on the insar): the that suppere will be	s a nutride However no significated area e protect site collected area e no imp	ent sensitive or, the scheme officant changes a. As a negligible otted area. mprises a series ange of man- ottet on the SPA	
	Does the compor									
	1. No deterioration					etween classes.				
	2. No impediments			Yes; no	impediments to	GEP.				
	No compromise objectives					o water body obje				
	4. No effects on ot			Yes; the	ere are no poter	ntial effects on oth	ner water	bodies		
	5. Assists attainme objectives					h attainment of wa				
	6. Assists attainment objectives	ent of protected			es not assist witl d for the protect	h the attainment o ed areas.	of any mi	tigation	measures	

Resource: Aquifer Recharge - AR Streatham (SLARS2) - 4 Ml/d RES-AR-SLARS2

	WFD water body		Thames (Eghai	m to Teddington)						
	WFD water body t	type	River							
	WFD managemen		Maidenhead to	Sunbury	WFD w		GB106	039023232		
	River Basin Distri		Thames				ODTOO	000020202		
				ons, Objectives a						
	WFD Status and		erall Status	tus Objective (2021) Objective (2027)						
ф	Objectives		oor	-	•			-		
po	Hydromorphologi	ical designation		heavily modified						
Water body	Water Body Mitigation Measures	No published m		on measures						
			WF	s	•					
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Directive	Nitrates Directive	Dire	llfish ctive	Urban Waste Water Treatment Directive		
	NO	YES	YES	NO	YES	N	10	YES		
	Scheme compone affecting water bo	ody	London during lower River Tha	ter for recharge w periods of low den ames sources may e to the confined (nand. A new win be required.	ter abst	raction li	icence for the		
	WFD element	RBMP2 (2015) status		Assessed status (construction and operation)						
	Fish	Not assessed	Not assessed							
	Macro- invertebrates	Good	Good	negligible risk of impact on flows in the Thames (Egham to Teddington) (GB106039023232) due to additional winter						
	Macrophytes & Phytobenthos	Poor	Poor	cause a deterioration in ecological status.						
(Buj	Chemical (Overall)	Good	Good	Given the negligible reductions in flow in the Thames due to abstraction (during the winter period), the chemical status is respected to deteriorate.						
WFD assessment (scoping)	Protected Area Do	area under the area under the will not affect the in water quality Drinking water: impact on flows South West Lord of water supply made and sembecause there	ve areas: The wate Nitrates Directive Urban Waste Wate management of	er body is associand the River The Treatment Directed and the protected and a drinking water will be no impact SPA (and Rammer gravel pits for habitats. Their	names is rective. I rea and er protec ct on the sar): the that sup re will be	s a nutrie Howeve no signi- ted area e protect site cor port a ra e no imp	ent sensitive r, the scheme ficant changes a. As a negligible ted area. mprises a series ange of man- act on the SPA			
	Does the compon	ent comply witl								
	1. No deterioration	between status		deterioration bet	ween classes.					
	2. No impediments			impediments to	GEP.					
	3. No compromises objectives		Yes; n	compromises to	water body obje	ctives.				
	4. No effects on other	her water bodies	Yes; th	ere are no potenti	al effects on oth	er water	bodies.			
	5. Assists attainme objectives			es not assist with						
	6. Assists attainme objectives	ent of protected a		es not assist with d for the protected		f any mi	tigation	measures		

Resource: Aquifer Storage & Recovery - ASR South East London (Addington) - 3 Ml/d - RES-ASR-SEL

	WFD water body	y nam	e E	Epsom	North Downs	Chalk		WFD wa		GB40601G	602200	
	WFD water body		. (Groun	dwater			River B	asin	_		
	WFD manageme	ent	Т	Thame	es GW			District		Thames		
	Catoninent			W	/FD Designation	ns. Objectiv	es and Mit	igation				
>	WFD Status and	t	RBN		verall Status		ctive (2021				Objective (2027)	
poc	Objectives			F	Poor		-			-		
Water body	Water Body Mitigation Meas	ures	No publi	ished	mitigation meas							
					WFI	Protected A	Areas					
	Bathing Water Directive Drinking Water Directive				onservation f Wild Birds Directive	Habitats Directive	Dire	ates ctive	_	hellfish irective	Urban Waste Water Treatment Directive	
	NO	NO YES			NO	NO	N	0		NO	NO	
	Scheme compo	nents	potentia	ally	Construction:		the shalls	horobolo	. will b	o upod to o	innert equifor	
	affecting water	body			Operation: Ab						upport aquiter uifer] borehole.	
	WFD Status Tes				RBMP2 (2015	\		<u> </u>		tion and o		
					status	A3-	sesseu sia	itus (coi	isti uc	cion and of	Jei ation)	
	Quantitative (O				Poor		Due to	the dist	- ance fi	rom the unc	onfined zone	
	Dependent Surfa Status	ice wa	ter body		Poor	Poor	the sch feature	neme is u s.	stance from the unconfined zone, s unlikely to affect surface water known Natura 2000 or SSSI			
	GWDTEs test				Good	Good	ground the gro	lwater de und wat	epende er bod	ent habitats ly.	associated with	
	Saline Intrusion				Good	Good	unlikely	/.			lline intrusion is	
WFD assessment (scoping)	Water Balance				Poor	Poor	water f separa 80m of expect in the E	The ASR scheme recharges and re-abstracts water from the Lower Greensand, which is separated from the Chalk in this area by arou 80m of Gault Clay. Therefore, there is not expected to be any impact on groundwater le in the Epsom North Downs Chalk. Testing completed at Horton Kirby demonstrating that there is no impact on the unconfined or confined lower Greensand aquifers.				
Д а												
N N	Chemical (Over	all)			Good	Good	Status	not expe	ected t	o change.		
	Protected Area				Drinking water expected.		ody is a dri	nking wa	iter pro	otected area	a. No impact is	
	Does the compo				WFD Objective							
	 No deterioration classes 	on betv	ween stat	tus	Yes; no deterio	ration betwee	en classes.					
	No impediment	nts to C	Good Sta	tus	Yes; no imped	ments to God	od Status					
	3. No compromis objectives				Yes; no compr	omises to wa	ter body ob	•				
	No effects on other water bodies				Yes; no effects GB40601G500							
	5. Assists attainment of water body objectives				No; does not a				, ,			
	Assists attainn area objectives	nent o	f protecte	ed	No; does not a the protected a		attainment	of any n	nitigati	ion measure	es required for	

	WFD waterbody		K	ent Gr	eensand W	/este	rn		WFD waterbody	/ ID	GB40601	G500500
	WFD waterbody	type /	G	round	water				River Basi	in		
	WFD managemo	ent	ТІ	hames					District		Thames	
			,				Objectives					
>	WFD Status and	t	RBMI		erall Status	<u> </u>	Objective (20		2021)			ve (2027)
poo	Objectives			Po	or			-			G	ood
Waterbody	Water Body Mitigation Meas	sure	No publisl	hed m	nitigation measures							
		1			WF	D P	rotected Are	eas				
	Directive Directive Of V				servation fild Birds rective			rates ective	Dir	ellfish ective	Urban Waste Water Treatment Directive	
	NO	Y	'ES		NO		NO	Y	'ES		NO	NO
	Scheme components potentially affecting waterbody				Operation recharge in borehole. RBMP2 (20)	: Abs	straction from Lower Gree	n the ch	alk boreholo confined aqu	e will uifer [be used to non-WFD	support aquifer aquifer]
	WFD Status Test				status		Assessed st		status (construction and operation)			peration)
	Quantitative (Overall)				Poor					-		101
	Dependent Surface Water Body Status				Poor		Poor	bee the	Following ASR testing at Horton Kirby, it has been demonstrated that there is no impact on the unconfined or confined lower Greensand aquifers.			
oping)	GWDTEs test				Good		Good	gro	There are no known Natura 2000 or SSSI groundwater dependent habitats associated with the ground water body.			
SC	Saline Intrusion				Good		Good	The	There is no risk of saline intrusion.			
) t	Water Balance				Poor		Poor		There is no effect on water balance.			
smei	Chemical (Over	all)			Good Good		gro	No risk of deterioration in chemical status at a ground water body scale.				
WFD assessment (scoping)	Protected Area Details				Drinking water: The water body is a drinking water protected area. No impact is expected. Nutrient sensitive areas: The ground water body is associated with a groundwater nitrate vulnerable zone; however, the scheme is not expected to affect the management of the protected area.						with a	
	Does the compo				D Objectiv	/e						
	No deterioration classes			3			ration betwe					
	2. No impedimen		Yes; no im	pedir	ments to God	od Statu	JS					
	No compromis objectives				•		omises to wa		•			
	4. No effects on				Yes; there	are r	not expected	to be e	ffects on de	pend	lent WFD	water bodies
	objectives	5. Assists attainment of water body				ssist with atta						
	6. Assists attainment of protected area objectives			No; does n for the prot			attainm	nent of any i	mitiga	ation meas	ures required	

Resource: Aquifer Storage & Recovery - Thames Valley/Thames Central - 1 Ml/d - RES-ASR-TV

	WFD water body	name	Thames (Eghai	n to Teddington)						
	WFD water body	type	River							
	WFD managemen	nt catchment	Maidenhead to	Sunbury	WFD v	vater	GP106	GB106039023232		
	River Basin Distri		Thames		body	D	GB100	0039023232		
		١	VFD Designation	ons, Objectives a	nd Mitigation					
	WFD Status and	RBMP2 Ov	erall Status	Objectiv			Objecti	ve (2027)		
≥	Objectives		oor							
ŏ	Hydromorphologi	ical designation		heavily modified						
water body	Water Body Mitigation Measures	No published mi	tigation measur	gation measures						
			WF	D Protected Area						
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Wild Birds Directive Habitats Directive			ellfish ective	Urban Waste Water Treatment Directive		
	NO	YES	YES	NO	YES	N	10	YES		
			Construction:							
	Scheme compone affecting water bo		Operation: An increase in licence for abstraction from the River Thames is required to facilitate aquifer recharge during the winter period. Abstraction from the borehole during the summer period will be from the Lower Greensands aquifer, a non-WFD aquifer.							
	WFD element	RBMP2 (2015) status		Assessed status	s (construction	n and op	eration)		
	Fish	Not assessed	Not assessed	Hydrological ass	sessment indica	tes there	e is a ne	aliaible risk of		
	Macro- invertebrates	Good	Good	impact on flows in the Thames (Egham to Teddington) (GB106039023232) due to abstraction (during the winter						
	Macrophytes & Phytobenthos	Poor	Poor	period). This is due to the 'negligible' impact on flows (<1% change in the Q95). Due to the negligible change in flows, t is no risk of deterioration in ecological status.						
(Bu	Chemical (Overall)	Good	Good	Given the negligible reductions in flow in the Thames due to abstraction (during the winter period), the chemical status is expected to deteriorate.						
WFD assessment (scoping)	Protected Area D		area under the area under the will not affect the in water quality Drinking water: impact on flows South West Loo of water supply made and sem	The water body is is expected, there adon water bodies reservoirs and for antural open-wat will be no net char	and the River I er Treatment D the protected as a drinking wat will be no imp SPA (and Rantmer gravel pits er habitats. The	Thames i irective. Area and er protect act on the that supere will be that supere will be	s a nutri Howeve no signi cted area ne protect e site con port a ra e no imp	ent sensitive or, the scheme ificant changes a. As a negligible otted area. Imprises a series ange of man- oact on the SPA		
	Does the compon									
	No deterioration			o deterioration bet	ween classes					
	2. No impediments			o impediments to						
	3. No compromises objectives			o compromises to		ectives.				
	4. No effects on ot	her water bodies	Yes: th	Yes; there are no potential effects on other water bodies.						
	5. Assists attainme objectives			No; does not assist with attainment of water body objectives.						
	6. Assists attainme objectives	ent of protected a		No; does not assist with the attainment of any mitigation measures required for the protected areas.						

Resource: Desalination - North Beckton RO Treatment Plant - 150 Ml/d - RES-DES-BEC

	WFD water body		Thames Middle								
	WFD water body WFD manageme		Transitional Water Thames TraC	<u>r</u>	WF	D water	1				
	River Basin Dist		Thames			y ID	GB5306	603911402			
				ons, Objectives		n		(2222)			
	WFD Status and Objectives		Overall Status Oderate	Objectiv	re (2021)		Objective (2027)				
	Hydromorpholog			heavily modified							
water body	Water Body		nagement management isposal site selecti	anagement management isposal site selection disturbance							
wa	Mitigation Measures	22.Dredging of 23.Reduce in 24.Reduce se	need to dredge disposal strategy npact of dredging ediment resuspens edging or disposal								
			WF	D Protected Are	eas I			Urban Waste			
	Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Dire	ellfish ective	Water Treatment Directive			
	NO	NO	YES Construction: Th	NO	YES		NO	YES			
	Scheme compor potentially affect body	nents ting water	Beckton STW site Operation: Abstra of diluted brine fro Beckton sewage t fish entrainment, i	 Construction of action of brackish om the desalination reatment works). 	an abstraction water on lowe on plant (after r Abstraction wi	intake. r ebb tide nixing with	and conti	nuous discharge lent from			
	WFD element	RBMP2 (2015) status	Assessed status (construction and operation)								
	Fish	Good	Good	Construction of the intake will be managed by good practice							
	Invertebrates	Good Good	Good Good	construction methods and any risk to the water body is assessed as low. Temporary effects due to construction will not cause							
	Macroalgae Phytoplankton	High	High	deterioration of the water body. Eel regulation compliant inlet							
WFD assessment (scoping)	Angiosperms	Moderate	Moderate	discharge. The r include the exist brine) would be locally at times of therefore expect to any significan ecological status There would be Thames Tidewa dominated salini are no WFD hig is intertidal soft s is therefore unlik There is no histo	16.5MI/d of Rever mixed with the resulting saliniting Thames Gless than that I of operation. Noted. Abstraction at alterations to a are therefore an overall reday of 150MI/d, with the sensitivity lessediment which sely to be impair.	erse Osme e Beckton y of the dis ateway de prevailing i o adverse o (at up to tidal hydro expected. uction in 'fr vith minor of easonal sa nabitats in n is classificted.	osis proce STW fina scharge (v salination in the Tha water qua 31Ml/hr) i odynamics eshwater effects on line ingre the water ied as low	I effluent prior to which would also treatment plant times Tideway ality impacts are is unlikely to lead is. No changes to in the middle the local tidals pattern. There is body but there			
	Chemical (Overall)	Good	Good	There is no risk	of deterioration	n in chemic	cal status.				
	Protected Area [Details	Nutrient sensitive areas: The transitional water body is associated with a nutrient sensitive area under the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area and no significant changes in water quality are expected. Thames Estuary & Marshes SPA (and Ramsar): The closest part of the site is								
			approximately 24km from Beckton. Given the distance and the fact that no significant alterations to hydrodynamics, salinity regime or water quality are expected, there will be no impact on this European site.								

Does the component comply wi	th WFD Objective
No deterioration between status classes	Yes; no deterioration between classes.
2. No impediments to GES/GEP	Yes; no impediments to GEP.
3. No compromises to water body objectives	Yes; no compromises to water body objectives.
4. No effects on other water bodies	Yes; no impact on other water bodies.
5. Assists attainment of water body objectives	No; does not assist with the attainment of any mitigation water body objectives.
	No; does not assist with the attainment of any mitigation measures required for the protected areas.

Resource: Desalination - South Crossness RO Treatment Plant - 100 Ml/d - RES-DES-CRO

	WFD water body	name	Thames Middle							
	WFD water body		Transitional Water	•						
	WFD manageme	nt catchment	Thames TraC		WFD	water	OD5000	202044400		
	River Basin Dist	rict	Thames		body	ID	GBSSUC	603911402		
				ons, Objectives		•				
	WFD Status and		Overall Status	Objectiv	e (2021)		Objectiv	e (2027)		
	Objectives		oderate	-	•		-			
dy	Hydromorpholog	49.Modify ves 50.Vessel Ma	ssel design anagement	heavily modified						
water body	Water Body Mitigation Measures	27. Dredge d 28. Manage o 21. Avoid the 22. Dredging o 23. Reduce in 24. Reduce se	disturbance need to dredge disposal strategy npact of dredging	eed to dredge sposal strategy pact of dredging diment resuspension						
			WF	D Protected Are	as					
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Dire	ellfish	Urban Waste Water Treatment Directive		
	NO	NO	YES	NO	YES		<u>10</u>	YES		
	Scheme compor potentially affec body	ting water	Construction: The abstraction intake. Operation: Abstraction of diluted brine (by plant (maximum construction).	action of brackish mixing with sew	water on lower age treatment w	ebb tide a	and contir I effluent)	nuous discharge for a 300Ml/d		
	WFD element	RBMP2 (2015) status		Assessed status (construction and operation)						
	Fish	Good	Good	Construction of t						
	Invertebrates	Good	Good	construction med as low. Tempora						
	Macroalgae Phytoplankton	Good High	Good High		not cause pliant inlet					
WFD assessment (scoping)	Angiosperms	Moderate	Moderate	screens will be in The 53MI/d reversived with the Cresulting salinity in the Thames Timpacts expected are expected. Abstraction (up to alterations to tidare therefore expected). There would be Thames Tidewa tidal-dominated There are no WI there is intertidal and is therefore.	rse osmosis pro crossness STW of the discharge ideway at times d and therefore to 62Ml/hr) is unlal hydrodynamic pected. an overall reduc y of up to 300Ml, salinity cycle and FD higher sensit I soft sediment w unlikely to be im	cess was final efflu e would b of opera no chang likely to le s. No cha tion in 'fr /d, with n d, with n divity habi vhich is c pacted. gae in the	ent prior to eless that too. No wages to economic ead to any anges to eshwater ininor effect al saline i tats in the lassified and eswater books.	(brine) would be o discharge. The in that prevailing rater quality logical status / significant ecological status of the middle ets on the local ingress pattern. water body but		
	Chemical (Overall)	Good	Good	There is no risk	of deterioration i	n chemic	al status.			
			Nutrient sensitive areas: The transitional water body is associated with a nutrient sensitive area under the Urban Waste Water Treatment Directive. However, no significant changes in water quality are expected. Thames Estuary & Marshes SPA (and Ramsar): The closest part of the site is approximately 20km from Crossness. Given the distance and the fact that no significant alterations to hydrodynamics or water quality are expected, there will be no impact on this European site.							
	Protected Area I		approximately 20k significant alteration	m from Crossnes ons to hydrodyna opean site.	ss. Given the dis	tance an	d the fact	that no		

No deterioration between status classes	Yes; no deterioration between classes.						
2. No impediments to GES/GEP	Yes; no impediments to GEP.						
3. No compromises to water body objectives	Yes; no compromises to water body objectives.						
4. No effects on other water bodies	Yes; no impact on other water bodies.						
5. Assists attainment of water body objectives	No; does not assist with the attainment of any mitigation water body objectives.						
6. Assists attainment of protected	No; does not assist with the attainment of any mitigation measures required for the						
area objectives	protected areas.						

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Resu	urce: Grounay	valei	- 6100	JIIUWa	ater - Mouis	iora	1-3.5 IVII/0	1 – KE			<u>, </u>	
	WFD water body	y nam	е	Vale o	f White Horse	Chalk	(WFD wa body ID	iter	GB40601G	601000
	WFD water body			Groun	dwater				River Ba	ein		
	WFD manageme catchment	ent		Thame	es GW				District	23111	Thames	
>					/FD Designati	ons,						
po	WFD Status and	i	RB		Overall Status Objective (202)		Objective	(2027)
ā	Objectives			F	Poor -						-	
water body	Water Body Mitigation Meas	ures	No pub	lished	mitigation measure							
					WF	D Pro	otected Are	as				
	Bathing Water Directive	Di	Drinking Water Directive		Conservation of Wild Birds Directive		labitats irective	Nitrates Directive		_	Shellfish Directive	Urban Waste Water Treatment Directive
	NO	YES			NO		NO	Y	ES		NO	NO
	Scheme components potential			ially	Construction							
	affecting water body						abstraction	borehol	e on the v	vest l	oank of the F	River Thames.
	WFD Status Tes			RBMP2 (201 status	5)	Asses	sed sta	atus (con	stru	ction and o	peration)	
	Quantitative (Ov	verall)			Good					-		
	Dependent Surfa Status	ter body	/	Good		Good	There is a risk of impacting on the flows flow dependent river water body: Tham Wallingford to Caversham (GB1060390 As abstracted water would be used upand most of the flow would be returned through sewage treatment works, there reduction would be low.			Thames 06039030331). ed up-catchment turned upstream		
	GWDTEs test			Good		Good	ground	There are no known Natura 2000 or SSSI groundwater dependent habitats associated with he ground water body.				
=	Saline Intrusion				Good						n.	
WFD assessment (scoping)	Water Balance			Good		Good	Thames side source, likely impact on groundwater levels around River Than to be significant. As a result the abstrunlikely to affect the water balance on water body scale			Thames unlikely abstraction is		
SSE	Chemical (Overa	all)			Poor		Poor	No risk of deterioration in chemical status at a ground water body scale.				
WFD asse	Protected Area Details				Drinking water protected area: the ground water body is a Drinking Wa Protected Area but there is no risk of adversely affecting the chemical ground water body scale. Nutrient sensitive areas: The water body is associated with a nutrient s area under the Nitrates Directive. However, the scheme will not affect t management of the protected area and no significant changes in water are expected.						nical status at rient sensitive ffect the	
	Does the compo				DDJectiv	e						
	classes				Yes; no deter							
	2. No impedimen				Yes; no imped	dimen	its to Good	Status.				
	No compromises to water body objectives				Yes; no comp			,	<i>'</i>			
	4. No effects on o				Yes; there are Wallingford to			cts on c	ther wate	er boo	dies including	g the Thames
	Assists attainn objectives	nent of	water l	oody	No; does not	assist	t with the att	ainment	of water	body	objectives.	
	objectives 6. Assists attainment of protected area objectives				No; does not	assist	t with the att	ainment	of any p	rotec	ted areas ob	jectives.

	WFD water body	name	Thames W	alling	ford to Caversh	am					
	WFD water body	type	River								
	WFD manageme	nt catchment	Thames ar	nd Soi	uth Chilterns		WFD water	er CD40	0000000000		
	River Basin Distr	rict	Thames				body ID	GBIG	06039030331		
			WFD Design	natio	ns, Objectives	and Mitig	ation				
	WFD Status and	RBMP2 O	verall Status	s	Objecti	ive (2021)		Objec	ctive (2027)		
<u>></u>	Objectives	Mo	derate			-			-		
0	Hydromorpholog	ical designatio	n	heavily modified							
water body	Water Body Mitigation Measures	Additional treaworks	tment to redu	reduce concentrations of phosphate from Stewkley sewage treatments							
			WFD Protected Areas								
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Bire Directive	ds	Habitats Directive	Nitrates Directive		Shellfish Directive	Urban Waste Water Treatment Directive		
	NO	NO	NO		YES	YES	3	NO	YES		
	Scheme compon										
	affecting water b		: A ne	w abstraction b	orehole o	n the west	bank of the	e River Thames.			
	WFD element	RBMP2 (2015 status)		Assessed stat	us (const	ruction an	nd operation	n)		
	Fish	Not assessed	Not asses	ssed							
	Macro-	Moderate	Moderate		compliant under fully licensed conditions and therefore a risk to						
	invertebrates	moderate	11100010	achieving Good Ecological potential and the environment could be damaged. This is in part dependent on changes in river flo							
(Bu	Macrophytes & Phytobenthos	Good	Good	resulting from the Childrey Warren sustainability reduction, to b delivered in AMP6, and the planned sustainability investigation							
scopi	Chemical (Overall)	Good	Good	ı	Given the negl chemical statu						
WFD assessment (scoping)	Protected Area D	area under area under will not affe in water qu Little Witter flow regime of ponds us	Nutrient sensitive areas: The water body is associated with a nutrient area under the Nitrates Directive and the River Thames is a nutrient sarea under the Urban Waste Water Treatment Directive. However, the will not affect the management of the protected area and no significan in water quality are expected. Little Wittenham SAC: As there will be no flow variability beyond its ch flow regime, the risk of any overtopping leading to the inundation with of ponds used by great crested newt is negligible.					trient sensitive ver, the scheme gnificant changes d its characteristic			
	Does the compo										
	1. No deterioration	n between status	s classes Ye	es; no	deterioration b	etween cla	asses.				
	2. No impediment	s to GES/GEP	со	nditio	ns.				dditional licence		
	objectives	3. No compromises to water body objectives					ody objectiv				
	4. No effects on o				ere are no poter						
	Assists attainm objectives			o; doe	s not assist witl	n attainme	nt of water	r body obje	ctives.		
	6. Assists attainm objectives	ent of protected		No; does not assist with the attainment of any mitigation measures required for the protected areas.							

Resource: Inter-Zonal Transfer: Henley to SWOX -2.37 Ml/d - RES-IZT-HEN-SWX-NET-2.37

	WFD water body	y name	s So	uth-	West Chilterns C	Chalk		WFD wa	ter	GB40601G	601100	
	WFD water body	y type	Gr	ound	dwater							
	WFD manageme		ть		s GW			River Ba District	ısın	Thames		
	catchment		In									
<u>></u>					FD Designation							
рос	WFD Status and	t t	RBMF		2 Overall Status Objective (2021)					Objective (2027)		
7	Objectives			F	Poor		-			-		
Water body	Water Body Mitigation Meas	uros	No update	ed pu	ublished mitigati	on measures						
\$	Willigation Weas	uies			WFD	as						
				Τ_		1101001047110					Urban Waste	
	Bathing Water	Drinki	ng Water		onservation Wild Birds	Habitats Nit		Nitrates S		hellfish	Water	
	Directive	Dir	ective	01	Directive	Directive	Dire	ctive	Directive		Treatment	
								_			Directive	
	NO Sahama samus		YES	 	NO Construction:	NO	N	0		NO	NO	
	Scheme compo affecting water		potentian	y	Operation: 2.3		ater trai	nsfer suni	oorte	d by Sheenl	ands source	
					RBMP2 (2015)							
	WFD Status Tes	st			status	Asses	ssed sta	tus (con	struc	tion and op	peration)	
	Quantitative (O	verall)			Poor				-			
											mpacts on the	
	Dependent Surfa	ice wat	er body		Poor	Poor					hames (Reading	
	Status							knam) (G ed separ) waterbody,	
											consists of wet	
											al flooding and	
								erlogging. The SSSI is the richest meador				
	GWDTEs test							remaining along the Thames, supporting several species which are of local or national importance				
					Good	Good					mmer snowflake SI will not be	
											of the transfer, as	
=							River Thames levels will be mani					
ij							accordingly to maintain the same flow levels at the					
g							location, therefore avoiding any adverse impacts to the SSSI.					
WFD assessment (scoping)					Given distances from the			the see s	alina intrucion ic			
ent	Saline Intrusion				Good	Good	Given distances from the sea, saline unlikely			allile Illitusion is		
) E	Mara Balana				D	Descri	The abstraction may lead to further det			her deterioration		
ess	Water Balance				Poor	Poor	to the waterbody's water balance status					
388	Chemical (Over	all)			Good	Good		The abstraction will not affect the gro				
۾ ص								ody's che				
×					Drinking water: there is unlikely							
					there is utilikely	to be a change	iii wale	i quality a	as a i	esuit of the	scrienie.	
	Protected Area	Details	3		Nutrient sensitiv	e areas: The w	ater boo	ly is asso	ciate	d with a nutr	rient sensitive	
					area under the I	Vitrates Directiv	e. How	ever, the	scher	ne will not a	iffect the	
					management of	the protected a	area and	no signif	icant	changes in	water quality	
	Door the course	20054	ample	ish V	are expected.							
	Does the compo											
	classes	JII DELW	our statu	3	Yes; no deterior	ation between	classes					
	No impediment	ts to G	ood Statu	IS	Yes; no impedir	nents to Good	Status.					
	3. No compromis				Yes; no compro			iactivas				
	objectives							•				
		4. No effects on other water bodies				o potential effe okham), assess				ies includino	g Thames	
	5. Assists attainment of water body objectives				No; does not as							
	6. Assists attainn	nent of	protected		No; does not as		ainment	of any m	itigati	on measure	es required for	
	area objectives				the protected ar	eas.						

	WFD water body	name	Thames	(Readi	ng to (Cookham)						
	WFD water body		River									
	WFD manageme	nt	Thames	and Sc	uth C	hiltorne		WFD w	otor			
	catchment				Julii C	IIIIterris		body I		GB1	06039023233	
	River Basin Disti	rict	Thames									
			WF	D Desig	gnatio	ns, Objectives		1				
>	WFD Status and	RBMP:	2 Overal	I Status	S	Objec	ctive (2021)	C)bjec	tive (2027)		
þ	Objectives		Moderat	derate								
Water body	Hydromorpholog	jical designa	tion	h	eavily	modified						
ţe.	Water Body											
Na Na	Mitigation	No publishe	d mitigat	ion mea	asures							
	Measures											
					WFD	Protected Are	as					
	 		Cor	servati	on			_			Urban Waste	
	-	Drinking Wat		Vild Bir		Habitats	Nitrates	_	hellfisl	-	Water	
	Directive	Directive	D	irective	•	Directive	Directive	"	irective	е	Treatment	
	NO	NO		NO		NO	VEC		NO		Directive	
	NO Sahama samman	Conotes	NO	NI/A	NO	YES		NO		YES		
	Scheme compon potentially affect	Constru			treated water tra	anafar aumnart	od by Cl	noonlon	do o	ouroo		
	body	Operati	OII. 2.3	/ IVII/U	irealeu walei ira	ansiei supporte	u by Si	leeplai	ius s	buice		
	body	RBMP2										
	WFD element	(2015)			Δ	ssessed status	(construction	and o	peratio	n)		
	Commons	status			Assessed status (construction and operation)							
	F	Not	No	t T	The River Thames habitat types most at risk from flow changes,							
	Fish	assessed	asses			ally the change						
	Macro-		112	in	their	level and flow re	gime. These a	reas are	e import	tant r	nursery grounds	
	invertebrates	High	Hig	TC		and provide dive						
				effect on the status of these in the water body as a whole would likely								
a	Macrophytes &	Not	No	remain the same. The River Thames flow levels are unlikely to be						,		
l ic	Phytobenthos	assessed	asses	i lin	Impacted as they can be manipulated to mitigate any loss of depth							
Ö			5.555	may arise. This ensures no adverse impacts on river ecology and Temple Meads SSSI features.						ogy and I emple		
(S	Chemical			IV	reads	SSSI features.						
WFD assessment (scoping)	(Overall)	Good	Goo	d N	lo riek	of deterioration	hetween chem	ical etat	ue clae	202		
Ĕ	(Overall)		Nutriont		No risk of deterioration between chemical status classes							
SS			Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the River Thames is a nutrient sensitive area under the									
sse	Protected Area D	etails				reatment Directi						
ä						rotected area an						
윤			expecte				3				,,	
3	Does the compo	nent comply	with WE	D Ohie	ctive							
	1. No deterioration	n between sta	itus	res; no	o aete	rioration betwee	n classes					
	classes	- +- 050/051		V	. :	dia anta ta OED						
	 No impediment No compromise 			res; no	o impe	ediments to GEP						
	obiectives	es to water bo	uy	Yes; no	o com	promises to wate	er body objectiv	es.				
	4. No effects on o	ther water bo	dies									
				Yes; no impacts on downstream water bodies.								
	objectives	. Assists attainment of water body			No; does not assist with the attainment of any mitigation water body objectives.							
		. Assists attainment of protected area			No; does not assist with the attainment of any mitigation measures required for							
	objectives	on or protect	ou alta				attairini Gilt Oi di	.y ming	auon III	Jusu	ico required for	
	objectives the protected areas.											

Resource: Raw Water Transfer - Upper Severn: Vyrnwy (all options) - RES-RWTS-VYR

	WFD water body	y name	Vrynwy - Lake	Vyrnwy to conf A	Afon Cownwy		Vrynwy - Lake Vyrnwy to conf Afon Cownwy						
	WFD water body	y type	River										
	WFD manageme	ent catchment	Severn Uplan	ds	WFD wa	iter	CD400	054040000					
	River Basin Dis	trict	Severn		body ID		GBIUS	GB109054049880					
			WFD Ecolo	gical Potential (water body)								
	WFD Status and	RBMP2 O	verall Status		tive (2021)	C	Objective (2027)						
	Objectives	Mo	derate	(Good			-					
	Hydromorpholo	gical designatio	n	Unknown									
water body	Water body mitigation measures	No published m	itigation measu										
<u> </u>			Wi	D Protected Are	eas								
Wa	Bathing Water Directive	Conservation of Wild Birds Directive	Drinking Water Directive	Habitats Directive	Nitrates Directive	Shellf Direct		Urban Waste Water Treatment Directive					
	No	No	No	No)	No					
	Scheme c	omponents		Construction: n/a									
		cting water body		peration: Change to existing river regulation release regime from Vyrnwy									
	potentially and		reservoir to At	servoir to Afon Vyrnwy.									
	WFD element	RBMP2 (2015) status			us (construction	•							
	Fish	High	High (uncerta		The hydrological impact is not expected to be significant but the								
	Macro- invertebrates	Not assessed	Not assesse	is potential fo	scheme could result in higher low flows during operation. There is potential for changes in water temperature, dissolved oxygen and hydromorphology in the upper reaches of the water body								
WFD assessment (scoping)	Macrophytes and phytobenthos	Not assessed	Not assesse	downstream populations. potential for provisional a with appropri The curren macrophytes possible to a indicate ther these WFD e	downstream of Vyrnwy Reservoir which could impact on fish populations. Further studies will be undertaken to assess the potential for deterioration in fish status but the current provisional assessment is that the High status will be protected with appropriate mitigation measures. The current (2015) status for macroinvertebrates and macrophytes has not been assessed and therefore it is not possible to assess fully, but environmental assessment studies indicate there would is unlikely to be any adverse effect on								
ssme	Chemical (Overall)	Good	Good		of water from the e chemical status		is not	likely to have an					
Se		Area Details	None										
as		nent comply wi		ive									
WFD	 No deterioration classes No impediment 	on between status	Provis dialog measu	ional assessmen ue with NRW as t ures to secure co	t is YES but furth to potential need mpliance, or othe irect to the River	for addition	onal mit	tigation					
	,	other water bodie	s (GB10 below	9054049720, GE as compliant	tial to effect down 3109054049852,	GB10905	404980	00) assessed					
	5. Assists attainn objectives	nent of water bod	object	No; does not assist with the attainment of any mitigation water body objectives.									
	6. Assists attainn objectives	nent of protected		No; does not assist with the attainment of any mitigation measures required for the protected areas.									

	WFD water body	y name	P	Afon V	yrnwy -	conf Afon Cov	vnwy to conf Afor	n Banwy		
	WFD water body			River						
	WFD manageme				Uplan	ds	WFD wa		GR10	9054049720
	River Basin Dis	trict		Severn			body ID		GD10	3034043720
						al Potential (v				
	WFD Status and				us		tive (2021)	C)bjecti	ve (2027)
	Objectives		loderat	te			Good			-
	Hydromorpholo	gical designation	on			Unknown				
Water body	Water body mitigation measures	No published	mitiga	ation m	easure	es.				
ate	illeasures			WFD Protected Areas						
8	Bathing Water Directive	Conservation of Wild Birds Directive	٧	inking Vater rective		Habitats Directive	Nitrates Directive	Shellfi Direct		Urban Waste Water Treatment Directive
	No	No			No No No					No
	Scheme compo			Construction: n/a Operation: Change in flow regime due to changes to upstream water bo						
	affecting water body			Operat	ion: C	hange in flow r	egime due to cha	nges to u	pstrea	m water body.
	WFD element	RBMP2 (20 status	15)	Assessed status (construction and operation)						n)
	Fish	Good		Good The hydrological impact is not expected to be si						
	Macro-	High		Hig	there would be an increase to low flow conditions during operation. Changes are unlikely to impact on current Good					
WFD assessment (scoping)	invertebrates Macrophytes an phytobenthos	d Good		Go	od	status of fish in this water body. Macrophytes and macroinvertebrates can be sensitive to increase in flow but their distribution across the wider catchment is not expected to change to a significant degree and therefore the WFD status is likely to remain the same.				
t (scc	Chemical (Overall)	Good		Go	od	The changes	to the low flow re chemical status.	gime is no	ot likely	to have an
ıen	Protected	l Area Details	N	N/A						
Sm	Does the compo									
es	1. No deterioration		s class	ses			ent is YES but fur			
388	2. No impedimen	ts to GES/GEP					s to potential nee			
/FD &	3. No compromis	es to water body	objec	tives			compliance, or othe direct to the Rive			cation to the
>	4. No effects on	other water bodie	es				ential to effect dov GB109054049800			
	5. Assists attainn	nent of water boo	dy		`		with the attainmer	,		•
	objectives				objecti					-
	6. Assists attainment of protected area objectives No; does not assist with the attainment of any mitigation measures required for the protected areas.								on measures	

	WFD water bod	v name	Afon Vvrnwy D	S of Banwy conf	luence					
	WFD water bod		River	<u> </u>						
	WFD management		Severn Upland	ds	WFD wa	iter				
	River Basin Dis		Severn		body ID	GI	B109054049852			
			WFD Ecolo	gical Potential (water body)					
	WFD Status	RBMP2 O	verall Status	Objec	tive (2021)	Objective (2027)				
	and Objectives		derate	(Good		-			
	Hydromorpholo	gical designation	n	Unknown						
water body	water body mitigation measures	No published m	itigation measur	es.						
/at			WF	D Protected Are	eas					
>	Bathing Water Directive	Conservation of Wild Birds Directive	Drinking Water Directive	Habitats Directive	Nitrates Directive	Shellfisl Directive				
	No	No	No	No	No	No	No			
		omponents	Construction:							
	potentially affect			nange in flow regi	me due to chang	es to upstre	am water bodies.			
	WFD element	RBMP2 (2015) status		Assessed stat	us (construction	and opera	ition)			
	Fish	Not assessed	Not assesse							
	Macro- invertebrates	Not assessed	Not assesse	current (2015	Cannot definitively assess post-scheme status without the current (2015) status. Environmental assessment studies					
(bı	Macrophytes and phytobenthos	Not assessed	Not assesse	d water body a	have indicated no likely adverse effects on river ecology in this water body and therefore no likely change to WFD status.					
WFD assessment (scoping)	Chemical (Overall)	Fail	Fail	The changes to have an in	The changes to the flow regime in this water body are unlikely to have an impact on the chemical status.					
S)		Area Details	None							
ent	Does the compo			ive						
ssmo	 No deterioration classes 		Provisi		t is YES but further opening to the terminal to the terminal need to the terminal to the terminal to the terminal termin					
sse	2. No impedimen		measi		mpliance, or othe					
-D as	No compromis objectives	ses to water body			rect to the River S					
×	4. No effects on	other water bodie			ial to effect down		er bodies			
	5. Assists attainn objectives	nent of water boo	ly No; do	(GB109054049800) assessed below as compliant No; does not assist with the attainment of any mitigation water body objectives.						
		6. Assists attainment of protected area		No; does not assist with the attainment of any mitigation measures required for the protected areas.						

	WFD water bod	v name	Afon Vyrny	VV - CO	onf Afon Tanat to	o conf F	R Severn			
	WFD water bod		River	,						
	WFD managem		Severn Upl	lands			WFD wa	ter	00400	05404000
	River Basin Dis		Severn				body ID		GB109	9054049800
			WFD Ec	cologi	ical Potential (v	vater b	ody)			
	WFD Status	RBMP2 Ov	erall Status	3	Objectiv	ve (202	1)	Objective (2027)		
	and Objectives		erate		G	ood				-
		gical designatio	n		Unknown					
Water body	Water body mitigation measures	No published mi	tigation mea	asures	S.					
ate				WFD Protected Areas						
W	Bathing Water Directive	Conservation of Wild Birds Directive	Drinking Water Directive		Habitats Nitrates Directive Directive			Shellfish Directive		Urban Waste Water Treatment Directive
	No	No	No		No	1	No	N	0	No
		omponents		Construction: n/a						
		fecting water	Operation:	Operation: Change in flow regime due to changes to upstream water bodies.						
	DC	RBMP2 (2015)								
	WFD element	status			Assessed statu	ıs (con	struction	and op	eration	
	Fish	Not assessed	Not asses	The hydrological impact is not expected to be significant in this water body but the scheme could result in higher low flow						
	Macro-	Good								higher low flow this water body
WFD assessment (scoping)	Macrophytes and phytobenthos	Moderate	Modera	te	by upstream tril Cannot definitiv current (2015) indicate a deter Macrophytes a increase in flow	outary in rely assestatus ionation and mand the foot the foot the foot and the foot	nputs and ess post- but env to fish sta acroinver eir distribu	increasescheme ironment atus is ur tebrates ution acro significa	ed river status o tal asse hilikely in can t oss the nt degre	catchment area. of fish without the essment studies this water body. be sensitive to wider catchment ee and therefore
nent (Chemical (Overall)	Fail	Fail		Scheme unlikel	y to hav	e an imp	act on ch	nemical	status.
ssm		Area Details	None							
ses		onent comply wi		jectiv	re e					
) as:	classes		Yes		deterioration be					
I H	2. No impedimen			s; no	impediments to	GES/G	EP.			
>	No compromis objectives	ses to water body	res	<i>'</i>	compromises to		, ,			
	4. No effects on	other water bodie	Sev	vern c	nplies with WFD downstream of A	lfon Vyı	rnwy conf	uence.		
	5. Assists attainr objectives	nent of water bod	y No		s not assist with				igation v	water body
		6. Assists attainment of protected area		No; does not assist with the attainment of any mitigation measures required for the protected areas.					measures	

Resource: Removal of Constraints - RC Ashton Keynes borehole pumps - 2.5 Ml/d - RES-RC-ASH

		aterbody name		d Jurassic		WFD waterboo	dy ID	GB40601G600400		
		aterbody type	Ground			River Basin Dis	strict	Tham	ies	
	WFD m	anagement cato		S GW Designations,	Ohiostivos ar	nd Mitigation				
	WED St	atus and		verall Status		ctive (2021)		Ohiect	ive (2027)	
	Objecti			oor	Object	-	- Good			
Waterbody	Water		No published r	nitigation meas	ures					
>				WFI	D Protected A	Areas				
		Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats	Nitrates Directive		lfish ctive	Urban Waste Water Treatment Directive	
		NO	YES	NO	NO	YES	N	0	NO	
		e components po	otentially	Construction:	•		41/1			
	arrectir	ng waterbody		RBMP2		ostraction by 2.5 M				
	WFD St	atus Test		(2015) status	Asses	sed status (const	ruction	and o	peration)	
	Quantitative (Overall)			Good		-				
	Dependent Surface Water Body Status			Good	Uncertain	There is a risk of impacting flows in the Chu (Baunton to Cricklade) (GB106039029750) as result of this groundwater abstraction. A separa assessment is provided below.			039029750) as a	
	GWDTEs test			Good	Good	associated with th	ne grou	ndwate		
	Saline I	ntrusion		Good	Good	There is no risk of saline intrusion.				
ing)	Water I	Balance		Good	Good	The abstraction will not affect the water balandon a groundwater body scale				
doos)	Chemic	al (Overall)		Poor	Poor	groundwater body	y scale.		mical status at a	
WFD assessment (scoping)	Protect	ed Area Details	Water Protecte chemical status Nutrient sensit groundwater ni	Drinking Water Protected Area: the water body (Burford Jurassic) is a Drin Water Protected Area but there is a negligible risk of adversely affecting chemical status at the groundwater body scale Nutrient sensitive areas: The ground water body is associated wit groundwater nitrate vulnerable zone; however, the scheme will not affect management of the protected area.						
		ne component co		D Objective						
	1. No de classes	eterioration betv	ween status	Yes; no deterio	ration betwee	n classes				
	2. No in	mpediments to G	ES/GEP	Yes; no impedi	ments to Goo	d Status.				
	3. No co	ompromises to w ves	vater body			erbody objectives.				
		ffects on other w				terioration in statu: o Cricklade), asse				
	objectiv			No; does not assist with the attainment of water body objectives.						
		ts attainment of ojectives	protected	No; does not as	ssist with the a	attainment of any p	orotecte	ed area	s objectives.	

	WFD water bo	ody name			to Cricklade)						
	WFD water bo	ody type	Rive	er							
	WFD manage catchment				and the Vale	WFD waterbody	GB1060390	029750			
	River Basin D	District		mes		ID					
						es and Mitigat	ion				
<u>></u>	WFD Status			rall Status	Objectiv	ve (2021)	Obje	ctive (2027)			
00	and Objective		Bad			-		Good			
erk	Hydromorpho	ological des	igna	tion	not designated	d artificial or hea	avily modified	<u> </u>			
Waterbody	Water Body Mitigation Measure	mprovement	s to			improve fish mi	gration and h	nabitat			
					FD Protected	Areas					
	Bathing Water Directive	Drinking Water Directive	of \	nservation Wild Birds Directive	Habitats Directive	Nitrates Directive	Shellfish Directive	Urban Waste Water Treatment Directive			
	NO	NO		NO	YES	YES	NO	NO			
	Scheme compotentially aff waterbody	affecting O		struction: Neration: N		traction by 2.5 M	/II/d				
	WFD element	RBMP (2015)			Assessed sta	tus (constructi	on and ope	ration)			
		status	5								
	Fish	Bad		Uncertain							
	Macro-	Good		Good		ey are in proximit		p and have the assic. There is a risk			
WFD assessment (scoping)	Macrophytes & Phytobenthos			Uncertain	of impacting the flow regime and water quality in the River Churn, which is partially fed by the Burford Jurassic aquifer. The river's hydrological regime is currently not supporting good ecological status, this being potentially linked to groundwater abstractions. The flow issues are impacting on ecological elements, most notably fish (currently at bad status) and macrophytes and phytobenthos (currently at moderate status). The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the Water Industry National Environment Programme (WINEP) in AMP7.						
essn	Chemical (Overall)	Good		Good	There is a neglique classes.	gible risk of deteri	oration betwee	en chemical status			
FD ass	Protected Are	ea Details	vulne	erable zone. H	lowever, the sch	r body is associat eme will not affec water quality are	t the manager	ace water nitrate nent of the protected			
	Does the com		nply	with WFD (Objective						
			n	Uncertain,	potential risk	of deterioration	in status cl	asses for fish and			
	status classes							ed as part of WINEP			
	2. No impedim	ents to GES	/GEI		ons to confirm v if required to sec		including app	olication of mitigation			
	3. No compron body objective		er		•	aterbody objective	es.				
	4. No effects o bodies		r	Yes; no eff	ects on other wa	terbodies.					
	Assists attai body objective	es .	ıter	No; does n	ot assist with the	e attainment of wa	ater body objec	ctives.			
6. Assists attainment of protected area objectives No; does not assist with the attainment of any protected areas objective							eas objectives.				

Resource: Reservoir - New Reservoir South East Strategic Reservoir Option - all variants:

- Resource: Reservoir South East Strategic Reservoir Option 75Mm³ RES-RRR-ABI-75Mm³
- Resource: Reservoir South East Strategic Reservoir Option 150Mm³ RES-RRR-ABI-150Mm³
- Resource: Reservoir South East Strategic Reservoir Option 125Mm³ RES-RRR-ABI-125Mm³
- Resource: Reservoir South East Strategic Reservoir Option 100Mm³ RES-RRR-ABI-100Mm³
- Resource: Reservoir South East Strategic Reservoir Option Phased 30Mm³/100Mm³ RES-RRR-ABI-30+100Mm³-P1
- Resource: Reservoir South East Strategic Reservoir Option Phased 80Mm³/42Mm³ RES-RRR-ABI-80+42Mm³-P1
- Resource: Reservoir South East Strategic Reservoir Option Phased 30+100Mm³ Phase 2 RES-RRR-ABI-30+100Mm³-P2

	Iwen		10 0			U 5'' I				
	WFD water body			non Bi	rook and Portol	oello Ditch	1			
	WFD water body	type	River				=		_	
	WFD manageme			shire a	and the Vale		WFD w		GB106039023360	
	River Basin Dist	rict	Thames							
		_			ns, Objectives					
	WFD Status and		verall Status	S	Objecti	ve (2021)				ve (2027)
ρί	Objectives		Poor			-		<u> </u>		ood
ă	Hydromorpholog	gical designatio	n		not designated	artificial	or heavi	ly modif	ied	
Water body	Water Body Mitigation Measures	No published n	nitigation mea	asures	5					
				WFD	Protected Are	as				
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Bird Directive	ds	Habitats Directive		itrates rective		llfish ctive	Urban Waste Water Treatment Directive
	NO	NO	NO		NO	YES			0	NO
	Scheme components potentially affecting water body		this water c	Construction: Provision of a new fully bunded reservoir requiring diversion this water course with river restoration measures to deliver environmental enhancement. Operation: None						
	WFD element	RBMP2 (2015)			Assessed status (construction and operation)					
	Fish	Not assessed	Not asses						imeter of the	
	Macro- invertebrates	Moderate	Moderat	reservoir and he designed to intercent the flow						
coping)	Macrophytes & Phytobenthos	Poor	Poor		enhance environmental and water quality, with the desig consented by EA to ensure positive effect on WFD object and ensure no adverse effects on river environment in the body or downstream.					FD objectives
int (so	Chemical (Overall)	Good	Good		The diversion i form to enhance	e water o	uality.			
WFD assessment (scoping)	Protected Area I		with a nutric manageme expected.	ent se ent of t	ensitive area; ho the protected ar	owever, th	ie schei	ńe will r	not affect	
و م	Does the compo	nent comply wi								
×	1. No deterioratio	n between status	res	storati	deterioration be on design agre	ed and co	nsente	d by the	EA.	
	2. No impediment	ts to GES/GEP	Ye EA		ersion and rive	restorati	on desi	gn agree	ed and c	onsented by the
	3. No compromise objectives	es to water body	Ye	es; no	compromises to	o water b	ody obje	ectives.		
	4. No effects on c	ther water bodie	s Ye	es; no	impact on dow	nstream v	vater bo	dies.		
	Assists attainm objectives	ent of water bod	obj	jective				,	J	•
	6. Assists attainm objectives	ent of protected		No; does not assist with the attainment of any mitigation measures required for the protected areas.					measures	

	WFD water body r		Thames (Evenlod	le to Thame)						
	WFD water body t WFD management		Gloucestershire a	nd the Vale		WFD wa	ter	GB1060	GB106039030334	
	River Basin Distri	ct	Thames							
	WED OUTTOO TO I	DDMD0.6		ions, Objectives				Ob to act	(0007)	
þ	WFD Status and Objectives		Overall Status Oderate	Objectiv	ve (2021 -)		Objectiv	/e (2027) -	
poq	Hydromorphologic			not designated	artificial o	or heavily	modified	t		
water body	Water body Mitigation Measure		mitigation measur	es.		•				
	Wieasure		WI	FD Protected Ar	eas					
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitra Direa	ates ctive	Dire	llfish ctive	Urban Waste Water Treatment Directive	
	NO	YES	NO O	YES	YE			<u>10</u>	YES	
	Scheme compone potentially affectir body	ng water	Construction: Coutfall structures. Operation: Rese regulation to augreservoir. Abstract Environment Age Thames.	rvoir refill via abs nent flows in Riv tion and dischar	straction er Tham ge will be	of water f es by rele s subject	rom the easing w	River That ater store es/permit	ames. River ed within the is granted by the	
	WFD element	RBMP2 (2015) status		Assessed stat	•					
	Fish	Moderate	Moderate						cy outfall will be	
	Macro- Invertebrates	Moderate	Moderate						ind any risk to the Temporary effects	
WFD assessment (scoping)	Macrophytes & phytobenthos	Not assessed	Not assessed	increases in the augmentation re lower reaches o identified that the variability beyond baseflow due to Thames habitat change in low file and flow regime and provide diventhe same. The uncertain due to unlikely to chare expected that the specific survey assessment should be prevent fish e including control any potential ri	low flow eleases, of this wather water and its characteristic types moows, are as a transfer of these in the second collection of the ecological second collection. These end is the ecological second collection of the ecological second collection of the ecological second collection.	to extreme with a characteristic body what acteristic being man obstating man obstating man areas area of macro 2015 static areas at result of gical statue requires option be ceted from ent. In-rewater relar quality	ne low floange to the MRMP could not tic flow aged nate from floating the minute and the minute the	ow condithe low floe low floe environments be subjected by the change of the chant nurser rates — has whole wand phytosification he operated in the Werthrouge manager aw off learn the Rich flow flow flow flow flow flow flow flow	regime would be ions from the flow we envelope in the ental studies have ect to undue flow rom the elevated e river. The River es, specifically the lange in their level by grounds for fish owever, the effect would likely remain thenthos status is but is considered ion. Overall, it is same; further site onfidence in the JRMP the fine screens to ement measures, evel, will minimise wer Thames from dissolved oxygen	
	Chemical (Overall)	Fail		and algal biomass. The quality of the reservoir water released back into the river woul be carefully managed as described above and the discharge wou be subject to quality conditions set by the EA in the discharge perm to avoid deterioration to WFD chemical status. It is unlikely that the intermittent discharges would lead to a beneficial change to chemical status. e areas: The water body is associated with a nutrient sensitive are						
	Protected Area De	etails	under the Nitrates Directive and the River Thames is a nutrient sensitive area under the Urban Waste Water Treatment Directive. The scheme will not affect the management of the protected area and no significant changes in water quality are expected or would be permitted through the EA discharge permit. Drinking water protected area: The Thames (Evenlode to Thame) is a drinking water protected area. The risk to a change in chemical status is low.							

Little V	Vittenham SAC: As there will be no flow variability beyond its characteristic flow
regime	e, the risk of any overtopping leading to the inundation with river water of ponds
used b	by great crested newt is assessed as negligible.
Does the component comply with WF	D Objective
No deterioration between status classes	Yes; no deterioration between classes.
2. No impediments to GES/GEP	Yes; no impediments to GES.
3. No compromises to water body objectives	Yes; no compromises to water body objectives.
4. No effects on other water bodies	Yes; water bodies downstream; Thames Wallingford to Caversham GB106039030331, Thames (Reading to Cookham) GB106039023233; Thames (Cookham to Egham) GB106039023231 and Thames (Egham to Teddington) GB106039023232 assessed below as compliant
5. Assists attainment of water body objectives	No; does not assist with the attainment of any mitigation water body objectives.
6. Assists attainment of protected area objectives	No; does not assist with the attainment of any mitigation measures required for the protected areas.

	WFD water body	namo	Thamas W	allingfo	rd to Caversham						
	WFD water body		River	allingio	iu to Caversnam						
	WFD manageme										
	catchment	•••	Thames ar	nd Sout	h Chilterns	WFD v	ater body ID	GB106039030331			
	River Basin Dist	rict	Thames								
			WFD D	esigna	tions, Objectives	and Mi	tigation				
	WFD Status and	RBMP2 (Overall Sta		Objective (20						
þ	Objectives	M	oderate		-	-		-	•		
po	Hydromorpholog	gical designat	ion		heavily modified						
Water body	Water Body Mitigation Measure	Additional tre	atment to re		concentrations of p	·	ite from Stewkl	ey sewage t	reatment works		
				W	FD Protected Are	as					
	Bathing Water Directive	Drinking Wate Directive	Conser of Wild Direc	Birds	Habitats Directive	Nitrates Directive		Shellfish Directive	Urban Waste Water Treatment Directive		
	NO	NO	NO	_	YES	`	/ES	NO	YES		
	Scheme compor potentially affect body			ponstruction: none peration: Change in flow regime due to impacts on upstream water body.							
	WFD element	RBMP2 (2015) status			Assessed status	s (cons	truction and c	peration)			
	Fish	Not assessed	Not asse	ssed					regime would be nditions from river		
	Macro- invertebrates	Moderate	Modera	ate	regulation releases to the upstream water body, with a change low flow envelope throughout this water body. There is more				nere is more flow		
oing)	Macrophytes & Phytobenthos	Good	Good	d	accretion (e.g. from the River Thame) in this water body and the the effects of the releases would be proportionally lower the upstream water body and there will be no undue flow var beyond its characteristic flow regime from the elevated baseflo to the existing regulated nature of the river in this water body. The effects on the water body relating to water quality and risk to pool habitats are similar to the upstream water body (see table a						
nt (scop	Chemical (Overall)	Good	Good	d	be subject to cor	ditions	set by the EA	in the disc	water body would harge permit and		
WFD assessment (scoping)	Protected Area [Details	the Nitrates Waste War protected a permitted the Little Witter	therefore the risk to deterioration in WFD status is assessed as low sensitive areas: The water body is associated with a nutrient sensitive area under the Directive and the River Thames is a nutrient sensitive area under the Urba Water Treatment Directive. The scheme will not affect the management of the draea and no significant changes in water quality are expected or would be determined the EA discharge permit.							
	Does the compo										
					o deterioration bet		asses.				
	2. No impediment			Yes; no	o impediments to 0	GEP.					
	No compromise objectives	es to water boo	У		o compromises to						
	4. No effects on o	. No effects on other water bodies			rater bodies downs 6039023233; Thames (Egham to Tedd ant	ies (Co	okham to Egha	m) GB1060	39023231 and		
	5. Assists attainm objectives	ent of water bo	ody		es not assist with	attainm	ent of water bo	dy objective	S.		
	6. Assists attainment of protected area objectives No; does not assist with the attainment of any mitigation measures required for the protected areas.										

	WFD water body			Readin	g to Cookham)					
	WFD water body	type	River				WED	-4	1	
	WFD managemen			nd Sou	ıth Chilterns		WFD wa body ID		GB1060	039023233
	River Basin Distri		Thames							
	WFD Status and	RBMP2 Ov			ons, Objectives and Mitigation Objective (2021) Objective (2027)				(a. (2027)	
<u>></u>	Objectives		eran Statt	uS	Objective (2021) Objective (2027)					
рос	Hydromorphologi			heavily modified						
water body	Water Body Mitigation Measures	No published m			es					
		T		WF	Protected Area	as				1
	Bathing Water Directive	Drinking Water Directive	Conserve of Wild E Directi	Birds	Habitats Directive		ates ctive		lfish ctive	Urban Waste Water Treatment Directive
	NO	NO	NO		NO	YE	ES	N	0	YES
	Scheme compone	ents	Construct							
	potentially affecti		Operation	1: Char	nge in flow regim	e due to	impacts	on upstr	ream wa	ter bodies.
	WFD element	RBMP2 (2015) status			Assessed statu	•		•		
	Fish	Not assessed	Not asse	essed						d be increases in
	Macro- invertebrates	High	High	1	the low flow to extreme low flow regime from the regulation rele further upstream, with a change to the low flow envel throughout this water body. There is more flow accretion in					
coping)	Macrophytes & Phytobenthos	Not assessed	Not asse	essed	water body (e.g. River Kennet and River Loddon) and therefore the effects of the flow augmentation releases further upstream would be proportionally lower in this water body and there will be no undue flow variability beyond its characteristic flow regime from the elevated baseflow due to the existing regulated nature of the river. The effects on this water body relating to water quality and risk to weir pool habitats are similar to the upstream water bodies (see above tables).					
ssment (so	Chemical (Overall)	Good	Good	d	would be subject	to cond	tions set	by the E	A in the	eam water body discharge permit atus is assessed
WFD assessment (scoping)	Protected Area Do		under the the Urbar managem expected of augmentar	Nitrate Nit	s Directive and the Water Treatnesthe protected are all do be permitted the eases to the rive	ne River nent Dir a and n rough th	Thames ective. o signific e EA dis	is a nutr The scho ant chai	ient sen eme wil	ent sensitive area sitive area under Il not affect the water quality are ontrolling the flow
	1. No deterioration					ween cla	18888			
	2. No impediments				impediments to (
	3. No compromises objectives				compromises to		ody objec	tives.		
		l. No effects on other water bodies		B1060	ter bodies downs 39023231 and T d below as comp	hames (
	5. Assists attainme objectives	. Assists attainment of water body biectives		No; does not assist with the attainment of any mitigation water body objectives.						ater body
	6. Assists attainme objectives	ent of protected a	area N	No; does not assist with the attainment of any mitigation measures required for the protected areas.						

	WFD water body	name	Thames (Cookha	am to Edham)						
	WFD water body t		River	un to Egnain,						
	WFD managemen			I Sunbury		WFD wa		GB1060	039023231	
	River Basin Distri	ct	Thames			,				
				ations, Objectiv	es and	Mitigation	on			
>	WFD Status and	RBMP2 O	verall Status	Objectiv	e (2021)		Obje	ctive (2027)	
þo	Objectives	Mo	derate	-					-	
مَ	Hydromorphologi	cal designat	ion	heavily modified	l					
water body	Water Body Mitigation Measures	No published	mitigation measu							
				NFD Protected A	Areas					
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive		ates ctive	Shel Direc	lfish ctive	Urban Waste Water Treatment Directive	
	NO	YES	YES	NO YES NO YES						
	Scheme compone		Construction: N							
	potentially affecti body		Operation: Cha	nge in flow regim	ne due to	impacts	s on ups	stream w	vater bodies.	
	WFD element	RBMP2 (2015) status		Assessed status (construction and operation)						
	Fish	Not assessed	Not assessed	commence in th	is water	body. C	hanges	in flow	elease water would in the water body from	
	Macro- invertebrates	Good	Good	operation of the scheme will partly reflect flow augmentation an the re-abstraction: the increase in the extreme low flow regim						
Macrophytes & High High Phytobenthos High							pstream	stream water bodies.		
(Bı	Chemical (Overall)	Good	Good	No impacts on ecological status are anticipated in this water body. The discharges from the reservoir to the upstream water body to be subject to conditions set by the EA in the discharge permit therefore the risk to deterioration in WFD status is assessed as lo						
WFD assessment (scoping)	Protected Area De	e tails	under the Nitrate Urban Waste Wa the protected are permitted throug flows from the re Drinking water p	es Directive and to ater Treatment Dies and no significe the EA discharts ervoir.	he Rive irective. cant cha ge pern	Thames The sch nges in v nit for the	s is a nu eme wil vater qu upstrea a drink	itrient se I not affe iality are am discl	nutrient sensitive area ensitive area under the ect the management of expected or would be harge of augmentation er protected area. The	
WF			South West Lond supply reservoirs natural open-war impact pathways	don water bodies s and former grater habitats. The associated with	SPA an vel pits re will b	d Ramsa that sup e no imp	r: the S port a r act on t	ange of	prises a series of water man-made and semi- because there are no	
	Does the compon			tive						
	No deterioration classes		Yes; no	deterioration bet		asses.				
	2. No impediments			impediments to	GEP.					
	No compromises objectives	s to water boo	Yes; no	compromises to		, ,				
	4. No effects on other	ner water bod	GB1060	Yes; water body downstream; Thames (Egham to Teddington) GB106039023232 assessed below as compliant						
	Assists attainme objectives	nt of water bo		No; does not assist with the attainment of any mitigation water body objectives.						
	6. Assists attainment of protected area No; does not assist with the attainment of any mitigation measures required for the protected areas.									

	WED water had		Th a man a / [mh a ma ta	Taddinatas)								
	WFD water body WFD water body		Thames (Egham to River	l eddington)								
	WFD manageme				WFD wa	ter CD40000	2000000					
	catchment		Maidenhead and Su	inbury	body ID	GB106039	9023232					
	River Basin Dist	rict	Thames	01. 1								
	WFD Status and	RRMP:	WFD Designation Overall Status		ve (2021)	Objectiv	a (2027)					
\	Objectives	K DIVIT 2	Poor									
þo	Hydromorpholo	gical designat	ion	heavily modified								
Water body	Water Body											
8	Mitigation	No published	d mitigation measure	S								
	Measures											
			WF	D Protected Are	eas		1111 121					
	Bathing Water	Drinking Wate	Conservation	Habitats	Nitrates	Shellfish	Urban Waste Water					
	Directive	Directive	of Wild Birds Directive	Directive	Directive	Directive	Treatment					
					\/=0		Directive					
	NO Scheme compor	YES	YES Construction: Non-	NO NO	YES	NO	YES					
	potentially affec			eration: None peration: None peration: Change in flow regime due to impacts on upstream water bodies.								
	body											
	WFD element	RBMP2	,	Assessed status (construction and operation)								
	WFD element	(2015) status	,	Assessed status (construction and operation)								
	Fish	Not	Not assessed				on of the scheme					
	Macro-	assessed					he re-abstraction: ter accounting for					
	invertebrates	Good	Good				e less than that					
				shown for the	upstream water	bodies. At the	end of this water					
							stream of Thames					
				Water's abstraction intakes, the very low flow to extreme low flow regime would return to the baseline conditions without the flow augmentation releases from the reservoir, with the same range and frequency of pass-forward flows into the Thames Tideway.								
	Macrophytes &	Poor	Door				Thames Tideway. effect on the flow					
	Phytobenthos	nthos	Poor	regime throug		enection the now						
						No change in ecological status anticipated as the flows we return to the baseline conditions in this water body and there						
				not impact on fish, macroinvertebrates or macrophytes 8								
ing				phytobenthos.								
do	Chaminal			The discharges from the reservoir to the upstream wat would be subject to conditions set by the EA in the di								
(80	Chemical (Overall)	Good	Good									
ent	(5 * 5 * 5)			permit and therefore the risk to deterioration in WFD status assessed as low.								
WFD assessment (scoping)			Orinking water protected area: The water body is a drinking water protected area. The sk to a change in chemical status is low.									
sse			ilisk to a criange in c	memicai status is	S IOW.							
) as			Nutrient sensitive a									
MFI			under the Nitrates D Urban Waste Water									
			the protected area a									
	Protected Area I	Details	permitted through t									
			reservoir.									
			South West London	water bodies SP	A and Ramsar: th	e SPA comprises	s a series of water					
			supply reservoirs ar	nd former gravel	pits that support	a range of man	-made and semi-					
			natural open-water			on the SPA beca	ause there are no					
	Does the compo		impact pathways fro with WFD Objective		ientation.							
	1. No deterioration		2115	rioration betweer	n classes							
	classes	+- +- OFC/OFF										
	 No impediment No compromis 		dv	Yes; no impediments to GEP.								
	objectives		Yes; no com	promises to wate	er body objectives							
	4 No effects	th or water to		Yes; no impacts on downstream water bodies as no change in moderate or low								
	4. No effects on o	omer water boo		flows to the downstream transitional water body (Upper Thames Tideway) and negligible change to high flows.								
	5. Assists attainm	nent of water bo	ody	No; does not assist with the attainment of any mitigation water body objectives.								
	objectives	ant of restants		No; does not assist with the attainment of any mitigation measures required for								
	6. Assists attainmarea objectives	ient of protecte	the protected		mainment of any i	mugation measu	res requirea for					
			, p. 10100100									

6. Assists attainment of protected area

objectives

Resource: Reuse - Reuse Beckton 100 Ml/d - RES-RU-BEC-100 WFD water body name Thames Middle WFD water body type Transitional Water WFD water GB530603911402 WFD management catchment Thames TraC body ID **River Basin District** Thames WFD Designations, Objectives and Mitigation WFD Status and **RBMP2 Overall Status** Objective (2021) Objective (2027) Objectives Moderate Hydromorphological designation heavily modified 49.Modify vessel design 21. Avoid the need to dredge Water Body 50. Vessel Management 22.Dredging disposal strategy Mitigation 26.Sediment management 23.Reduce impact of dredging Measures 27. Dredge disposal site selection 24.Reduce sediment resuspension 28.Manage disturbance 25.Retime dredging or disposal WFD Protected Areas Urban Waste Conservation **Bathing Water Drinking Water** Shellfish **Habitats Nitrates** Water of Wild Birds Directive Directive Treatment Directive Directive Directive Directive Directive NO NO YES NO YES NO YES Construction: Construction of the treatment works will be within the existing Beckton STW site and this has been screened out of the WFD assessment. Temporary effects due construction of the treatment works will not cause deterioration of the water body due to the distance from the water body and the Scheme components potentially ability to manage risk through good practice construction methods. affecting water body Operation: A reduction in the volume of treated effluent to the Thames Middle water body. It is currently expected that the existing final effluent discharge permit for Beckton STW discharge should not require amendment as a consequence of this scheme. **RBMP2 (2015)** WFD element Assessed status (construction and operation) status Fish Good Good Reduction in volume of treated effluent from Beckton STW. Potential for local increases in salinity in the Middle Tideway due Invertebrates Good Good to the reduced 'freshwater' discharge, but assessed as Macroalgae Good Good insufficient to adversely affect aquatic ecology. Therefore, no Phytoplankton High High WFD assessment (scoping) significant impacts are expected on the ecology of this water Angiosperms Moderate Moderate body. Reduction in volume of treated effluent from Beckton STW and accompanying reduction in the load of chemicals discharged. However, this is considered insufficient to affect the Chemical (Overall) Good Good concentration of chemicals once diluted and dispersed. Therefore, no risk of deterioration and limited scope for improvement in chemical status at a water body scale. Nutrient sensitive areas (Nitrate vulnerable zones): The transitional water body is associated with a nutrient sensitive area; however, the scheme will not affect the management of the protected area and no significant changes in water quality are expected. **Protected Area Details** Thames Estuary & Marshes SPA (and Ramsar): The closest part of the site is approximately 24km from Beckton. Given the distance and the fact that no significant water quality or hydrodynamic changes are expected, there will be no impact on this European site. Does the component comply with WFD Objective 1. No deterioration between status classes Yes; no deterioration between classes. 2. No impediments to GES/GEP Yes; no impediments to GEP 3. No compromises to water body objectives Yes; no compromises to water body objectives. Yes; there are no potential effects on other water bodies. 4. No effects on other water bodies 5. Assists attainment of water body objectives No; does not assist with attainment of water body objectives.

No; does not assist with the attainment of any mitigation measures

required for the protected areas.

Resource: Reuse – IPR Reuse Beckton 100 Ml/d x 3 to get 300 Ml/d - RES-RU-BEC-100

	WFD water body nai	me	Thames Middle							
	WFD water body typ	е	Transitional Wa	ter						
	WFD management c	atchment	Thames TraC			WFD was		GB530	603911402	
	River Basin District		Thames							
			FD Designations							
	WFD Status and		erall Status	Objective (2021) Objective (2027)						
<u>></u>	Objectives		erate		-				-	
0	Hydromorphologica			heavily modifie						
water body	Water Body Mitigation Measures	49.Modify vessel 50.Vessel Mana 26.Sediment ma 27. Dredge disp 28.Manage dist	agement anagement osal site selection	on	21.Avoid the need to dredge 22.Dredging disposal strategy 23.Reduce impact of dredging 24.Reduce sediment resuspension 25.Retime dredging or disposal					
		J		Protected Areas		J	<u> </u>			
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	ts Nitrates		-	ellfish ective	Urban Waste Water Treatment Directive	
	NO	NO	YES	NO	YE	YES NO			YES	
	Scheme component affecting water body		Temporary effedeterioration of ability to manag Operation: A rewater body, in expected that	Construction: Construction of the treatment works will be within the existing Beckton STW site and this has been screened out of the WFD assessment Temporary effects due construction of the treatment works will not cause deterioration of the water body due to the distance from the water body and the ability to manage risk through good practice construction methods. Operation: A reduction in the volume of treated effluent to the Thames Middle water body, in three phases, each providing 100 Ml/d for reuse. It is currently expected that the existing final effluent discharge permit for Beckton STW discharge should not require amendment as a consequence of this scheme.						
	WFD element	RBMP2 (2015) status		Assessed statu	s (const	ruction	and o	peration)		
	Fish	Good	Good	Reduction in volume of treated effluent from Beckton ST						
	Invertebrates	Good	Good	which currently	discharg	jes 1,11	1 MI/d	(dry wea	ther flow) to the	
	Macroalgae	Good	Good	tidal Thames.	Initial eva	luation	sugge	sts that r	nore than a 15-	
	Phytoplankton	High	High						alent to 275-365	
assessment (scoping)	Angiosperms	Moderate	Moderate	could see a n middle Tidewa resulting from could change including benth These studies scheme could i major biologica deterioration in uncertainty invo	oticeable ay. A pr freshwate commu ic macro indicate t reduce fre al effects in WFD s blved. The	changed olonged er reduced inverteble chat the eshwater may be status, as e initial treatment of the control of	e in the period tions a cucture rates a third prinputs seen a althougwo pha	e salinity d of sa bove the in biolo nd fish. hase of t t to the le nd these h there uses of th	several months / regime of the dinity increases elevel indicated ogical elements the 3 x 100 Ml/d evel where some could result in a is a degree of e scheme (up to FD status.	
WFD asse	Chemical (Overall)	Good	Good	concentration of chemicals once diluted and dispers Therefore, no risk of deterioration and limited scope improvement in chemical status at a water body scale.					cals discharged. to affect the and dispersed. hited scope for a scale.	
	Protected Area Details		Nutrient sensitive areas (Nitrate vulnerable zones): The transitional water body is associated with a nutrient sensitive area; however, the scheme will not affect the management of the protected area and no significant changes in water quality are expected. Thames Estuary & Marshes SPA (and Ramsar): The closest part of the site is approximately 24km from Beckton. Given the distance and the fact that no significant water quality or hydrodynamic changes are expected, there will be no impact on this European site.							
					h WFD Objective Uncertain; initial review indicates the third phase of the 3 x 100 Ml/d					
	Does the componen	t comply with V	VFD Objective							
	Does the componen 1. No deterioration be		VFD Objective Uncerta could c underst		ass dete	rioration.	Furth	er baselir	ne	
	No deterioration be No impediments to	etween status cla	vFD Objective Uncerta could c underst infauna No; pot	ain; initial review ause between cl anding of salinit communities re ential impedime	ass deter y regime quired nt to Goo	rioration. of middl d status	. Furthe	er baselir way and	ne	
	1. No deterioration be	etween status cla GES/GEP o water body obje	SSES Uncertage Uncertage Could counders infauna No; pot ectives Yes; no	ain; initial review ause between cl anding of salinit communities re	ass deter y regime quired nt to Goo o water b	rioration. of middl d status ody obje	Eurther Further	er baselir way and	ne sensitivity of	

5. Assists attainment of water body objectives	No; does not assist with attainment of water body objectives.
6. Assists attainment of protected area	No; does not assist with the attainment of any mitigation measures
objectives	required for the protected areas.

Resource: Reuse - Reuse Beckton 150 MI/d - RES-RU-BEC-150

	WFD water body na	ame	Thames Middle	<u> </u>					
	WFD water body ty		Transitional Wa						
	WFD management	•	Thames TraC			WFD w		GB5306	603911402
	River Basin Distric	t	Thames			,			
		W	FD Designatio	D Designations, Objectives and Mitigation					
	WFD Status and		erall Status	erall Status Objective (2021) Object					/e (2027)
>	Objectives	Mod	erate		-			-	-
ро	Hydromorphologic			heavily modifie	d	ı			
Water body	Water Body Mitigation	49.Modify vesse 50.Vessel Mana 26.Sediment ma	gement		21. Avoid the need to dredge 22. Dredging disposal strategy 23. Reduce impact of dredging				
	Measures	27. Dredge disp		on	24.Redu				ion
		28.Manage dist			25.Retin	ne dredg	ging or c	disposal	
			WFD	Protected Area	s				
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Hahitate		ates ctive		llfish ctive	Urban Waste Water Treatment Directive
	NO	NO	YES	NO Construction of		ES		Ю	YES
	Scheme componer affecting water boo		Beckton STW site and this has been screened out of the WFD assessment. Temporary effects due construction of the treatment works will not cause deterioration of the water body due to the distance from the water body and the ability to manage risk through good practice construction methods. Operation: A reduction in the volume of treated effluent to the Thames Middle water body. It is currently expected that the existing final effluent discharge permit for Beckton STW discharge should not require amendment as a consequence of this scheme.						
	WFD element	RBMP2 (2015) status		Assessed statu	s (const	ruction	and op	eration)	
	Fish	Good	Good	Reduction in	volume	of treate	ed efflu	ent. Po	tential for local
	Invertebrates	Good	Good						this is assessed
	Macroalgae	Good	Good	as insufficient to affect aquatic ecology. Overall, no sign					
(gr	Phytoplankton	High	High						cology which is
iid	Angiosperms	Moderate	Moderate	tolerant of salin					
WFD assessment (scoping)	Chemical (Overall)	Good	Good	reduction in the reduction is in chemicals once	e load on sufficien e diluted nd limite	f chemion to the first to afficial and discoperate for the first term of the first t	cals dis ect est spersec	charged uary co l. There	accompanying I. However, this incentrations of fore, no risk of ent in chemical
WFD as	Protected Area Det	sensitive area significant char Thames Estua approximately	lutrient sensitive areas: The transitional water body is associated with a nutrient ensitive area under the Urban Waste Water Treatment Directive. However, noting ignificant changes in water quality are expected. Thames Estuary & Marshes SPA (and Ramsar): The closest part of the site is approximately 24km from Beckton. Given the distance and the fact that noting ignificant water quality or hydrodynamics are expected, there will be no impact					e. However, no art of the site is he fact that no	
	Does the compone	nt comply with	WFD Objective	<u> </u>					
	1. No deterioration b	etween status c	lasses Yes; n	o deterioration be	etween cl	asses.			
	2. No impediments t			o impediments to	GEP.				
	3. No compromises	to water body ob	jectives Yes; n	o compromises to	water b	ody obje	ectives.		
	4. No effects on other	er water bodies		Yes; there are no potential effects on other water bodies.					
	objectives	5. Assists attainment of water body			No; does not assist with attainment of water body objectives.				
	6. Assists attainmen objectives	t of protected are	No; does not assist with the attainment of any mitigation measures required for the protected areas.					measures	

Resource: Reuse - Reuse Deephams 46.5 Ml/d - RES-RU-DPH

	WFD water body	Pymmes and Salmon Brooks - Deephams STW to Tottenham Locks								
	WFD water body	type	River							
	WFD managemen	t catchment	London			WFD wate	r body	GB10	6038027910	
	River Basin Distri	ct	Thames							
		V	NFD Desi	ignatior	ns, Objectives a					
	WFD Status and	RBMP2 Ov		us	Objective	ctive (2021)			ve (2027)	
dy	Objectives		erate		-				-	
poq	Hydromorpholog	ical designation	1		heavily modified					
water body	Water Body Mitigation Measures	No published m	itigation m	neasure	S					
			WFD Protected Area			S				
	Bathing Water Directive	Drinking Water Directive	Conserv of Wild Direct	Birds tive	Habitats Directive	Nitrates Directive	Shellfish Directive		Urban Waste Water Treatment Directive	
	NO	NO	NC		NO	YES	NC		NO	
	Scheme compone affecting water bo	Deepham Operatio	Construction: Construction of the treatment works will be within the existing Deephams STW site. Deephams A reduction in the volume of treated effluent to the river system due o diversion of up to 46.5 Ml/d for re-use.							
	WFD element	RBMP2 (2015) status		Assessed status (construction and operation)						
	Fish	Not assessed	Not ass	essed					ice construction	
	Macro-	Poor	Poo	or	methods and an					
	invertebrates								atment works will	
WFD assessment (scoping)	Macrophytes & Phytobenthos	Moderate	Mode	rate	permitted DWF), of the water be significant. Over ecology. There	ume of treated e. There is the poody to be reduall, there should is no 2015 asseely that the sche	ffluent is stential forced, how be no signs sment me would	signific r the bovever gnificar for fish	ant (~20% of the uffering capacity this will not be not impacts to the notate status but it is o a deterioration	
ssm	Chemical (Overall)	Good	Goo	od		he discharged e	ffluent q		s expected and is unlikely.	
WFD asse	Protected Area Do		area uno managen expected	der the nent of t I or wou	e areas: The wa Nitrates Directi the protected are ld be permitted the	ter body is asso ve. However, the a and no signific	ociated with the schere ant chan	rith a n ne will ges in v	utrient sensitive I not affect the water quality are	
	Does the compon									
	1. No deterioration				deterioration bet					
	2. No impediments)	Yes; no	impediments to 0	GEP.				
	No compromises objectives	s to water body			compromises to					
	4. No effects on ot	I. No effects on other water bodies			ere are no potenti ee Tottenham Loo	al effects on othe cks to Bow Locks	er water b s/Three N	oodies Iill Loc	including the ks assessed	
	5. Assists attainme objectives	5. Assists attainment of water body			below. No; does not assist with attainment of water body objectives.					
		. Assists attainment of protected area			No; does not assist with the attainment of any mitigation measures required for the protected areas.					

	,		Lee (Tottenham Locks to Bow Locks/Three Mills Locks)							
	WFD water body	type	River							
	WFD managemer	nt catchment	London			WFD wate	er body	GB10	6038077852	
	River Basin Distri		Thames							
	WED 04 4					s, Objectives and Mitigation				
>	WFD Status and		erall Status	S	Objective	e (2021)	C		ve (2027)	
ро	Objectives Hydromorpholog	_	ad		haavily madified			IVIOG	erate	
		lcai designation	ı	heavily modified						
Water body	Water Body Mitigation Measures	Misconnections		ration for polluted SWT						
		T	ı	WFD	Protected Area	S	ı			
	Bathing Water Directive	Drinking Water Directive	Conserva of Wild B Directiv	irds	Habitats Directive	Nitrates Directive	Shellfish Directive		Urban Waste Water Treatment Directive	
	NO	NO	YES		NO	YES	NC)	YES	
	Scheme compone	Constructi				(()	dia ata			
	affecting water bo				duction in the vol to 46.5 MI/d for		erriuent to	tne riv	er system due	
	WFD element	RBMP2 (2015) status			Assessed status	•	•			
	Fish	Bad	Bad			duce flow in the				
	Macro- invertebrates	Moderate	Modera	ate					d. Overall, there y of this heavily	
	Macrophytes & Phytobenthos	Moderate	Modera	ate	modified and flow managed water body. It is considered unlikely that the scheme would lead to a deterioration in fish status for this water body (current status is bad). Further investigation is required to confirm this assessment including the potential need for mitigation measures					
	Chemical (Overall)	Good	Good	No change in the discharged effluent gual						
WFD assessment (scoping)	Protected Area D	etails	area under However, the significant of the EA disconnection. Lee Valley reservoirs.	the Name of the Schange of the SPA Giver the SPA	itrates Directive a neme will not affe ges in water qual e permit controls. (and Ramsar): In the effluent will er and the Lee Va	and the Urban West the managemity are expected This site complibe to a	Vaste Wate ent of the dor would rises a san high sta	ter Trea e protect d be po series c andard	autrient sensitive atment Directive. Sted area and no ermitted through of wetlands and to protect water to be an impact	
3	Does the compor	ent comply wit								
	1. No deterioration		classes cha fur	nange rther b	deterioration betoon biology and play Thames Water	hysico-chemical ·.				
	2. No impediments		Ye	es; no	impediments to (GEP.				
	3. No compromise objectives	s to water body			compromises to					
	4. No effects on ot	her water bodies	Th of	names	owing considerat Middle TRAC wa forward flow chai	ater body (GB53	80603911	402), n	oting the effect	
	5. Assists attainme objectives	5. Assists attainment of water body			No; does not assist with attainment of water body objectives.					
	6. Assists attainme objectives	ent of protected a		No; does not assist with the attainment of any mitigation measures required for the protected areas.						

Conveyance: Raw Water Systems: Medmenham Intake – 80MI/d SWA South CON-RWS-SWA-MMM

	WFD water body	name	Thames (Reading to Cookham)									
	WFD water body	type	River									
	WFD manageme	nt	Thames and So	outh Chilterns		WFD v	vater					
	catchment			outi Officialis		body I		GB1	06039023233			
	River Basin Dist	rict	Thames		1.887/1 /1							
	WED OUT	DDMD0.6		nations, Objectives				\l-!	tion (2027)			
þ	WFD Status and Objectives		Overall Status Oderate	Objecti	ve (2021)		C	objec	tive (2027)			
Water body	Hydromorpholog			heavily modified	-				-			
er	Water Body	gicai acsigna		Incavily modifica								
Nai	Mitigation	No publishe	d mitigation mea	sures								
	Measures	·		ŭ								
				WFD Protected Are	as	_						
			Conservati	on		_			Urban Waste			
	Bathing Water Directive	Drinking Wat	of Wild Bir	ds Habitats	Nitrates	_	hellfis		Water			
	Directive	Directive	Directive	Directive	Directive	L	irectiv	е	Treatment Directive			
	NO	NO	NO	NO YES			NO		YES			
				Construction of the ab					0			
	Scheme compor	nents	Operation: Abs	ion: Abstraction of 80Ml/d water from the River Thames, assumed supported by								
	potentially affect	ting water		a river regulation option (South East Strategic Reservoir Option Reservoir or Severn Thames Transfer). Abstraction will be subject to licence granted by the Environment								
	body								Invironment			
			Agency. Raw w	ater will be treated an	d transferred to	Widde	nton SF	₹				
	WFD element	(2015)		Assessed status	(construction	and o	noratio	n)				
	WFD element	status		Assessed status	and o	peratio	'',					
	- · .	Not		Construction of the i	ntake will be ma	anaged	by goo	d pra	ctice			
	Fish	assessed	Not assessed	construction method								
	Macro-	High	High	construction is assessed as low. Temporary effects due to con- will not cause deterioration of the water body.								
	invertebrates	1.1.911	1 11911	will not cause deterior	oration of the w	ater bo	dy.					
WFD assessment (scoping)	Macrophytes & Phytobenthos	Not assessed	Not assessed	The greatest proport reductions in the low abstraction, with a rethe middle and lowe abstraction, indicated 10% reduction in surreduction in year-rour round moderate flow. The River Thames has specifically the chanchange in their level nursery grounds for — however, the effect whole would likely rephytobenthos status classification but is coperation. Overall, it the same; however tincluding the local respecific surveys will option be included in Water would be absi	of flow to extreme eduction in low for reaches of this reaches of this reaches derived the flows derived the flows flows (Q50). The flow flow flows (Q50) and flow regime fish and provided the flow flows and flow regime fish and provided the flow flows and flow regime fish and provided the flow flows and flow regime flow flows and flow regime fish and provided the flow flows and flow flows flo	e low fliflow do so water from u prting reflows (CQ95) an est at rise are the e. These diversof these to lacely to confirm on of deconfirm	ow cone wnstread body. I pstrean egulation (299), le d ~2-39 sk from the weir pse areas ity for ce in the mpact och ange cological to the asset the asset the asset to the ass	dition of cocal of co	s from the the intake, in to the downstream maximum of an 10% luction in year-changes, due to the important croinvertebrates r body as a crophytes and atus result of scheme tus will remain sessment and further site nent should this			
	Chemical (Overall)	Good	Good prevent fish entrainment. The minor reduction in dilution would require confirmation that discharges would not lead to deterioration in WFD status. At put the risk to deterioration in WFD status is assessed as low.						us. At present ow.			
		Protected Area Details U		Nutrient sensitive areas: The water body is associated with a nutrient sensitive area under the Nitrates Directive and the River Thames is a nutrient sensitive area under the Urban Waste Water Treatment Directive. The scheme will not significantly affect the management of the protected area and no significant changes in water quality are expected.								
	Does the compo											
	1. No deterioratio	n between sta	tus Yes; no	deterioration betwee	n classes.							
	classes	- 1- 050/05										
	2. No impediments to GES/GEP Yes; no impediments to GEP.											

3. No compromises to water body objectives	Yes; no compromises to water body objectives.
4. No effects on other water bodies	Yes; no impacts on downstream water bodies.
Assists attainment of water body objectives	No; does not assist with the attainment of any mitigation water body objectives.
6. Assists attainment of protected area objectives	No; does not assist with the attainment of any mitigation measures required for the protected areas.

Resource: Raw water transfer support: Transfer of Minworth Effluent 115 MI/d - RES-RWTS-MIN

	WFD water body name			Tame - R Rea to R Blythe								
	WFD water body t			River	K KOU TO K DI	yuio						
	WFD managemen			Tame	Anker and Mea	se.	WFD wate	r body	3B104	028046841		
	catchment River Basin Distri	ct		Humbe								
	Tavor Baom Broan	<u> </u>			FD Designation	as Objective	s and Mitigat	ion				
					Overall Status					Nhiaetive (2027)		
	WFD Status and Objectives		KE		oderate	Obje	ctive (2021)		U	bjective (2027)		
dy	Hydromorphologi	cal de	signa		Heavily modified							
Water body	Water Body Mitigation Measure	No pu	blishe	ed mitiç	gation measures	3						
					WFD	Protected A	eas					
	Bathing Water Directive	Water	Drinking Water Directive		nservation of d Birds ective	Habitats Directive	Nitrates Directive	Shellfi Directi		Urban Waste Water Treatment Directive		
	NO	NO		NO		NO	YES	NO		NO		
		neme components tentially affecting water dy		Const Opera Tame	nworth WwTW to River							
	WFD element	RBMP2 (20 status				Assessed st	uction a	nd ope	eration)			
	Fish		Poo	r	Uncertain					t inputs from Minworth		
	Macro-invertebrate	s No	t asse	ssed	Not assessed	WwTW has the potential to have a major impact on the river's hydrological regime, since it would drastically restrict the river's Q95 flows. Decrease in flows resulting from diversion of discharge could exacerbate low flow conditions, reducing						
(scoping)	Macrophytes & Phytobenthos	Not	t asse	essed	Not assessed	available habitat for fish. However, assuming flows would be protected by the hands-off flow constraint (197M/d at Wat						
WFD assessment (scoping)	Chemical (Overall	1)	Fail		Fail	There is neg classes, the status due to waterbody m	ligible risk of river is alread in zinc and nicles ay lead to imp	deteriora ady failin kel inputs orovemei	ation body g to a s. The nts to v	etween chemical status achieve good chemical removal of FE from the water quality, however it ent in WFD status.		
WFD	Protected Area De	etails		vulner		ever, the sche	eme will not a	ffect the	manag	a surface water nitrate gement of the protected		
	Does the compon	ent co	mply	with \								
	1. No deterioration classes	betwe	en st	atus		equired includi	ng developm			status classes; further al mitigation measures if		
	2. No impediments				Yes; no imped	liments to GEI	P					
	No compromises objectives	s to wa	ter bo	ody	Yes; no compromises to water body objectives.							
	4. No effects on oth				Yes; no effects on other water bodies.							
	Assists attainme objectives	i. Assists attainment of water body		No; does not assist with the attainment of water body objectives.								
		6. Assists attainment of protected			No; does not a	assist with the	attainment of	protecte	d area	a objectives.		

	WFD water bo	dv sa	mo	Δνος (Warks) - conf	P Loom to Tr	amı	yay Pr			
	WFD water bo			River	vvaiks) - com	K Leani to Ti	alliw	иау Ы			
	WFD manager		pc					WFD water		05	
	catchment			Avon \	Varwickshire			body ID		GB1090540	044402
	River Basin D	istrict		Severr	า						
				WFD Designations, Objectives a					on	,	
<u>></u>	WFD Status a	nd	RBM				ectiv	ve (2021)		Obj	ective (2027)
Ö	Objectives	1 1		Mode		la a i sa a ta al a sti	· · · ·				Good
er –	Hydromorpho	logica	ai design	ation	INOT C	lesignated arti	псіа	ii or neavily n	noa	пеа	
Water body	Water Body Mitigation Measure	No pu	ıblished n	nitigatio	on measures						
						D Protected	Area	as			
		Drink			ervation of	Habitats	Nit	rates	She	ellfish	Urban Waste
	Water Directive	Water Directive		Wild E Direct		Directive		ective	_	ective	Water Treatment Directive
	NO	NO	live	NO	ive	NO	YE	Q	NO		YES
	140	IIIO		_	ruction: New				_		_
	Scheme components			Construction: New 29 km pipeline and discharge to the River Avon (Warks) - conforms to conf R Leam.							
	potentially aff	potentially affecting water			Operation: Transferring 115 MI/d of treated effluent from Minworth STW to River Avo						
	body				responding cessation of final effluent discharged to the River Tam					er Tame	
		RBMP2			4028046841)						
	WFD element	ement RBMP2 stat				Assessed s	statı	us (construc	ctio	n and opera	ntion)
	Fish		Not ass		Uncertain	Construction	n of	f the pipelin	e a	nd new disc	charge outlet will be
	Macro-inverteb	rates	Goo	d	Uncertain						thods and any risk to
						construction will not cause deterioration of the water body. The proposed 115 Ml/d transfer of final effluent to the River Avor may have an adverse impact on the hydrological regime and may pose a risk of flooding in this stretch of the River Avon. These modification in flow regime may also have an adverse impact or macro-invertebrate communities.					ent to the River Avon gical regime and may e River Avon. These
assessment (scoping)	Macrophytes & Mod Phytobenthos		Mode	rate	Moderate	especially adverse im Further evide be mitigate prior to its do to be the pscheme will Environmen	Effluent inputs may lead to a deterioration in water quality especially during low flow conditions, which in turn may have adverse impacts on the ecology (especially macro-invertebrates Further evidence and assessment required. These impacts make mitigated by employing additional treatment of the efflue prior to its discharge. The scheme currently assumed RO procesto be the preferred method to improve effluent quality and the scheme will need to be agreed and consented/licensed by the Environment Agency to ensure no deterioration to WF ecological status.				ch in turn may have macro-invertebrates). These impacts may tment of the effluent assumed RO process luent quality and the ented/licensed by the
WFD asse						the scheme	Further assessment is required to address uncertainties aroun the scheme's impacts on the hydrological regime and wate quality of the river Avon. Further assessment of the pollutant concentrations in the treate				
	Chemical (Ove	erall)	Goo		Uncertain	effluent is currently s chemical W	req uspe /FD	uired given ected to be status failure	tha one in t	at Minworth e of the fac the River Ta	WwTW effluent is ctors contributing to me.
	Protected Are			vulnera area u affect t are ex	able zone. Riv nder the Urba the manageme pected or wou	er Avon (Wark in Waste Wate ent of the prote ld be permitte	k) - d er Tr ecte	conf R Leam reatment Dire d area and n	to T ectiv	ramway Br) ve. However gnificant cha	surface water nitrate is a nutrient sensitive , the scheme will not anges in water quality nit controls.
	Does the com						0	ion between	C.L.	tuo electri	further concentration
	No deteriora classes No impedimental controls in the control				required incl	uding develop	mer	nt of addition	al n	nitigation me	; further assessment easures if required to n measures may be
	3. No comprom				challenging.						-
	objectives	n oth o	r water h	odico	Yes; no compromises to water body objectives.						
	4. No effects or				Yes; no effects on other waterbodies						
	objectives	Assists attainment of water body biectives			No; does not assist with the attainment of water body objectives.					ctives.	
		. Assists attainment of protected			No; does not assist with the attainment of protected area objectives.						
	area objectives		•		ino, does not	. สรรเรีย ฟเติก โท	e ati	аншен огр) OTE	cieu area ol	ojectives.

Resource: Raw water transfer support - Netheridge Final Effluent Transfer - RES-RWTS-NTH

	WFD water body n	ame	Sev	ern - conf R A	von to	conf Upper Pa	arting			
	WFD water body ty	/ L	Rive	er						
	WFD management catchment		Sev	ern Vale			WFD wat	erbody	GB10905	34044404
	River Basin Distric	t	Sev	ern						
				WFD Design	nation	s, Objectives	and Mitigation			
	WFD Status and			erall Status		Objective (2	2021)		Objectiv	e (2027)
>	Objectives Hydromorphologic		Mode							
Waterbody	Water Body			mitigation mea	neasures					
					WFD	Protected Are	as			
	Bathing Water Directive	Drinking Water Directive		Conservation Wild Bird Directive	ls	Habitats Directive	Nitrates Directive	_	ellfish rective	Urban Waste Water Treatment Directive
	NO	NO		NO		NO YES NO				
	Scheme componer potentially affectin waterbody	g Op		nstruction: N/ eration: Trans n to conf Uppe	fer of		/d) from Nethe	eridge W	wTW to R	Severn conf R
	WFD element	RBMP: (2015) status)		A	ssessed statu	s (construct	ion and	operation)
	Fish	Not assesse	ed	Not assessed	The input of final effluent from Netheridge WwTW is not expected to					
	Macro- invertebrates	Poor		Poor	have any detrimental impacts on the flow regime or water quality in a waterbody of this size. Based on Q50 exceedance at Deerhurst GS, average flows will be increased by a mere 0.6% and therefore, no					water quality in a t Deerhurst GS,
oping)	Macrophytes & Phytobenthos	Not assesse	ed	Not assessed	adver	se impact on t	he flow regim	e.		·
nt (sc	Chemical (Overall)	Good		Good		k of deteriora for improvem				asses and limited body scale.
'D assessment (scoping)	Protected Area De		the nutri sche	Nitrates Direction ient sensitive	ctive a area u ffect th	nd the River s under the Urba ue managemer	Severn - cont in Waste Wat	R Avon er Treatn	to conf Unent Direct	ensitive area under Jpper Parting is a tive. However, the dverse changes in
WFI	Does the compone	•			-					
	No deterioration betatus classes	oetween		Yes; no risk o	f dete	rioration				
	2. No impediments t		EΡ	Yes; no impe	diment	ts to GEP.				
	3. No compromises body objectives	to water		Yes; no comp	romis	es to water boo	dy objectives.			
	4. No effects on othe bodies	er water		Yes; there are no potential effects on other water bodies.						
	Assists attainmer body objectives			No; does not assist with attainment of water body objectives.						
	6. Assists attainment protected area objection			No; does not protected are		with the attain	ment of any n	nitigation	measures	required for the

Resource: Raw water transfer support: Vyrnwy Transfer to Severn Trent Water 12Ml/d - RES-RWTS-SHR-12

	WFD water body	name	Severn - d	conf Bel	e Bk to conf Sund	dorne Bk					
	WFD water body	type	River								
	WFD managemer	nt catchment	Severn U	plands			WFD waterbo	ody ID	GB1090	054049142	
	River Basin Distr	ict	Severn								
			WFD Des	ignatio	ns, Objectives a	nd Mitig	ation				
	WFD Status and	RBMP2 O	verall Stat	us	Objectiv	e (2021)		Objective (2027)			
	Objectives	<u> </u>	derate	- Good							
dy	Hydromorpholog	ical designation			Not designated a	artificial o	or heavily	/ modifie	ed		
Waterbody	Water Body Mitigation Measure	No published r	nitigation m	neasure:	s						
				WFD	Protected Area	s					
	Bathing Water Directive	Drinking Water Directive	Conserv of Wild Direct	Birds	Habitats Directive		ates ctive	Shellfish Directive		Urban Waste Water Treatment Directive	
	NO	YES	NC		NO	YI	ES	١	10	YES	
	Scheme components potentially affecting waterbody		Construction: N/A Operation: Reduce abstraction from the Shrewsbury Intake on the River Severn by 30 Ml/d								
	WFD element	RBMP2 (2015) status		,	Assessed status	(constr	uction a	nd ope	ration)		
	Fish	Not assessed	Not assessed	The scheme entails the reduction of abstraction from River Severn Shrewsbury intake by 30 Ml/d. This reduction will be enabled by							
	Macro- invertebrates	High	High	water by th opera	water transfer between Vyrnwy Reservoir and Oswestry, an area s by the abstraction at Shrewsbury. There will be no change operational pattern in Vyrnwy Reservoir, the water volume being					an area supplied change in the	
ment (scoping)	Macrophytes & Phytobenthos	Moderate	Moderate	Redu along will b impad increa	e abstracted. The	tion at S he intake additio River S	e at Deer nal volur evern ar	hurst, w ne of wand will r	here an a ater will h ot consti	additional 12 MI/d nave a beneficial tute a significant	
ess		Good	Good	There	e is no risk of dete	erioration	hetwee	n chemi	cal status	s classes	
WFD assessm	Protected Area D	Drinking Sundorn adversely Protected Area Details Nutrient vulnerab area und			Protected Area: to a Drinking Wate go the chemical step Areas: The wate and Severn - confirban Waste Watenagement of the protection of the	the water Prote atus at ver body Bele Bk	er body cted Are vater bod is associ to conf S ment Dire	(Severne but to	- conf here is r th a surfa e Bk is a	Bele Bk to confinegligible risk of ace water nitrate nutrient sensitive	
	Does the compor		i								
	1. No deterioration				risk of deteriorati						
	2. No impediments			Yes; no impediments to GEP.							
	No compromiseNo effects on ot	•	•	Yes; no compromises to water body objectives. Yes; there are no potential effects on other water bodies.							
	5. Assists attainme			No; does not assist with attainment of water body objectives.						es.	
	objectives 6. Assists attainme objectives	ent of protected a	irea	No; does not assist with the attainment of any mitigation measures required for the protected areas.							

Resource: Raw water transfer support Vyrnwy Transfer to Severn Trent Water 30Ml/d - RWP_STT UU/ST OPT B

	WFD water body	name	Severn - c	onf Bel	e Bk to conf Sund	dorne Bk						
	WFD water body	type	River									
	WFD manageme	nt catchment	Severn Up	olands			VFD vaterbody ID	GB109	109054049142			
	River Basin Distr	ict	Severn									
					ns, Objectives a							
	WFD Status and		verall Stat	us	Objectiv			ve (2027)				
ody	Objectives		derate	e - Good Not designated artificial or heavily modified								
ğ	Hydromorpholog	ical designation			Inot designated a	artificial or	neavily modifi	ea				
Waterbody	Water Body Mitigation Measure	No published n	nitigation m	igation measures								
				WFD	Protected Area	s						
	Bathing Water Directive	Drinking Water Directive	Conserv of Wild I Direct	Birds	Habitats Directive	Nitrat Direct		ellfish ective	Urban Waste Water Treatment Directive			
	NO	YES		NO NO YES NO								
	Scheme compon affecting waterbo		Operation 30 MI/d		/A ace abstraction fro	m the Shr	ewsbury Intak	e on the	River Severn by			
	WFD element	RBMP2 (2015) status			Assessed status	(constru	ction and ope	eration)				
	Fish	Not assessed	Not assessed	The scheme entails the reduction of abstraction from River Severn a Shrewsbury intake by 30 Ml/d. This reduction will be enabled by a								
	Macro- invertebrates	High	High	water transfer between Vyrnwy Reservoir and Oswestry, an area supply the abstraction at Shrewsbury. There will be no change in								
WFD assessment (scoping)	Macrophytes & Phytobenthos	Moderate	Moderate	Redu along will b impagincre	ational pattern in vixisting abstraction acting the abstract githe Severn until the abstracted. The ct on flows in the	Vyrnwy Rent. tion at Sheche intake a additional River Seven	eservoir, the v rewsbury will at Deerhurst, v al volume of w vern and will i	allow mover allow where an vater will not const	ore water to flow additional 12 Ml/d have a beneficial litute a significant and in a waterbody			
ess	Chemical (Overall)	Good	Good	There	e is no risk of dete	erioration h	netween chem	ical statu	ıs classes			
WFD assessm	Protected Area D	etails	Sundorne adversely Nutrient S vulnerable area unde	There is no risk of deterioration between chemical status classes. Drinking Water Protected Area: the water body (Severn - conf Bele Bk to confounded Bk) is a Drinking Water Protected Area but there is negligible risk of adversely affecting the chemical status at water body scale. Nutrient Sensitive Areas: The water body is associated with a surface water nitrate vulnerable zone and Severn - conf Bele Bk to conf Sundorne Bk is a nutrient sensitive area under the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area.								
	Does the compor											
	1. No deterioration				risk of deteriorati							
	2. No impediments				impediments to C							
	3. No compromise				compromises to			. l. a al'				
	4. No effects on of 5. Assists attainment of the strikes			ere are no potentians s not assist with a				es.				
	objectives 6. Assists attainmobjectives	ent of protected a	irea I	No; does not assist with the attainment of any mitigation measures required for the protected areas.								
	,				: p							

Resource: Raw water transfer support: River Wye to Deerhurst 60 Ml/d - RES-RWTS-WYE-60.3

	WFD water bod	y name	Wye - Hampton	Bishop to conf Kei	rne Br						
	WFD water bod	<u> </u>	River								
	WFD managem	ent catchment	Wye MC		WFD waterbo	ody ID	GB109055037112				
	River Basin Dis	trict	Severn		waterbo	Duy ID					
			WFD Designa	tions, Objectives	and Mitigation						
	WFD Status	RBMP2 O	verall Status	Objectiv	re (2021)	(Objectiv	/e (2027)			
	and Objectives	F	Poor	Mode	erate			-			
ody	Hydromorpholo	gical designat	Not designated artificial or heavily modified								
Waterbody	Water Body Mitigation Measure	No published n	nitigation measure	tigation measures							
			W	FD Protected Are	eas						
	Bathing Water Directive	Drinking Water Directive	Conservation o Wild Birds Directive	f Habitats Directive	Nitrates Directive	Shell Direc		Urban Waste Water Treatment Directive			
	NO	NO	NO	YES	YES	NO	-	YES			
	Scheme compo potentially affect waterbody			Construction: New 30.5 km pipeline between Ross-on-Wye and Deerhurst WTW Operation: 66.3 Ml/d raw water transfer from River Wye near Ross-on-Wye to Deerhurst WTW							
	WFD element	RBMP2 (2015) status		Assessed status (construction and operation)							
	Fish	Not assessed		There is the poten sensitive ecologic							
	Macro- invertebrates	High	High	restrictions will apply during low flow conditions.							
	Macrophytes & Phytobenthos	Poor	Poor	would be protected by the hands-off flow constraints and Elan Va reservoir releases set out in the River Wye/Elan Valley Operat Agreement and associated abstraction licence conditions, the should be no material adverse effects on the ecology. However, further investigation is required to fully understand the frequency aduration of the scheme and to determine, with more certainty, likely impact under low flow conditions with the existing Operat Agreement / abstraction licence conditions in the reach between Ross-on-Wye and Welsh Water's Monmouth abstraction, especiative the River Wye's SAC designation.							
SSIT	Chemical (Overall)	Good	Good	There is no risk of	deterioration het	ween che	mical s	tatus classes			
WFD ass	Protected Area	Details	River Wye SAC: The main River Wye component of the SAC represents an important system providing habitats for a wide range of protected species such as sea, brook and river lamprey, twaite and allis shad, atlantic salmon, bullhead and otter. The river also supports <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation. The scheme is considered unlikely to result in major adverse impacts on any of these designated features but Appropriate Assessment is required to confirm no adverse effects on site integrity after taking account of any additional mitigation measures that may be required (e.g. modifications to the Operating Agreement/abstraction licence conditions in relation to the low flow regime in the reach between Ross-on-Wye and Welsh Water's Monmouth abstraction). Nutrient Sensitive Areas: The water body is associated with a surface water nitrate vulnerable zone and River Wye - Hampton Bishop to conf Kerne Br is a nutrient sensitive area under the Urban Waste Water Treatment Directive. However, the								
			scheme will not affect the management of the protected area. with WFD Objective								
	No deterioration classes No impediment		required by Dwr Cymru Welsh Water, including consideration of any required mitigation measures (such as changes to the River Wye/Elan								
			WFD s					,			

3. No compromises to water body objectives	Yes; no compromises to water body objectives					
4. No effects on other water bodies	Provisional assessment is YES but further evidence and assessment required by Dwr Cymru Welsh Water, including consideration of any required mitigation measures to maintain WFD status in downstream water body, assessed below.					
5. Assists attainment of water body objectives	No; does not assist with the attainment of water body objectives					
6. Assists attainment of protected area objectives	No; does not assist with the attainment of any protected areas objectives					

	WFD water body		Wye - conf Walf	ford Bk to Bigs	weir Br						
	WFD water body		River								
	WFD managemen		Wye MC			waterbody	GB109055037111				
	River Basin Distric	it	Severn		ID						
				tions, Objectiv		ation					
	WFD Status and		verall Status	Objectiv	<u> </u>		Objective (2027)				
ody	Objectives		derate	Go		-					
erb	Hydromorphologi	cal designatio	not designated artificial or heavily modified								
Waterbody	Water Body Mitigation Measure	No published	mitigation meas	mitigation measures							
			W	_							
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Shellfish Directive					
	NO	YES	NO	YES	YES	NO	NO				
	Scheme compone		Construction: N	•							
	potentially affecti	ing	•		r transfer fron	n River Wye	near Ross-on-Wye to				
	waterbody		Deerhurst WTW								
	WFD element	RBMP2 (2015) status		Assessed sta	atus (constru	ction and o	peration)				
	Fish	Not assessed		There is the potential for adverse impact on the WFD status of							
	Macro- invertebrates	Not assessed	Not assessed	sensitive ecological elements in the River Wye, as a result of abstracting up to 60.3 MI/d at the Ross-on-Wye intake. Although water is available for abstraction within the Wye catchment.							
g)	Macrophytes & Phytobentos	Moderate	Moderate	restrictions will would be prote reservoir relea Agreement an should be no further investig duration of the likely impact u Agreement / a	I apply durin cted by the h ses set out in discontinuous associated material advation is required scheme and inder low flow abstraction liderand Welsh W.	g low flow ands-off flow in the River d abstraction erse effects ed to fully und to determiny conditions eence condi- tater's Monn	conditions. Assuming these constraints and Elan Valley Wye/Elan Valley Operating in licence conditions, there on the ecology. However, inderstand the frequency and ne, with more certainty, the with the existing Operating tions in the reach between nouth abstraction, especially				
asses	Chemical (Overall)	Good	Good	There is no risl	k of deterior	ation betwe	en chemical status classes				
	Protected Area De	etails	River Wye SAC: The main River Wye component of the SAC represents an important system providing habitats for a wide range of protected species such as sea, brook and river lamprey, twaite and allis shad, atlantic salmon, bullhead and otter. The river also supports <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation. The scheme is considered unlikely to result in major adverse impacts on any of these designated features but Appropriate Assessment is required to confirm no adverse effects on site integrity after taking account of any additional mitigation measures that may be required (e.g. modifications to the Operating Agreement/abstraction licence conditions in relation to the low flow regime in the reach between Ross-on-Wye and Welsh Water's Monmouth abstraction). Nutrient Sensitive Areas: The water body is associated with a surface water nitrate vulnerable zone and River Wye - conf Walford Bk to Bigsweir Br is a nutrient sensitive area under the Urban Waste Water Treatment Directive. However, the scheme will not affect the management of the protected area.								

Does the component comply with WFD	Objective
	Provisional assessment is YES but further evidence and assessment required by Dwr Cymru Welsh Water, including consideration of any required mitigation measures (such as changes to the River Wye/Elan Valley
2. No impediments to 625/621	operating agreement and abstraction licence conditions) to maintain WFD status.
3. No compromises to water body objectives	Yes; no compromises to water body objectives
4. No effects on other water bodies	Yes; no effects on other waterbodies
5. Assists attainment of water body objectives	No; does not assist with the attainment of water body objectives
6. Assists attainment of protected area objectives	No; does not assist with the attainment of any protected areas objectives

Conveyance: Raw Water System - South East Strategic Reservoir Option to Farmoor - (24 Ml/d) - CON-RWS-ABI-FMR

	WFD water body		Farmoor Reservoir								
	WFD water body		Lake		wen						
	WFD manageme		Cotswolds		WFD	adv ID	GB3064	11011			
	River Basin Dis	trict	Thames	tions Objectives	waterbo	oay ID					
	WFD Status	DRMD2 Ov	erall Status	tions, Objectives	/e (2021)		Objective (2027)				
	and			Objectiv	76 (2021)	Objective (2027)					
≥	Objectives	Mode	erate	- Good							
000	Hydromorpholo	gical designation	on	Artificial							
er	Water Body										
Waterbody	•	No published mi	tigation measure	es							
			W	FD Protected Are	eas						
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitate	Nitrates Directive	Shellfish Directive		Urban Waste Water Treatment Directive			
	NO	YES	NO	NO	YES		10	YES			
	Scheme compo		Construction:	Temporary constr	uction of new dis	charge a	at Farmo	or			
	potentially affect	ting		w water transfer o		m new	South Ea	ast Strategic			
	waterbody		Reservoir to ex	isting Farmoor Re	servoir						
	WFD element	RBMP2 (2015) status		Assessed statu	us (construction	and op	eration)				
	Fish	Not assessed		Temporary constru							
	Littoral invertebrates	Not assessed	Not assessed	by good practice co water body are							
	Chironomids (CPET)	Not assessed	Not assessed	deterioration.							
	Angiosperms	Not assessed		and This is an artificial water body and the biology has not been recently assessed. Littoral invertebrates were previously reported as High in							
D assessment (scoping)	Phytoplankton	Not assessed	Not assessed	2013, phytoplanktohosphorous was already the potentis s not currently a classification. Inpu Reservoir is under Portobello Ditch (Poor for Phosphacombined. The transfer is thought a waterbody scalar the proposed raw	reported as porial for algal bloom ssessed for the twater from Soutrstood to originat GB10603902336 atte and Poor for ught unlikely to fuale.	or. This formation formation purpose th East Se e from (0) Macrop rther det	being the continuity of the co	ne case there is reservoir but this D phytoplankton Reservoir Option nmon Brook and ently classed as and Phytobenthos phosphate status			
assess	Chemical			The proposed raw water transfer poses a potential risk of invasive non-native species spread and further assessment is required to quantify this risk.							
	(Overall)	Good	Good -	There is no risk of	deterioration bet	ween ch	emical st	tatus classes.			
WF	Protected Area	Details	Drinking Water Protected Area: the water body (Farmoor Rese Water Protected Area but there is negligible risk of adversely affestatus at water body scale. Nutrient Sensitive Areas: The water body is associated with a sunitrate vulnerable zone. Farmoor Reservoir is a nutrient sensitiur Urban Waste Water Treatment Directive. However, the scheme					ervoir) is a Drinking fecting the chemical urface water itive area under the			
	Does the compo	onent comply w		f the protected are	·						
	1. No deterioration		9				b				
	classes		Yes; no	o deterioration bet	ween status clas	ses, furt	ner asses	ssment required.			
	2. No impedimen	ts to GES/GEP	Yes; no	o impediments to	Good Ecological	Potentia	ıl.				
	No compromis objectives	ses to water body	Yes; no	compromises to	water body object	tives.					
	4. No effects on	other water bodie	es Yes; no	Yes; no effects on other water bodies.							
	Assists attainn objectives		4.4	No; does not assist with the attainment of water body objectives.							
	6. Assists attainn objectives	nent of protected	No; do	No; does not assist with the attainment of any protected areas objectives.							

Conveyance: Raw Water Systems - New Medmenham Intake (53) - CON-RWS-MMM-53

	WFD water body		Thames	s (Reading	to Cookham)							
	WFD water body	type	River									
	WFD managemen	t catchment	Thames	s and Sout	h Chilterns		WFD waterbo	dy ID	GB10	06039023233		
	River Basin Distri	ict	Thames	3				_				
			WFD D	esignatio	ns, Objectives	and Mit	igation					
	WFD Status and	RBMP2	Overall S	Status	Objectiv	ve (2021	1) Objective (2027)					
ód	Objectives		oderate			-				-		
å	Hydromorpholog	ical designati	on		heavily modifie	d						
Waterbody	Water Body Mitigation Measu	re No publi	shed miti	igation me	asures							
				WFD	Protected Are	as						
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive		Habitats Directive		ates ctive	Shell Direc		Urban Waste Water Treatment Directive		
	NO	NO		NO	NO	YE	ES .	N	0	YES		
	Scheme compone potentially affecti			Construction: New abstraction intake, water treatment works and pipeline to new ervice reservoir								
	waterbody		Operati	Operation: A new 53 MI/d abstraction from River Thames								
	WFD element	RBMP2 (20° status	15)		Assessed status (construction and operation)							
	Fish	Not assesse	ed Not	assessed								
	Macro- invertebrates	High		High	works and pipeline will be managed by good practice construction methods and any temporary risks to the water body are assessed							
(scoping)	Macrophytes & Phytobenthos	Not assesse	Not assessed		adverse impact the waterbody.	action fr ts on the The ab	om Rive flow reg	er Tham jime, wa n accou	nes is u ater qua	unlikely to result in ality and ecology of a mere 4% of Q95 terioration to WFD		
nent	Chemical (Overall)	Good		Good	There is a negli classes.	gible ris	k of dete	rioratior	n betwe	en chemical status		
WFD assessment (scoping)	Protected Area D		vulnera sensitiv scheme change	ent Sensitive Areas: The water body is associated with a surface water nitrate erable zone. River Thames (Reading to Cookham) is designated as a nutrient litive area under the Urban Waste Water Treatment Directive. However, the me will not affect the management of the protected area and no significant ges in water quality are expected.								
	Does the compor			Objectiv (e							
	 No deterioration classes 		ıs	·	eterioration bet		atus clas	ses.				
	2. No impediments			Yes; no ir	npediments to C	BEP.						
	3. No compromises objectives	s to water bod	y	Yes; no c	ompromises to	water bo	ody objec	tives.				
	4. No effects on ot			Yes; no e	ffects on other v	vater bo	dies.					
	Assists attainme objectives	ent of water bo	No; does not assist with the attainment of water body objectives.									
	6. Assists attainme objectives	ent of protected	No; does not assist with the attainment of any protected areas objectives.									

Resou	ırce	: Aquifer Stor	rage	& Recov	ery/	- Horton Kirl	oy - RES-AS	R-HTK					
	WF	D waterbody na	ame	We	st K	ent Darent and (Cray Chalk	WFD wate	rbody ID	GB ₄	40601G50 0		
	WF	D waterbody ty	ре	Gro	ound	water		Rive	Basin	Tha	mos		
	WF	D management	catc						District Thames				
						Designations,			itigation				
>		D Status and		RBMP2	2 Ov	erall Status	Objective	(2021)		Objec	ctive (2027)		
ро	Obj	ectives			Po	oor -					-		
Waterbody		ter Body Mitiga asure	tion	No publish	ed m	iitigation measui							
							Protected Area	s					
		Bathing Drinking Water Water Directive Directive			nservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Shellfi: Directi		Urban Waste Water Treatment Directive			
	NO YES			NO	NO	YES	NO		NO				
						Construction:							
	Scheme components potentially affecting waterbody					aquifer recharge borehole.					be used to support [non-WFD aquifer]		
		D Status Test				RBMP2 (2015) status	Assesse	ed status (co	nstruction	n and	d operation)		
	Qua	antitative (Over	all)			Poor			-				
	Dependent Surface Water Body Status				tus	Poor	waterbodies as the abstraction aquifer is within licence and is treated and stored in the Aquifer for re-abstraction.			d uses water which			
	GW	DTEs test				Good	Good	There are no impacts on any GWDTE associated with the groundwater body					
ing	Sali	ne Intrusion				Good	Good	There is no risk of saline intrusion.					
scopi	Wat	ter Balance				Poor	Poor	The abstraction will not affect the wa balance on a groundwater body scale.					
ent (Che	emical (Overall)				Poor	Poor	No risk of deterioration in chemical status at groundwater body scale.					
WFD assessment (scoping)	Protected Area Details					Drinking Water Protected Area: the water body (West Kent Darent and Chalk) is a Drinking Water Protected Area but there is a negligible ri adversely affecting the chemical status at the groundwater body scale. Nutrient Sensitive Areas: The groundwater body is associated with a su water nitrate vulnerable zone. However, the scheme will not affect management of the protected area and no significant changes in water q							
	Doe	es the compone	ent co	omply with	WF	are expected. D Objective							
	1. N	lo deterioration b				Yes; no deterio	ration between	status classes					
			o GE	S/GEP		Yes; no impedir	ments to Good S	Status					
	3. N	No impediments to GES/GEP No compromises to water body objectives				Yes; no compro			es.				
						Yes; no effects on other water bodies.							
	5. A	5. Assists attainment of water body				No; does not as			ter body o	bjec	tives.		
	objectives 6. Assists attainment of protected area objectives				ea	No; does not as	sist with the att	ainment of an	y protecte	d are	eas objectives.		

Resource: Groundwater – Groundwater Datchet 5.7 Ml/d - RES-GW-DAT

	WFD water body	name	Thames (Cookham to Egham)								
	WFD water body t		River								
	WFD managemen		Maidenhe	ad to S	Sunbury		WFD w		GB106039023231		
	River Basin Distri		Thames				body ID)	05100	000020201	
					ns, Objectives a						
	WFD Status and	RBMP2 Ov		us	Objectiv	e (2021)	21) Objective (2027)				
\$	Objectives		erate		heavily modified					-	
poq	Hydromorphologi	ical designation		neavily modified							
water body	Water Body Mitigation Measures	No published m	itigation me								
			T	WFD	Protected Area	S					
	Bathing Water Directive	Drinking Water Directive	Conserv of Wild I Direct	Birds ive	Habitats Directive	Nitrates Directive		Shellfish Directive		Urban Waste Water Treatment Directive	
	NO	YES	YES		NO	YE	S	N	0	YES	
	Scheme compone	ents potentially	Construc								
	affecting water bo	ody	Operation this river v		raction is within a ody.	a confine	d aquife	er [non-\	WFD aq	uifer] overlain by	
	WFD element	RBMP2 (2015) status		A	Assessed status						
	Fish	Not assessed	Not asse	essed	The abstraction						
	Macro-	Good	Good				sessment, including groundwater modelling				
	invertebrates			results, indicates there is a negligible risk of impact on flows in the Thames (Cookham to Egham) (GB106039023231) due to							
	Macrophytes & Phytobenthos	High	High	h	drawdown from hydrological impof Thames) there	the borel act (<1%	holes(s) change	. Due to	the neg Q95 of t	gligible surface the 3km stretch	
=	Chemical (Overall)	Good	Good	d	Given the negligible reductions in flow in the Thames, the chemical status is not expected to deteriorate.						
WFD assessment (scoping)	Protected Area Do		unlikely to Nutrient so area unde area unde will not aff in water q South We of water s made and because t form part	king water: The water body is a drinking water protected area but there is kely to be a change in water quality as a result of the scheme. Tient sensitive areas: The water body is associated with a nutrient sensitive a under the Nitrates Directive and the River Thames is a nutrient sensitive a under the Urban Waste Water Treatment Directive. However, the scheme not affect the management of the protected area and no significant changes ater quality are expected. The West London water bodies SPA and Ramsar: the site comprises a series later supply reservoirs and former gravel pits that support a range of mande and semi-natural open-water habitats. There will be no impact on the SPA ause there will be no net change to water levels in the supply reservoirs that							
	Does the compon	ent comply with	h WFD Ob	jective	•						
	1. No deterioration						isses.				
	2. No impediments		Y	'es; no	impediments to 0	GEP.					
	No compromises objectives	s to water body	Y	'es; no	compromises to	water bo	dy obje	ctives.			
		ner water hodies							bodies		
	No effects on other water bodies Assists attainment of water body objectives			Yes; there are no potential effects on other water bodies. No; does not assist with attainment of water body objectives.							
	Assists attainme objectives	nt of protected a		No; does not assist with the attainment of any mitigation measures required for the protected areas.							

Resource: Groundwater - Honor Oak - 2.8 Ml/d - RES-GW-HON

	WFD water bo	dy name	Raven	sbourne (Ca	atford to Deptfo	ord)						
	WFD water bo		River									
	WFD manager		Londor	า			WFD waterbody	ID G	3B106039	023270		
	River Basin D	istrict	Thame	es .			waterbody					
			WI	FD Designa	itions, Object	ives	and Mitigat	ion				
	WFD Status and	RBMP2 C	verall (Status	Objecti	ve (2	021)	Objective (2027)				
φ	Objectives	Mo	oderate			-				Good		
rbo	Hydromorpho	logical design	ation		heavily modifi	ed						
Waterbody	Water Body Mitigation Measure	No published ı	mitigatio	on measures								
				W	VFD Protected	d Are	as					
	Bathing Water Directive	Drinking Water Directive	Wil	ervation of d Birds rective	Habitats Directive		litrates irective	_	nellfish rective	Urban Waste Water Treatment Directive		
	NO	NO	NO		NO		NO		NO	NO		
	Scheme comp potentially aff waterbody	Opera	ruction: N/A	se in abstracti	on - a	approximatel	ly 1 N	MI/d				
	WFD element	RBMP2 (2015) status	Assessed status (construction and operation)									
	Fish	Bad		Bad	The abstraction would be from the confined chalk aquifer although some connectivity with the Greenwich Tertiaries and Chalk							
(Bı	Macro- invertebrates	Moderate	e M	1oderate	(GB40602G602500) waterbody may be expected. The small increase in abstraction is unlikely to have any adverse impacts on							
assessment (scoping)	Macrophytes & Phytobenthos	Not assessed	d Not	assessed	flows in the Ravensbourne River, assuming only limited connectivity exists between the confined chalk and the Greenwich Tertiaries. Further assessment would be required to confirm this preliminary assessment.							
smen	Chemical (Overall)	Good		Good	Given the neg deteriorate.	ligibl	e risk to flow	rs, ch	nemical sta	atus is not expected to		
D asses	Protected Are	a Details	None									
WFD	Does the com											
	No deteriora classes			establish c	onnectivity be	tweer				ent required to		
	2. No impedim				pediments to (r body objec	tiv roc				
	No compron objectives	uses to water b	ouay	r es; no co	mpromises to	wate	i body objec	uves	•			
	4. No effects of				are no potenti							
	5. Assists attai objectives	nment of water	body	No; does not assist with attainment of water body objectives.								
	6. Assists attai											
				the protected areas.								

Resource: Inter-Zonal Transfer: Henley to SWA – 2.37 Ml/d - RES-IZT-HEN-SWA-HAM-2.37

	WFD water body	y nam	e N	Maider	nhead Chalk			WFD wat	ter	GB406010	GB40601G602600		
	WFD water body	v tvpe		Ground	dwater			_					
	WFD manageme							River Ba	sin	Thames			
	catchment		I	Thame				District					
				W	FD Designatio	ns, Objectives	and Mit	igation					
) (pc	WFD Status and	ŀ	RBN	ЛР2 O	verall Status	Objectiv	ve (2021)		Objectiv	e (2027)		
ğ	Objectives			G	lood		-				=		
Water body	Water Body		No unda	ated ni	ublished mitigat	on measures							
Ma	Mitigation Meas	ures	i to apac	atou p									
					WFD	Protected Are	eas	1			I I I I I I I I I I I I I I I I I I I	Masta	
			ing Wate	or □	onservation Wild Birds	Habitats		itrates S		hellfish	Wa	Waste ater	
	Directive	Di	rective		Directive	Directive	Dire	ctive	D	irective		tment ctive	
	NO		YES		NO	NO	YI	ES		NO	N	0	
					Construction:								
	Scheme compo		potentia	ally		peration: This transfer is based on the surplus within current licences in							
	affecting water	body			•	enley, so the assumption is that no changes to licence quantities in Her							
					Zone will be ne								
	WFD Status Tes	st			RBMP2 (2015)	Asses	ssed sta	tus (con	struc	tion and o	peration)	
	Overetitetive (O	!!\			status			()					
	Quantitative (O				Good		Dravia	ua budraa	-	rical acces	om ont un	dortokon	
	Dependent Surfa Status	ice wa	ter body		Good	Good	for TM	WDMD1	eolog 1 and	gical asses: I looking to	dieagare.	nete and	
	GWDTEs test				Good	Good							
	Saline Intrusion				Good	Good			Chalk aquifer abstraction at Sheeplan suggested that drawdown would not				
	Water Balance				Good	Good				d due to			
							interac	tion be	twee	n River	Thame	s and	
(6ι							change	e in the	ter at this location. The extent of flo n the River Thames, assuming fu ty is negligible compared with river flo			ning full	
WFD assessment (scoping)	Chemical (Overall)				Good	Good	ground the gro	are no known Natura 2000 or SS dwater dependent habitats associated wound water body. distances from the sea, saline intrusion				ited with	
ssessm							unlikel	ely.					
FD a					D : 1:		The abstraction will not affect the ground waterbody's chemical status.					Ü	
>					Drinking water: there is unlikely								
	Protected Area	Detail	S		Nutrient sensiti area under the management o	Nitrates Directiv	ve. How	ever, the s	scher	ne will not	affect the		
	Door the comm	nest	oom als	varith V	are expected.								
	Does the compo				_								
	classes				Yes; no deterio								
	2. No impedimen				Yes; no impedi	ments to Good	Status						
	No compromis objectives					mises to water		<u> </u>					
	4. No effects on o				Yes; there are no potential effects on other water bodies.								
	5. Assists attainment of water body objectives				No; does not assist with attainment of water body objectives.								
	6. Assists attainment of protected				No; does not as the protected a		tainment	of any mi	itigati	on measur	es requir	ed for	

Resource: Inter-Zonal Transfer: Henley to SWA – 5 MI/d - RES-IZT-HEN-SWA-HAM-5

	WFD water body	y nam	e N	/laider	nhead Chalk			WFD wa	ter	GB40601G602600		
	WFD water body		G	rounc	dwater			River Ba	esin			
	WFD manageme catchment	ent	Т	hame	s GW			District	45	Thames		
<u>></u>					FD Designation	s, Objectives	and Mit	igation			()	
poc	WFD Status and Objectives	1	RBM		verall Status		re (2021)		Objective	Objective (2027)	
er k	Water Body						-			-		
Water body	Mitigation Meas	ures	No upda	ited pu	ublished mitigation	on measures						
>					WFD	Protected Are	as					
	Bathing Water Directive		ing Wate rective	ar i	onservation Wild Birds Directive	Habitats Directive		ates ctive	Shellfish Directive		Urban Waste Water Treatment Directive	
	NO		YES		NO	NO	YI	ES .		NO	NO	
					Construction:							
	Scheme compo affecting water		potentia	illy	Henley, so the a Zone will be need	peration: This transfer is based on the surplus within current lice enley, so the assumption is that no changes to licence quantities one will be needed						
	WFD Status Tes	st			RBMP2 (2015) status	Asses	ssed sta	tus (con	struc	tion and o	peration)	
	Quantitative (O				Good				-			
	Dependent Surfa Status	ice wa	ter body		Good	Good	for TW	WRMP1	4 and	looking to	ment undertaken disaggregate and	
	GWDTEs test				Good	Good					on at Sheeplands	
	Saline Intrusion				Good	Good		8 MI/d suggested that drawdown would not be inficantly affected due to the supporting				
	Water Balance				0000 0000						Thames and	
(Bu							groundwater at this location. To change in the River Thames connectivity is negligible comparationally.				ne extent of flow s, assuming full	
WFD assessment (scoping)	Chemical (Overall)				Good	Good	ground the gro	e are no known Natura 2000 ondwater dependent habitats associated and water body.				
assessr							No risk of saline intrusion. The abstraction will not affect the ground waterbody's chemical status.					
WFD					Drinking water: there is unlikely		er body	is a drink	ing w	ater protect		
	Protected Area	Detail	s		Nutrient sensitiv area under the N management of	Nitrates Directiv	e. How	ever, the	scher	ne will not a	affect the	
	Doos the same	nont	comply	with V	are expected.							
	Does the compo											
	classes				Yes; no deterior Yes; no impedin							
	 No impediment No compromis 											
	objectives 4. No effects on o				Yes; no compro Yes; there are n			·	r had	ies		
	5. Assists attainn objectives			odv	No; does not as	•						
	6. Assists attainment of protected				No; does not as the protected ar		ainment	of any m	itigati	on measure	es required for	

D	Resource: Removal of Constraints - Britwell - RES-RC-BTW										
Reso	urce:	Removal of C	onstrain	its -	Britwell - RES	S-RC-BTW					
	WFD	waterbody name	e Va	ale of	White Horse Cha	alk		WFD waterb ID	ody	GB406010	G601000
		waterbody type	Gr	round	dwater			River E	Racin		
	WFD catch	management ment	Th	name	es GW District Thames						
				W	FD Designations	s, Objectives a	nd Mit	igation			
<u>></u>	WFD	Status and	RBMF	P2 O	verall Status	Objective	e (2021)		Objective	e (2027)
) Q	Objectives				oor						-
Waterbody		· Body ation Measure	No publisl	hed i	mitigation measu	res					
					WF	D Protected A	reas				
	Bathing Water Directive Drinking Water				Conservation o Wild Birds Directive	f Habitats Directive			shellfish Directive	Urban Waste Water Treatment Directive	
		NO	YES		NO	NO		YES		NO	NO
		me components	potentiall	ly	Construction: N	/A					
	affect	ing waterbody			Operation: Reco	mmissioning o	f abstra	action at	Britwe	ell – 1.3 Ml/d	d
	WFD	Status Test			RBMP2 (2015) status	Asses	sed status (construction and operation)				
	Quan	titative (Overall)			Good				-		
	Deper Status	ndent Surface Wa	ater Body		Good	Uncertain	Brook groun	(GB10	060390 abstrac	23740) as	s in the Chalgrove a result of this arate assessment
	GWD ⁻	TEs test			Good	Good	assoc	ciated w	ith the	groundwate	
	Saline	Intrusion			Good	Good				aline intrusi	
oing)	Water Balance				Good	Good				not affect tody scale	he water balance
loos)	Chemical (Overall)				Poor	Poor		sk of de dwater			mical status at a
assessment	Water Balance Chemical (Overall) Protected Area Details				Drinking Water F the chemical stat	rotected Area us at the groun areas: The gro	but the dwater ound w	re is a r body s ater boo	negligib cale dy is as	le risk of a	Horse Chalk) is a dversely affecting ith a groundwater

nitrate vulnerable zone; however, the scheme will not affect the management of the protected area. Does the component comply with WFD Objective 1. No deterioration between status Yes; no deterioration between classes classes 2. No impediments to GES/GEP Yes; no impediments to Good Status. 3. No compromises to water body Yes; no compromises to waterbody objectives. objectives Uncertain, potential risk of deterioration in status classes for dependent surface 4. No effects on other water bodies waterbody Chalgrove Brook (GB106039023740), assessed separately below. 5. Assists attainment of water body No; does not assist with the attainment of water body objectives. objectives 6. Assists attainment of protected No; does not assist with the attainment of any protected areas objectives. area objectives

	WFD water body n	name	Chalgrove Brook							
	WFD water body t	уре	River							
	WFD management		Thames and Sou		WFD waterbod	y ID GB	3106	039023740		
	River Basin Distric	ct	Thames							
		,	WFD Designation	ns, Objectives a	and Mitigation					
	WFD Status and	RBMP2 O	verall Status	Objectiv	re (2021)	Ob		tive (2027)		
d y	Objectives	-	oor	-				oderate		
Waterbody	Hydromorphologic Water Body Mitigation Measure		itigation measure	. · ·	artificial or hea	ivily modifie	ea			
		I	WFD	Protected Area	as					
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Shellfis Directive		Urban Waste Water Treatment Directive		
	NO	NO	NO	NO	YES	NO		NO		
	Scheme compone affecting waterboo		Construction: N/A Operation: Recommissioning of abstraction at Britwell – 1.3 Ml/d							
	WFD element	RBMP2 (2015) status	Assessed status (construction and operation)							
	Fish	Poor		There is a risk of Chalgrove Broo				water quality in the affect fish and		
	Macro- invertebrates	Poor	Uncertain r	nacroinvertebrat and any further d	acroinvertebrates. Further, phosphorus status is currently 'poor nd any further decline in phosphorus status could have an adverse apact on the macrophytes & phytobenthos status, this being					
NFD assessment (scoping)	Macrophytes & Phytobenthos	Moderate	Uncertain s i	currently affected by high phosphorus loads linked to intermitten						
ment	Chemical (Overall)	Good	Canno	There is a neglig classes.	ible risk of dete	rioration be	twee	en chemical status		
D assess	Protected Area De	etails	Nutrient Sensitivoulnerable zone. protected area a	However, the so	cheme will not a	affect the ma	anaç			
WFI	Does the compone									
	1. No deterioration classes	between status		potential risk of further assessm						
	2. No impediments	to GES/GEP		WFD status and required mitigat bliance.						
	3. No compromises objectives	to water body		mpromises to wa	aterbody object	ives.				
	4. No effects on oth			ects on other wa	aterbodies.					
	Assists attainment objectives	nt of water body	No; does n	ot assist with the	e attainment of	water body	obje	ectives.		
	6. Assists attainment objectives	nt of protected a	No; does not assist with the attainment of any protected areas objectives.							

Resource: Raw Water Transfer Support: Oxford Canal Transfer to Cropredy - 15Ml/d - RES-RWTS OXC-CRP-15

	WFD v	waterbody name	2	ame i	Anker Mease – C Y	oal Measures B	lack	WFD waterbo	dy	GB404020	G992400
		vaterbody type	G	round	dwater			River Ba	sin		
	WFD r	management ment	Н	umbe	er GW			District	3111	Humber	
				W	FD Designations	s, Objectives a	nd Mit	igation			
<u></u>	WFD S	Status and	RBM		verall Status	Objective				Objective	e (2027)
poq	Objec	tives		G	ood Good Good					od	
Waterbody	Water Mitiga	Body tion Measure	No publis	shed	mitigation measu	res					
			1		WF	D Protected A	reas				
		Bathing Water Directive	Drinkii Wate Directi	r	Conservation o Wild Birds Directive	f Habitats Directive		itrates rective	_	hellfish irective	Urban Waste Water Treatment Directive
		NO	YES		NO	NO		YES		NO	NO
					Construction: N						
	Scheme components potentially affecting waterbody			lly	Operation: Incre Boreholes by up source)						
	WFD S	Status Test			RBMP2 (2015) status	Assess	ed sta	atus (con	struc	tion and o	peration)
	Quantitative (Overall)				Good				-		
	Dependent Surface Water Body Status				Good	Good	head Arm) (GB1 grour	ere is low risk of impacting flows in the adwaters of the River Tame - Tame (W/tonm) source to conf Oldbury B104028046930) as a result of this bundwater abstraction. A separate sessment is provided below.			
(Bi	GWDT	Es test			Good	Good		e are no impacts on any GWDTEs ciated with the groundwater body			
pin	Saline	Intrusion			Good	Good	There	e is no risk	of sa	aline intrusi	on.
oos)	Water	Balance			Good	Good	on a	groundwa	ter bo	dy scale	ne water balance
ment	Chem	ical (Overall)			Good	Good		sk of deter dwater bo			ical status at a
WFD assessment (scoping)	Protected Area Details				Measures Black negligible risk of scale from a sma Nutrient sensitive	Orinking Water Protected Area: the water body (Tame Anker Mease – Coal Measures Black Country) is a Drinking Water Protected Area but there is a negligible risk of adversely affecting the chemical status at the groundwater body scale from a small intermittent increase in abstraction rate. Nutrient sensitive areas: The ground water body is associated with a groundwate nitrate vulnerable zone; however, the scheme will not affect the management of					there is a oundwater body th a groundwater
	Does	the component	v vlamos	vith \		<u>~-</u>					
		deterioration bety			Yes; no deteriora	tion between cl	asses				
		mpediments to G	SES/GEP		Yes; no impedim	ents to Good St	atus.				
	No compromises to water body objectives				Yes; no compron			jectives.			
	4. No effects on other water bodies				Yes; there are no potential effects on other water bodies.						
	5. Ass	Assists attainment of water body objectives									
		ists attainment of bjectives	f protected	d	No; does not assist with the attainment of any protected areas objectives.						

			T	A M	T O - 1		WFD				
	WFD \	waterbody name	3	Anker Mease – P gham Lichfield	Sandstone		waterbody ID	GB404010	G301000		
	WFD v	waterbody type	Groun	dwater			River Basin				
	catch	management	Humb	er GW			District	Humber			
	Catcili	illelit		/FD Designations	s. Objectives a	nd Mit	igation				
<u>></u>	WFD S	Status and		Overall Status	Objective			Objectiv	e (2027)		
poc	Objec	tives	l l	Poor	-	•			-		
Waterbody		Body tion Measure	No published	mitigation measu	res						
				WF	D Protected A	reas					
		Bathing Water Directive	Drinking Water Directive	Conservation o Wild Birds Directive	Habitats Directive		trates rective	Shellfish Directive	Urban Waste Water Treatment Directive		
		NO	NO	NO	NO	,	YES	NO	NO		
	Caban			Construction: N		Alia a Ilia	:		at Dawn Mall by		
		ne components ing waterbody	potentially	Operation: Incre up to ~1.7MI/d (n source) and max	oting conjunctiv	e use	with Bradley				
		Status Test		RBMP2 (2015) status	Assess	ed sta	tus (constru	uction and o	peration)		
	Quant	itative (Overall)		Poor		T1	- Carlano Malina	(' (')	9		
	Deper Status	ndent Surface Wa	ater Body	Poor	Poor	– con	f two arms to	R Rea (GB1 groundwate	flows in the Tame 04028046842) as a abstraction. A ed below.		
	GWD	ΓEs test		Good	Good						
	Saline Intrusion			Good	Good						
assessment (scoping)	Water	Balance		Good	No change	rate ground advisor mode rates test with meas increased at Periodevel investigation.	will not affer dwater body e that their I has highli at a water bour ill be revised ures introdusing above in the world was ing well may oping mitigation is record.	ect the water scale. For evised Birning scale and scale and scale. The recent actual scale considered ation measuruled by the	pacts on any GWDTEs roundwater body line intrusion. Interest in abstraction the water balance on a scale. However, the EA vised Birmingham Aquifer ed poor aquifer recharge scale and the water balance own to Poor and mitigation d. The EA advise that ent actual abstraction rates considered to impede these n measures and further		
sse	Chem	ical (Overall)		Poor	Poor				mical status at a		
WFD as	Chemical (Overall) Protected Area Details			Drinking Water Protected Area: the water body (Tame Anker Mease – PT Sandstone Birmingham Lichfield) is a Drinking Water Protected Area but there is a negligible risk of adversely affecting the chemical status at the groundwater body scale from a small intermittent increase in abstraction rate. Nutrient sensitive areas: The ground water body is associated with a groundwater nitrate vulnerable zone; however, the scheme will not affect the management of					Area but there is a groundwater body ith a groundwater		
	Does	the component	comply with	the protected are WFD Objective							
		deterioration bety		Yes; no deteriora							
	2. No	impediments to C	SES/GEP	Yes; no impedim				-			
	object			Yes; no compron quantitative wate objectives will be developed by CR	r balance test w reviewed by th T and Thames	∕ill be r e EA. Water	evised down Additional su working with	by the EA, was the EA. the EA.	vater body		
		effects on other v									
	object	5. Acciete attainment of water hody		No; does not ass	ist with the atta	inment	of water boo	ly objectives.			
		ists attainment of bjectives	f protected	No; does not assist with the attainment of any protected areas objectives.							

	WFD water body	name	Tame (V	N/ton Arn	n) source to conf Old	lbury				
	WFD water body		River							
	WFD manageme catchment	nt	Tame A	nker and	Mease		WFD v	vater	CD1	04028046930
	River Basin Dist	rict	Humber	•			body I	D	GBI	04020040930
			WF	D Design	nations, Objectives	and Mitigation	1		I	
>	WFD Status and	RBMP2 C	Overall S	tatus	Objecti	Objective (2027)			tive (2027)	
po	Objectives		Bad			-				-
고	Hydromorpholog Water Body	jical designa	ition		Heavily modified					
Water body	Mitigation Measures	No publishe	d mitigat	ion meas	ures					
					WFD Protected Are	as				
	Bathing Water Directive	Drinking War Directive	of V	nservatio Vild Bird Virective	Habitate	Nitrates Directive	_	Shellfish Directive		Urban Waste Water Treatment Directive
	NO	NO	.	NO	NO	YES		NO		NO
	Scheme compon potentially affect body			nstruction: N/A eration: Increase in groundwater abstraction from linked aquifer.						
	WFD element	RBMP2 (2015) status			Assessed status	(construction	and o	peratio	n)	
	Fish	Not assessed			Previous hydro-geol risk of impact on flow					
(B)	Macro- invertebrates	Bad	В	ad	This may require confirmation through pump testing.					
copin	Macrophytes & Phytobenthos	Poor	Po	por						
nent (s	Chemical (Overall)	Fail	F		Given the current as waters from increase to deteriorate.					
WFD assessment (scoping)	Protected Area D		under th	ne Nitrate ected are	e areas: The water bo s Directive. The sche a and no significant	eme will not sig	nificant	ly affect	the r	management of
면	Does the compo						,			
>	 No deterioration classes 			develope	deterioration betwee ed by CRT and Than	nes Water work				ridence to be
	2. No impediment			Yes; no	impediments to GEP					
	No compromise objectives		-		compromises to water					
	4. No effects on o			Yes; the	re are no potential ef	ffects on other	water b	odies.		
	Assists attainm objectives				s not assist with the a		, ,			, ,
	6. Assists attainment of protected area objectives No; does not assist with the attainment of any mitigation measures required for the protected areas.							ation m	easu	

	WFD water body	name	Tame -	conf two	arms to R Rea					
	WFD water body		River							
	WFD manageme	nt	Tame A	ame Anker and Mease WFD water					05	
	catchment					1	body II		GB1	04028046842
	River Basin Dist	rict	Humber		ations Objectives	and Mitigation				
	WFD Status and	DDMD2 C		WFD Designations, Objectives and Mitigation erall Status Objective (2021)				Objective (2027)		
þ	Objectives		oderate	iaius	Objecti	- (2021)		U	bjec	- (2021)
<i>N</i> ater body	Hydromorpholog				Heavily modified					
er	Water Body	accigna			riouvily iniculiaca					
Nat	Mitigation	No publishe	d mitigati	ion meas	ures					
	Measures									
					WFD Protected Are	as				
	Bathing Water	Drinking Wat	or	servatio	· Habitate	Nitrates	s	hellfish	า	Urban Waste Water
	Directive	Directive		irective	Directive	Directive	D	irective	е	Treatment Directive
	NO	NO		NO	NO	YES		NO		NO
	Scheme components			uction: N						
	potentially affect	ing water	Operati	on: Incre	ase in groundwater a	abstraction from	linked	aquifer		
	body	RBMP2								
	WFD element	(2015) status			Assessed status					
	Fish	Bab	Ва		Negligible risk of imp					
<u>=</u>	Macro- invertebrates	Moderate	Mode	erate	groundwater abstraction rate considered small and infrequent. This will be reviewed by EA through use of their revised Birmingham Aquifers					
oping	Macrophytes & Phytobenthos	Not assessed	N asse	ssed	model and pump testing if required.					
WFD assessment (scoping)	Chemical (Overall)	Fail	Fa	ail	Given the current as waters from increase to deteriorate.					
ssessm	Protected Area D		under th	e Nitrates	areas: The water bo s Directive. The sche a and no significant	eme will not sigr	nificantl	y affect	the r	management of
) as	Does the compo					<u> </u>	,			
WF	No deterioration classes	n between sta	tus	Yes; no	deterioration betwee ed by CRT and Than					ridence to be
	2. No impediment	s to GES/GEF)		impediments to GEP		<u> </u>			
	No compromise objectives	es to water bo	dy	Yes; no	compromises to water	er body objectiv	es.			
	4. No effects on o			Yes; the	re are no potential et	ffects on other v	vater bo	odies.		
	Assists attainm objectives		•		No; does not assist with the attainment of any mitigation water body objectives.					
	Assists attainm objectives	ent of protect	ed area		s not assist with the a ected areas.	attainment of an	y mitig	ation m	easu	res required for

	WED		01	ada ca Nadi Barra							
	WFD water body WFD water body		Cherwell (Cropro	edy to Nell Bridge)							
	WFD water body										
	catchment		Cherwell and Ra	ay		WFD w		GB1	06039037310		
	River Basin Dist	rict	Thames								
	WFD Status and	DBMD2 (WFD Desig Overall Status	nations, Objectives	and Mitigatior ve (2021)	1		hioc	tive (2027)		
ody	Objectives		oderate	Objecti	- -			bjec	-		
r bd	Hydromorpholog			Not designated artific	cial or heavily r	nodified					
Water body	Water Body										
>	Mitigation Measures	No publishe	d mitigation mea	mitigation measures							
	weasures			WFD Protected Are	as						
			Conservation	on					Urban Waste		
	Bathing Water Directive	Drinking War Directive	of Wild Bird	ds Habitats Directive	Nitrates Directive	_	hellfish irective		Water Treatment		
	Directive	Directive	Directive	Directive	Directive		ii cotiv		Directive		
	NO	YES	NO	NO	YES		NO		NO		
	Scheme compor	nents		None - using existing t River Cherwell at Cr		transfe	er betwe	en th	ne Oxford Canal		
	potentially affect	ting water		nsfer of 15MI/d canal-		into the	River C	herw	ell at Cropredv.		
	body			scharge will be subject to licence granted by the Environment Agency.							
	WFD element	(2015)		Assessed status	(construction	and o	noratio	n)			
	WFD element	status		Assessed status	(construction	i aiiu oj	pei atio	'''			
	Fish	Good	Good	The scheme would l							
	Macro-	0000	(uncertain) Moderate	the water body acros abstraction, indicative							
	invertebrates	Moderate	(uncertain)	indicate that there is							
WFD assessment (scoping)	Macrophytes & Phytobenthos	Moderate	Moderate (uncertain)	conditions, and mod used, licenced abstr Grimsbury Reservoir consented dry weath alleviation scheme w Cherwell at Banbury abstraction using a chowever, abstraction quality of the transfe superior to that of Basilian Supporting water queright status for amm Poor status for phos water is not known (Iflow is considered likedownstream of Bank transferred canal was may lead to an improdownstream of Bank The general flow regincrease, in particular flows influence the caway from the current fish and invertebrate the Banbury STW dithere is no detriment across the water boolikely to improve. Subject to further inverted to the status increases, reducing (including nuisances)	action – TWUL r). In mid- wate ner flow of 20.4 ras implemente was maintaine compensation of on to Grimsbury rred canal wate anbury STW tre ality in the wate onia, but Mode phate. Although and would requ cely to improve bury STW disch ter is likely to b ovement in pho oury STW disch grime of the Rive ar during low flo omposition of b out flow regime in community, pa scharge. Furthe tal impact on th dy and to deteri	intake of r body E MI/d. (Ir body E MI/d. (Ir bed where d at 10 lischarg Reserver is not beated of the r body rate stated by rate furth the dissuarge. The e equivision of the r condition of the r condition of the r condition of the r condition of the r condition. There for pondition of the r condition of th	from the Banbury of Octobe by flow MI/d by the from soir cease known fluent. Its curre tus for chality of the provided to the phose alent to quality, well in the tigation is of fish the ther the on macre would ding an	e Che r STW er 20 r in th augn Banb sed in but is ntly a dissol the tr ew) th th xxyge sphat Mod partic partic reac is recan and i rophy d be I d alg	erwell to V discharges a 09, a low flow he River henting during ury STW. a 2010.) The solikely to be assessed as lived oxygen and ransferred canal he additional hin, particularly e quality of the lerate status and cularly here as the oxygen and ransferred canal here additional hin, particularly equality of the lerate status and cularly has been decided an antecedent low hunities, moving that to the overall here are the oxygen and invertebrates ay in fact be over the oxygen and invertebrates are the oxygen and invertebrates are the oxygen and invertebrates and invertebrates are the oxygen and invertebrates and invertebrates and invertebrates and invertebrates are oxygen and invertebrates		
	Chemical	Good	Good	phosphate concentra The improvement in		bury ST	W disch	narge	would help		
	(Overall)	Good	Good	safeguard the currer	nt Good status.	-					
	Protected Area [under the Nitrate the protected are The Drinking Wa supply to Grimsh	e areas: The water bo es Directive. The sche ea and no significant ater Protection Area ro oury Reservoir which	eme will not sig changes in wat elates to Tham	nificantl er quali	y affect ty are e	the n	management of ted.		
	Does the compo	nent comply	with WFD Object	ctive							

No deterioration between status classes	Yes; no likely deterioration between classes, although the effect of flow change on biology elements will be investigated by Thames Water.
2. No impediments to GES/GEP	Yes; no impediments to GEP, subject to confirmation of the phosphate concentration of the transferred canal water.
3. No compromises to water body objectives	Yes; no compromises to water body objectives.
4. No effects on other water bodies	Yes; potential to affect downstream water body Cherwell (Nell Bridge to Bletchingdon): GB106039037431 assessed below as compliant
5. Assists attainment of water body objectives	Yes; likely to assist achieving Good status for dissolved oxygen, with potential to assist invertebrates achieving Good status.
6. Assists attainment of protected area objectives	No; does not assist with the attainment of any mitigation measures required for the protected areas.

WFD water body name Cherwell (Nell Bridge to Bletchingdon)										
	WFD water body	type	River		- .	,				
	WFD manageme	nt	Cherwell and	l Rav			WFD v	vater		
	catchment River Basin Dist	rict	Thames	,			body I	D	GB1	06039037431
	Kivei basiii bisti	iici		siana	ations, Objectives	and Mitigation	1			
>	WFD Status and	RBMP2 C	verall Status	s		ve (2021)		С	bjec	tive (2027)
po	Objectives		oderate			-				-
d Te	Hydromorpholog Water Body	gical designa	tion		Not designated artific	cial or heavily r	nodified	<u> </u>		
water body	Mitigation Measures	No publishe	d mitigation m	neasu	ıres					
				V	WFD Protected Are	as				
	Bathing Water Directive	Drinking Wat Directive	Conserv of Wild I	Birds	Hanitate	Nitrates Directive	Shellfish W Directive Tre		Urban Waste Water Treatment Directive	
	NO	NO	NO		NO	YES		NO		NO
	Scheme compor		Construction							
	potentially affect body	ing water	body.	ار	ge in flow and water	quality regime	due to	impacts	on t	upstream water
	WFD element	RBMP2 (2015) status	cody.		Assessed status (construction and operation)					
	Fish	Good	Good (uncertain)) t	The greatest proport ransfer would be inc	reases in the I	ow flow	to extre	eme l	ow flow
	Macro- invertebrates	High	High (uncerta	ain) c	conditions. Gauged discharge regimes p	reviously contr	ibuting ¹	to the ga	auge)) indicate a
WFD assessment (scoping)	Macrophytes & Phytobenthos	Moderate	Moderate (uncertain		maximum of 30% incound low flows (Q96 (Q50)). Supporting water quadistatus for phosphate upstream water body The low flow regime ncrease. However, regime — heavily influent and invertebron fish and invertebrothytobenthos status ncreases, reducing the including nuisance including nuisance in the invertebrothytobenthos the including nuisance in the invertebrothytobenthos including nuisance in the invertebrother invertebrot	ality in the water onia, Good state. The phosphar of the River Clamoving away from the control of the River Clamoving away from the control of the control o	er body tus for o te quali oved by nerwell om the bury ST erall fish necess e water impact impact for por te poter	is curredissolve ty passe the tran in this was current FW efflution and investigation on mace re would all for a street of the transport of th	ntly a doxy ed for sfer. vater degreent a vertek etern rophy d be l d alga a red	d moderate flows assessed as ygen but Poor ward from the body would aded flow augmented flows brate mine the effect ytes and likely flow lal growth uction in
	Chemical (Overall)	Good	Good		The improvement in upstream water body					
	Protected Area D		under the Nit management expected.	sitive trates t of th	areas: The water bo Directive and the R ne protected area an	ody is associate iver. The sche	ed with me will	a nutrie not sign	nt sei ificar	nsitive area ntly affect the
	Does the compo 1. No deterioration				ive ikely deterioration be	atween classes	althou	igh the	offoot	t of flow change
	classes		on b	oiolog	y elements will be in	vestigated by				or now change
	 No impediment No compromise objectives 		dv		mpediments to GEP compromises to water		/es.			
	4. No effects on o	ther water bo			ential to affect downs			erwell (E	Bletch	ningdon to Ray):
	5. Assists attainm objectives	5. Assists attainment of water body		GB106039037432 assessed below as compliant Yes; likely to mildly assist achieving Good status for phosphate, with potential to assist macrophytes & phytobenthos achieving Good status.						with potential to
	Assists attainment of protected area objectives			does	not assist with the a cted areas.					res required for

	WFD water body	name	Cherwe	II (Bletch	ingdon to Ray)					
	WFD water body		River	ii (Dieteii	inguon to reay)					
	WFD manageme		Chorwo	ll and Ra	A./		WFD w	otor		
	catchment				ly		body I		GB1	06039037432
	River Basin Dist	rict	Thames		antinum Objectives	and Mitimatian				
	WFD Status and	RBMP2 C	Verall S	tatus	nations, Objectives	and Mitigation ve (2021)		-	hiec	tive (2027)
dy	Objectives	Moderate	overall C	rtatus	Objecti	-			, Dje c	-
oq .	Hydromorpholog	gical designa	tion		Heavily modified					
water body	Water Body Mitigation Measures	No publishe		ion meas	sures					
		L			WFD Protected Are	as				
	Bathing Water Directive	Drinking Wat Directive	of V	nservatio Vild Bird Pirective	Hanitate	Nitrates Directive	_	hellfis irectiv		Urban Waste Water Treatment Directive
	NO	NO		NO	NO	YES		NO		NO
	Scheme compor			uction: N						
	potentially affect body		Operati body.	on: Chai	nge in flow and water	quality regime	due to	impacts	s on t	upstream water
	WFD element	RBMP2 (2015) status	Assessed status (construction and operation)							
	Fish	Good	(unce	ood ertain)	The greatest proportional change to the river flow regime from transfer would be increases in the low flow to extreme low f		ow flow			
	Macro- invertebrates	Good		ood ertain)		data indicate (accounting for former abstraction nes contributing to the gauge) a maximum of 30%				
WFD assessment (scoping)	Macrophytes & Phytobenthos	Not assessed	Not as	sessed	increase in summer (Q95); with ~7% incr Supporting water qu High status for amm phosphate. The phowater body may be i The low flow regime increase. However, influenced by Banbu overall fish and inverequired to determin water body. Subject to further invelophytobenthos status assessed in 2015. Topportunity for pondiand the potential for	rease in year-roality in the water onia and dissolutions of the River Chamoving away from STW flows-rebrate communication, the is uncertain, here would be ing and algal grand	er body ved oxy cassed e transfe nerwell i om the may n unity. Fu fish and impact owever likely flo cowth (ii ohospha	is curre rigen but forwarder. In this vicurrent of be durther in dinverter on made these e by increased	flows ently a ently a from vater flow etrime etrime eroph eleme eases g nuis centr	assessed as derate status for a the upstream body would regime – heavily ental to the igation is es across the ents were not concept the sance species) ation.
	Chemical (Overall)	Good		ood	The improvement in upstream water body	y would help sa	ıfeguard	the cu	rrent	Good status.
	Protected Area D		under the	ne Nitrate ected are	e areas: The water bo es Directive. The sche ea and no significant o	eme will not sig	nificantl	y affect	the r	management of
	Does the compo					otucon ol	0146-	ab +k -	offe -	t of flow observe
	1. No deterioration classes			on biolo	likely deterioration be gy elements will be in	nvestigated by				or now change
	2. No impediment			Yes; no	impediments to GEP	<u>'. </u>				
	3. No compromise objectives	es to water bo	uy		compromises to water					
	4. No effects on o	ther water bo	dies	upper C	effects on water bod herwell diminished by the downstream wate	y distance, flow				
	Assists attainm objectives	ent of water b	ody	No; doe	No; does not assist with the attainment of any mitigation water body objectives.					
	Assists attainm objectives	ent of protect	ed area		No; does not assist with the attainment of any mitigation measures required for the protected areas.					

Oxford Canal Transfer to Dukes Cut - 15Ml/d - RES-RWTS-OXC-DKC-15

OAIO				de to Thomas				1			
	WFD water body n		Thames (Evenlo	de to Thame)							
	WFD water body t		River								
	WFD management			and the Vale		WFD wa	iter GB1060	39030334			
	River Basin Distric	ct	Thames			body ID					
				ations, Objective		tigation					
	WFD Status and		verall Status	Objectiv	e (2021)		Objectiv	ve (2027)			
water body	Objectives		oderate		·			-			
oq	Hydromorphologic	cal designat	ion	Not designated a	tificial or	heavily n	nodified				
e	Water Body										
vat	Mitigation	No published	d mitigation meas	ures.							
>	Measures			A/ED Doots to J.A.							
		T .	<u>'</u>	NFD Protected A	reas			Links Nissta			
	Bathing Water	Drinking	Conservation	Uabitata	N1:4	-4	Shellfish	Urban Waste Water			
	Directive	Water	of Wild Birds	Habitats Directive	Direc	ates	Directive	Treatment			
	Directive	Directive	Directive	Directive	Direc	LIVE	Directive	Directive			
	NO	YES	NO	YES	YE	9	NO	YES			
	Scheme compone		_	Construction of outfall structure.							
	potentially affectir			sfer of 15MI/d Riv			ed water at Duke'	s Cut Discharge			
	body	.9		licence granted b				o out. Discridinge			
		RBMP2			, =						
	WFD element	(2015)		Assessed stat	us (cons	truction	and operation)				
		status			(tfall will be managed by good any risk to the water body during emporary effects due to ation of the water body. to the river flow regime from the ow flow to extreme low flow Farmoor Reservoir intake (Thames				
	Fish	Moderate	Moderate	Construction of th	e pipelin	e and out	fall will be manag	ged by good			
	Macro-	Moderate	Modorata								
	Invertebrates	Moderate	Moderate								
				construction will r	ot cause	deteriora	ation of the water	body.			
	Invertebrates Moderate Construction is assessed as low. Temporary effects due to construction will not cause deterioration of the water body. The greatest proportional change to the river flow regime fit transfer would be increases in the low flow to extreme low conditions. Flows upstream of the Farmoor Reservoir intak at Eynsham, naturalised) indicate that a 15Ml/d transfer we increase all very low flows by less than 10%, except on a redates. Consequently, the influence of the transfer on biological elements is likely to be minimal. The transferred water quality would reflect that found in the										
				practice construction methods and any risk to the water body during construction is assessed as low. Temporary effects due to construction will not cause deterioration of the water body. The greatest proportional change to the river flow regime from the transfer would be increases in the low flow to extreme low flow conditions. Flows upstream of the Farmoor Reservoir intake (Thames at Eynsham, naturalised) indicate that a 15Ml/d transfer would increase all very low flows by less than 10%, except on a handful of dates. Consequently, the influence of the transfer on biological elements is likely to be minimal. The transferred water quality would reflect that found in the River Cherwell at the offtake to Duke's Cut — in water body							
							of the transfer on	biological			
				elements is likely	to be mir	nimal.					
				The transferred w	otor aual	ity would	roflect that found	Lin the Diver			
	Maaranhutaa 9	Not	Cherwell at the offtake to Duke's Cut – in wa								
	Macrophytes & phytobenthos	Not assessed	Not assessed								
ng)	priytoberitros	assesseu									
Ē											
assessment (scoping)											
(8)											
ent											
Ĕ						r tilo oqui	valorit now has b	oon to aboutable			
SS											
SSE				Noting the very m	inor loca	I flow cha	inge and negligible	e water quality			
WFD											
3											
	Chemical							lity conditions set			
	(Overall)	Fail	Fail	by the EA in the c							
	(3.0.411)			chemical status. I	t is unlike	ly that th	e intermittent disc	charges would			
			la l	lead to a beneficia				•••			
				ve areas: The water							
				es Directive and the							
				te Water Treatmer f the protected are							
				rthe protected are uld be permitted th				cı quality ale			
	_		SAPEGICA OF WO	ala bo pomiliti c u ti	ougii ill	o En dist	margo pornint.				
	Protected Area De	etails	Drinking water	protected area: Th	e Thame	s (Evenic	de to Thame) is	a drinking water			
				The risk to a chan							
					J						
			Little Wittenhan	n SAC: As there w	ill be no f	low varia	bility beyond its c	haracteristic flow			
				of any overtoppin							
			used by great c	rested newt is ass				<u> </u>			
	Does the compone	ent comply v	vith WFD Object	ive							
	1. No deterioration		us		een clas						
	classes			deterioration betw							
	2. No impediments	to GES/GEP	Yes; no	impediments to G	ES.						
	2. No impediments to GES/GEF Tes, no impediments to GES.										

3. No compromises to water body objectives	Yes; no compromises to water body objectives.
No effects on other water bodies	Yes; there are no potential effects on other water bodies.
Assists attainment of water body objectives	No; does not assist with the attainment of any mitigation water body objectives.
	No; does not assist with the attainment of any mitigation measures required for the protected areas.

Reso	Resource: Removal of Constraints: Epsom - RES-RC-EPS										
		aterbody name			y Tertiaries			WFD waterbody ID	GB406020	3602300	
		aterbody type anagement		Ground Thames				River Bas District	River Basin District		
	Catcilli			WI	WFD Designations, Objectives and Mit			igation			
\$	WFD St	atus and	RB		erall Status		ive (202		Object	ve (2027)	
òq	Objectiv	/es		P	oor	G	Good			-	
Wate	WFD Status and Objectives Water Body Mitigation Measure RBMP2 C			olished r	nitigation measu	res					
					W	FD Protected	Areas				
		Bathing Water Directive	Wa	king ater ctive	Conservation of Wild Birds Directive	Habitats Directive		trates ective	Shellfish Directive	Urban Waste Water Treatment Directive	
		NO	YI	ES	NO	NO		NO	NO	NO	
		components g waterbody	potenti	ially	Construction: Operation: New 4MI/d)					y increase to	
	WFD St	atus Test			RBMP2 (2015) status	Asses	Assessed status (construction and operation)				
	Quantita	ative (Overall)			Poor		<u> </u>				
	Dependent Surface Water Body Status			Poor	Uncertain	There is a risk of impacting flows in the River Hogsmill (GB106039017440) as a result of the abstraction from the new as well as existing BHs. A separate assessment is provided below.					
WFD assessment (scoping)	GWDTEs test			Good	Uncertain	Pond habitat at Stones Road Pond SSSI and lowland damp grassland habitat at Epsom and Ashtead Commons SSSI have been reviewed Both are underlain by significant deposits of clay and are considered not connected to or controlled by groundwater. There are no GWDTE impacted by the abstraction.			at at Epsom and be been reviewed. It deposits of clay and to or controlled		
ent (Saline Ir	ntrusion			Good	Good			saline intrusio		
ssme	Water B	alance			Good	Good	baland	e on a grou	indwater body		
asse	Chemic	al (Overall)			Good	Good	ground	dwater body	scale.	mical status at a	
WFD	Protected Area Details				Drinking Water Protected Area: the water body (Bromley Tertiaries) is a Drinking Water Protected Area but there is a negligible risk of adversely affecting the chemical status at the groundwater body scale.						
	Does the component comply with W 1. No deterioration between status classes				/FD Objective						
				Yes; no deterior			5				
		pediments to C			Yes; no impedir	nents to Good	Status.				
	No compromises to water body objectives			Yes; no compro		•	•	mill Diver (C	D40000047440\		
		fects on other v			Uncertain; there is a potential to impact Hogsmill River (GB106039017440), assessed separately below						
	objective				No; does not as	sist with the at	tainmei	nt of water b	oody objective	S.	
	6. Assist	ts attainment of ectives	r protect	ted	No; does not assist with the attainment of any protected areas objectives.						

	WFD water body name Hog			mill					
	WFD water body	type	River	River					
	WFD managemer catchment	nt	Londo	on		WFD GB106039017440		10	
	River Basin Distr	Thames		waterbody ID		. •			
			V	VFD Designation	s, Objectives a	and Mitigation			
	WFD Status and	RBMP2 Ove		erall Status	Object	ive (2021)	Object	tive (2027)	
φ	Objectives		Mode	erate		-		-	
óď	Hydromorphological design			Heavily	modified				
Waterbody	Water Body Mitigation Measure No published			igation measures					
				WFD	Protected Area	as			
	Bathing Water Directive Directive		Vater Wild Bird		Habitats Directive	Nitrates Directive	Shellfish Directive	Urban Waste Water Treatment Directive	
	NO	NO		NO	NO	YES	NO	NO	
	Scheme compone potentially affecti		-	struction: N/A					
	waterbody		Oper	Operation: New 2MI/d abstraction from new Railway ABH (may increase to 4MI/d)					
	WFD element	RBMP2 (2015) status		Assessed status (construction and operation)					
	Fish	Good		Uncertain				mpacting the flow	
(Macro- invertebrates	Moderat	:e	Uncertain	regime in the Hogsmill River by reducing baseflow contribution from the chalk aquifer outcrop at Ewell. The extent of impact of the licence (including to licence capacity which this option would be a contributed in the contribution of the contrib			xtent of impact of this option would	
	Macrophytes & Phytobenthos	Not asses	sed	Not assessed	enable) will be subject to review of its sustainability under Water Industry National Environment Programme (WINEP) AMP7. Currently impacts are mitigated by 3 rd party faugmentation of a tributary of the Hogsmill River at Ewell. The proposed increase in abstraction at Epsom (within curr licence) may be accommodated through an increase in faugmentation at Ewell, however this is subject to the plant investigation and would be agreed with the Environment Ager The risk of deterioration to ecological elements (fish and macinvertebrates) is currently uncertain and further assessmen required.			nme (WINEP) in y 3 rd party flow er at Ewell. m (within current increase in flow ct to the planned fronment Agency. (fish and macro-	
essn	Chemical (Overall)	Good		Good	There is a negligible risk of deterioration between chemical status classes.				
WFD ass	Protected Area Details Nutrien			tent Sensitive Areas: The water body is associated with a surface water nitrate erable zone. However, the scheme will not affect the management of the protected and no significant changes in water quality are expected.					
	Does the compor	ent compl	y with	WFD Objective					
	1. No deterioration	between st	atus						
	classes 2. No impediments to GES/GEP			investigations mitigation mea conditions and	invertebrates; further planned assessment required as part of WINEP investigations in AMP7. These investigations may require some additional mitigation measures to be included such as additional abstraction licence conditions and/or increase to existing flow augmentation scheme. WFD compliance likely to be secured with application of any required mitigation measures.				
	3. No compromise objectives	s to water b	ody	Yes; no compre	Yes; no compromises to waterbody objectives.				
	4. No effects on ot	her water b	odies	Yes; no effects	on other water	bodies.			
	5. Assists attainme objectives			No; does not a	ssist with the at	tainment of wat	er body objective	S.	
	6 Assists attainment of protected			No; does not a	No; does not assist with the attainment of any protected areas objectives.				

Reso	ource: Raw Wate	er System	Culham to Fa		ON-RWS-	-CUL-	FMR-180		
	WFD water body n			Thames (Evenlode to Thame)					
	WFD water body t	ype	River	River WFD water OP400000004					
	WFD management		Gloucestershire and the vale			dy ID	er GB1060	39030334	
	River Basin Distric	ct	Thames	iana Obiantina	a and Mitin	-4!			
	WFD Status and RBMP2 C			ions, Objective	<u>s and Mitig</u> ve (2021)	ation	Ohioatis	ve (2027)	
6			oderate	Objecti	ve (2021)		Objectiv	ve (2027)	
þo	Hydromorphological designation			not designated	artificial or h	neavily	modified		
water body	Water body Mitigation Measure		mitigation measur			·			
			WI	FD Protected A	reas				
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrate Directiv	_	Shellfish Directive	Urban Waste Water Treatment Directive	
	NO	YES	NO	YES	YES		NO	YES	
	Scheme compone potentially affectir body		Construction: Construction: Reservation: Reservation subjection net change in licences.	rvoir refill via abo	straction of v	water fr litions fo	om the River Tha or River Thames		
	WFD element	RBMP2 (2015) status		Assessed stat	us (constru	uction	and operation)		
	Fish	Moderate	Moderate	Construction o	f the intak	e will	be managed b	by good practice	
	Macro- Invertebrates	Moderate	Moderate	construction methods and any risk to				emporary effects due to	
: (scoping)	Macrophytes & Not assessed		Not assessed	construction will not cause deterioration of the water body. Reduction in high and moderate river flows, with the proportional change in the flow regime would be reduct hands-off flow condition. However, as abstraction would same rate as water left in the River Thames at curren Reservoir intake, limited overall effect on river flow down Culham Water would be abstracted from the river through fine sprevent fish entrainment.			with the greatest e reduction to the n would be to the current Farmoor ow downstream of		
ment	Chemical (Overall)	Fail	Fail	There is a negligible risk of deterioration between chemical status classes.					
WFD assessment (scoping)			under the Nitrates Urban Waste Wa of the protected a	utrient sensitive areas: The water body is associated with a nutrient sensitive area nder the Nitrates Directive and the River Thames is a nutrient sensitive area under the rban Waste Water Treatment Directive. The scheme will not affect the management the protected area.					
	Protected Area De	etaiis	Drinking water protected area: The Thames (Evenlode to Thame) is a drink protected area. The risk to a change in chemical status is low.			· ·			
			Little Wittenham SAC: As there will be no flow variability beyond its characteristic flow regime, the risk of any overtopping leading to the inundation with river water of ponds used by great crested newt is assessed as negligible.						
	Does the compone			е					
	1. No deterioration classes	petween statu	Yes; no de	eterioration betw	een classes	S.			
	2. No impediments	to GES/GEP	Yes: no in	npediments to G	ES.				
	3. No compromises		,	Yes; no impediments to GES.					
	objectives		res, no co	Yes; no compromises to water body objectives.					
	4. No effects on oth			Yes; no effects on other waterbodies.					
	5. Assists attainment objectives		ino, does					r body objectives.	
	6. Assists attainment objectives	nt of protected		does not assist with the attainment of any mitigation measures required for protected areas.					

APPENDIX C:

WFD COMPLIANCE ASSESSMENT OUTCOMES FOR OPTIONS SELECTED IN THE SET OF "REASONABLE ALTERNATIVE" PROGRAMMES (STEP 3)

This section presents the outcomes of the WFD compliance assessment for those options selected within each of the "reasonable alternative" programmes as well as the preferred programme for the WRMP19. The options assessed are:

			Optio	n inclu	ded in		
		"reaso			e" prog	ramme	
					gramm		
Option	Phased_LC	Multi- obj_RES	Multi-obj_FP	NearO_RES	NearO_TP	Min_IGEQ	Preferred Programme
Aquifer Storage and Recovery (ASR) Horton Kirby	✓	✓	✓	✓		✓	✓
AR SLARS Kidbrooke (SLARS1) 7 MI/d		✓	✓				✓
AR Streatham (SLARS2) 5 MI/d	✓	✓	✓			✓	
AR Merton (SLARS3) 5 MI/d	✓	✓	✓	✓		✓	✓
ASR South East London (Addington) 1 MI/d	✓	✓	✓	✓			
ASR South East London (Addington) 3 MI/d							✓
ASR Thames Valley/Thames Central 3 MI/d	√	√	√	√		√	
Beckton Desalination 150	✓		√	√	√	√	
Beckton Reuse 200 MI/d (phased 100)		√					
Beckton Reuse 300 MI/d (phased 150)		-	✓				
Chalkstream pipelines							√
Chingford Raw Water Purchase	√	√	✓	√	√	√	√ ·
Coppermills WTW extension 100 Ml/d	√ ·	· ·	√	√ ·	· ✓	√	· ✓
Culham to Farmoor 180 MI/d		-	<u> </u>	· ·	•		√
Deephams Reuse	√		√	√		√	<i>√</i>
Didcot Raw Water Purchase	√	√	<u>√</u>	✓	√	√	√
Groundwater Addington 1 MI/d	V	√	√	✓	•	✓	√
Groundwater Dapdune		·	· ·	· ·		-	√
Groundwater Dapourie Groundwater Datchet 6MI/d	√	√	√	√		√	· ·
Groundwater London confined Chalk (north) 2 MI/d	✓	·	✓	✓		✓	·
Groundwater Moulsford 1 - 3.5 Ml/d	✓	√	√	✓		✓	
	✓	√	✓	✓		✓	√
Groundwater Southfleet/Greenhithe (new WTW) 8 MI/d Honor Oak		✓		· ·		V ✓	V
		✓				· ·	
ITZ_North SWX to SWA 72		V	√				
ITZ_North SWX to SWA 48	✓	√	√	✓	V	√	√
Kempton WTW new 100 MI/d	√	٧	· ·	✓ ✓	√	✓	√
Medmenham intake to SWA	V /	√	√	· ·	V	✓	✓
Merton Recommissioning	✓	✓	√	✓		✓	√
New River Head - Removal of Constraints	٧	٧	v	٧		٧	✓ ✓
NTC_Dapdune							✓ ✓
NTC_Ladymead (+ Shalford to Albury transfer main)	√	√	√	√		√	✓ ✓
Oxford Canal to Cropredy Resource 15 MI/d	✓	✓ ✓	✓	✓ ✓		✓ ✓	٧
RC Ashton Keynes borehole pumps 2.5 Ml/d							
RC Britwell 1.31 MI/d	√	✓ ✓	✓ ✓	✓ ✓		✓ ✓	√
RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	V	V	V	-		V	V
Severn-Thames Transfer				✓			
Severn-Thames Transfer 1							✓
Severn-Thames Transfer 2		✓	,				
Severn-Thames Transfer 3			√				
South East Strategic Reservoir Option 125Mm ³	✓		✓				
South East Strategic Reservoir Option 150Mm ³		✓			✓	✓	✓
Wessex to SWOX (Flaxlands)	✓	✓				✓	

Aquifer Storage and Recovery (ASR) Horton Kirby

Option assessed for compliance in the following WFD water bodies: GB40601G501800 - West Kent Darent and Cray Chalk

Element Name	Element Reference	Risk of deterioration of WFD status			
Horton Kirby	RES-ASR-HTK	Assessed as compliant at Step 2 (see Appendix			
		B)			
Overall assessment	There is no risk of deteri	There is no risk of deterioration to any WFD water bodies.			

AR SLARS Kidbrooke (SLARS1) - 7 MI/d

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status	
South London Artificial	RES-AR-SLARS1-7	Screened out at Step 1 as compliant	
Recharge Scheme (SLARS) -			
Kidbrooke			
Overall assessment	No risk of deterioration as the scheme does not involve any abstra		
	WFD water body.		

AR Streatham (SLARS2) - 5 MI/d

Option assessed for compliance in the following WFD water bodies:

GB106039023232 - Thames (Egham to Teddington)

Element Name	Element Reference	Risk of deterioration of WFD status		
AR Streatham (SLARS2) - 4	RES-AR-SLARS2	Assessed as compliant at Step 2 (see Appendix		
MI/d		B)		
Overall assessment	There is no risk of deterioration to any WFD water bodies.			

AR Merton (SLARS3) - 5 MI/d

Option assessed for compliance in the following WFD water bodies:

GB106039023232 - Thames (Egham to Teddington)

Element Name	Element Reference	Risk of deterioration of WFD status		
AR Merton (SLARS3) - 5 MI/d	RES-AR-SLARS3	Assessed as compliant at Step 2 (see Appendix		
		B)		
Overall assessment	There is no risk of deterioration to any WFD water bodies.			

ASR South East London (Addington) - 1 MI/d / ASR South East London (Addington) -3 MI/d

Option assessed for compliance in the following WFD water bodies:

GB40601G602200 – Epsom North Downs Chalk GB40601G500500 – Kent Greensand Western

Element Name	Element Reference	Risk of deterioration of WFD status		
ASR South East London	RES-ASR-SEL	Assessed as compliant at Step 2 (see Appendix		
(Addington) - 3 MI/d		B)		
Overall assessment	There is no risk of deterioration to any WFD water bodies.			

ASR Thames Valley/Thames Central - 3 MI/d

Option assessed for compliance in the following WFD water bodies:

GB106039023232 - Thames (Egham to Teddington)

Element Name	Element Reference	Risk of deterioration of WFD status
ASR Thames Valley/Thames	RES-ASR-TV	Assessed as compliant at Step 2 (see Appendix
Central - 1 MI/d		B)
Overall assessment	There no risk of deterioration t	o any WFD water bodies.

Beckton Desalination 150

Option assessed for compliance in the following WFD water bodies:

GB530603911402 - Thames Middle

Element Name	Element Reference	Risk of deterioration of WFD status
Desalination North Beckton to Coppermills 150 MI/d	NET-DES-BEC-COP	Screened out at Step 1 as compliant

TWRM extension - Coppermills New Header tank	NET-TWRM-COP-HEA	Screened out at Step 1 as compliant		
Desalination North Beckton RO Treatment Plant 150 Ml/d	RES-DES-BEC-150	Assessed as compliant at Step 2 (see Appendix B)		
Overall assessment	There is no risk of failure of WFD objectives in transitional waterbody GB530603911402 – Thames Middle. The option is not expected to cause major impacts on water quality, tidal hydrodynamics or salinity in the Thames Tideway. There may be some localised effects on salinity patterns but there are no WFD higher sensitivity habitats in this water body and major adverse impacts on ecological communities are not expected.			

Beckton Reuse 200 Ml/d (phased 100)

Option assessed for compliance in the following WFD water bodies:

GB106038027950 – Lee Navigation Enfield Lock to Tottenham Locks

GB30641523 - King George V Reservoir

GB106038077852 - Lee (Tottenham Locks to Bow Locks/Three Mills Locks)

GB530603911402 - Thames Middle

Element Name	Element Reference	Risk of deterioration of WFD status
TLT extension from Lockwood to KGV - 800MI/d	CON-RWS-LCK-KGV-800	Assessed as compliant at Step 2 (see Appendix B)
Reuse Beckton to Lockwood 300 Ml/d	CON-RU-BEC-LCK	Screened out at Step 1 as compliant
KGV Res intake capacity increase	CON-RWS-KGV-360	Assessed as compliant at Step 2 (see Appendix B)
KGV to BPT south of William Girling - 300Ml/d	CON-RWS-KGV-BT-300	Screened out at Step 1 as compliant
Conveyance from Break Tank to Coppermills via Res 5 – (Spine 2)	CON-RWS-BT-COP-800	Screened out at Step 1 as compliant
Reuse Beckton 100 Ml/d (x2)	RES-RU-BEC-100	Assessed as compliant at Step 2 (see Appendix B)
Overall assessment	There is no risk of failure of WFD objectives in transitional waterbody GB530603911402 – Thames Middle. The option is not expected to cause major impacts on water quality, tidal hydrodynamics or salinity in the Thames Tideway. There may be some localised effects on salinity patterns but there are no WFD higher sensitivity habitats in this water body and major adverse impacts on ecological communities are not expected.	

Beckton Reuse 300 MI/d (phased 150)

Option assessed for compliance in the following WFD water bodies:

GB106038027950 - Lee Navigation Enfield Lock to Tottenham Locks

GB30641523 - King George V Reservoir

GB106038077852 - Lee (Tottenham Locks to Bow Locks/Three Mills Locks) GB530603911402 - Thames Middle

Element Name	Element Reference	Risk of deterioration of WFD status
TLT extension from Lockwood to KGV - 800MI/d	CON-RWS-LCK-KGV-800	Assessed as compliant at Step 2 (see Appendix B)
Reuse Beckton to Lockwood 300 Ml/d	CON-RU-BEC-LCK	Screened out at Step 1 as compliant
KGV Res intake capacity increase	CON-RWS-KGV-360	Assessed as compliant at Step 2 (see Appendix B)
KGV to BPT south of William Girling - 300Ml/d	CON-RWS-KGV-BT-300	Screened out at Step 1 as compliant
Conveyance from Break Tank to Coppermills via Res 5 – (Spine 2)	CON-RWS-BT-COP-800	Screened out at Step 1 as compliant
Reuse Beckton 150 Ml/d (x2)	RES-RU-BEC-150	Uncertain. Potential deterioration risk from changes in salinity in water body GB530603911402 (Thames Middle) during phase 2 of option. Further understanding of effect required.

Overall assessment	There is a risk of impact on WFD status relating to GB530603911402 Thames Middle when the second phase of the 2 x 150Ml/d option would reduce
	freshwater inputs below an indicative impact threshold on salinity.

Chalkstream pipelines

Option assessed for compliance in the following WFD water bodies:

GB106038027950 - Lee Navigation Enfield Lock to Tottenham Locks

Element Name	Element Reference	Risk of deterioration of WFD status
New Gauge - River Lee	Tbc	Screened out at Step 1 as compliant
River Wye - Pann Mill	Tbc	Screened out at Step 1 as compliant
River Wandle - Waddon	Tbc	Screened out at Step 1 as compliant
River Cray - North Orpington	Tbc	Screened out at Step 1 as compliant
Overall assessment	No risk of deterioration as the scheme does not involve any net increase in	
	abstraction from a WFD water body.	

Chingford Raw Water Purchase

Option assessed for compliance in the following WFD water bodies:

GB30641659 - William Girling Reservoir

Element Name	Element Reference	Risk of deterioration of WFD status
Chingford Raw Water Purchase	RES-RWP-CHD	Screened out at Step 1 as compliant
Overall assessment	No risk of deterioration as the scheme does not involve any change in	
	abstraction from a WFD water	body.

Coppermills WTW extension 100 MI/d

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
Coppermills WTW extension 100 Ml/d	WTW-LON-COP-100	Screened out at Step 1 as compliant
TWRM extension - Riverhead Pump Replacement	NET-TWRM-NRV-PUM	Screened out at Step 1 as compliant
	No risk of deterioration as the scheme does not involve any abstraction from a WFD water body.	

Culham to Farmoor 180 MI/d

Option assessed for compliance in the following WFD water bodies:

GB106039030334 - Thames (Evenlode to Thame)

GB106039030331 - Thames (Wallingford to Caversham)

GB106039023233 - Thames (Reading to Cookham)

GB106039023231 - Thames (Cookham to Egham)

GB106039023232 - Thames (Egham to Teddington

Element Name	Element Reference	Risk of deterioration of WFD status
Culham to Farmoor	CON-RWS-CUL-FMR-180	Assessed as compliant at Step 2 (see Appendix
		B)
Overall assessment	There is no risk of deterioration to any WFD surface water bodies.	

Deephams Reuse

Option assessed for compliance in the following WFD water bodies:

GB106038027910 - Pymmes and Salmon Brooks

GB106038027950 – Lee Navigation Enfield Lock to Tottenham Locks

GB106038077852 - Lea Tottenham Locks to Bow Locks/Three Mills Locks

GB30641523 - King Georges Reservoir

Element Name	Element Reference	Risk of deterioration of WFD status
Reuse Deephams 46.5 MI/d	RES-RU-DPH	Assessment of compliant with further work required to confirm conclusions (see Appendix B)
Reuse Deephams to KGV Intake	CON-RU-DPH-KGV	Assessed as compliant at Step 2 (see Appendix B)

Overall assessment	Assessment of WFD compliant but with further work required to confirm level of impact and mitigation measures required. With further assessment and development of appropriate mitigation measures, the option is likely to be
	WFD compliant.

Didcot Raw Water Purchase

Option assessed for compliance in the following WFD water bodies:

GB106039030334 - Thames (Evenlode to Thame)

Element Name	Element Reference	Risk of deterioration of WFD status
Didcot	RES-DRA-DID	Screened out at Step 1 as compliant
Overall assessment	No risk of deterioration as the scheme does not involve any new abstraction	
	from a WFD water body.	

Groundwater Addington 1 MI/d

Option assessed for compliance in the following WFD water bodies:

GB40601G602200 - Epsom North Downs Chalk

Element Name	Element Reference	Risk of deterioration of WFD status
GW_Groundwater Addington	RES-GW-ADD	Screened out at Step 1 as compliant
Overall assessment	Based on the available information there is no risk of deterioration in WFD status	
	or adverse effect on water boo	dy objectives in any water bodies.

Groundwater Dapdune

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
Groundwater Dapdune Licence	RES-GW-DAP	Screened out at Step 1 as compliant
Disaggregation - 2.2 MI/d		
Overall assessment	There is no risk of deterioration to any WFD water bodies.	

Groundwater Datchet 6 MI/d

Option assessed for compliance in the following WFD water bodies:

GB106039023231- Thames (Cookham to Egham)

Element Name	Element Reference	Risk of deterioration of WFD status
GW_groundwater Datchet - 5.7	RES-GW-DAT	Assessed as compliant at Step 2 (see Appendix
MI/d		B)
Overall assessment	No risk of deterioration as the scheme involves a confined (non-WFD) chalk	
	aguifer and poses a negligible risk to any WFD surface water bodies.	

Groundwater London confined chalk (north) 2 Ml/d

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
GW_groundwater London	RES-GW-LCC	Screened out at Step 1 as compliant
confined chalk (north) - 2 MI/d		
Overall assessment	No risk of deterioration as the scheme involves a confined (non-WFD) chalk	
	aquifer and does not impact any other WFD surface water bodies.	

Groundwater Moulsford 1 - 3.5 Ml/d

Option assessed for compliance in the following WFD water bodies:

GB40601G601000 - Vale of White Horse Chalk

GB106039030331 - Thames Wallingford to Caversham

Element Name	Element Reference	Risk of deterioration of WFD status
GW_Groundwater Moulsford	RES-GW-MOU	Assessed as compliant at Step 2 (see Appendix B)
Overall assessment	GB40601G601000 – Vale of Vale	bstraction from the groundwater water body White Horse Chalk will result in a WFD t surface water body GB106039030331 - sham. However, the abstraction rate is low in the

context of flow in the river and that most of the abstracted flow would be returned upstream via sewage works.

Groundwater Southfleet/Greenhithe (disaggregation)

Option assessed for compliance in the following WFD water bodies:

GB40601G501800 - West Kent Darent and Cray Chalk

GB40601G500300 - North Kent Medway Chalk

Element Name	Element Reference	Risk of deterioration of WFD status
GW_Groundwater_Southfleet/Greenhithe	RES-GW-SOU	Assessed as compliant at Step 2 (see
(Disaggregation)		Appendix B)
Overall assessment	Based on the available in	nformation there is deemed to be no risk of
	deterioration in WFD statu	us or adverse effect on water body objectives
	in any water bodies.	

Honor Oak

Option assessed for compliance in the following WFD water bodies:

GB106039023270 - Ravensbourne (Catford to Deptford)

Element Name	Element Reference	Risk of deterioration of WFD status
Groundwater Honor Oak – 2.8	RES-GW-HON	Assessed as compliant at Step 2 (see Appendix
MI/d		B)
Overall assessment	There is no risk of deterioration to any WFD water bodies.	

ITZ_North SWX to SWA 72

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
		Screened out at Step 1 as compliant
Option treated water transfer to SWA		
South East Strategic Reservoir	WTW-SWOX-ABI-SWA	Screened out at Step 1 as compliant
Option - SWA WTW (24MI/d)		·
Overall assessment	There is no risk of deterioration to any WFD surface water bodies.	

ITZ North SWX to SWA 48

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
South East Strategic Reservoir Option treated water transfer to SWA		Screened out at Step 1 as compliant
		Screened out at Step 1 as compliant
Overall assessment	There is no risk of deterioration to any WFD surface water bodies.	

Kempton WTW new 100 MI/d

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
Kempton WTW new 100 MI/d	WTW-LON-KEM-100	Screened out at Step 1 as compliant
New Shaft at Kempton	NET-TWRM-KEM	Screened out at Step 1 as compliant
Overall assessment	There is no risk of deterioration to any WFD water bodies.	

Medmenham intake to SWA

Option assessed for compliance in the following WFD water bodies:

GB106039023233 - Thames (Reading to Cookham)

Element Name	Element Reference	Risk of deterioration of WFD status
SWA south: Medmenham Raw water intake and transfer	CON-RWS-SWA-MMM	Assessed as compliant at Step 2 (see Appendix R)
water intake and transfer		

SWA south Medmenham WTW (24MI/d treated water PS	WTW-SWA-MMM	Screened out at Step 1 as compliant
transfer and SR)		
Overall assessment	objectives in GB10603902323 the scheme. There may be a l extreme low flows which may	tion or adverse effect on water body status or 33 - Thames (Reading to Cookham) as a result of ocal impact on flow regime, in particular affecting be reduced by 10%, but this is not expected to e biological elements concerned.

Merton recommissioning

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
GW_Merton recommissioning	RES-RC-MTN	Screened out at Step 1 as compliant
	objectives as the scheme invo	n or adverse effect on water body status or lves a confined (non-WFD) chalk aquifer and water bodies and will operate within existing

New River Head - Removal of Constraints

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
New River Head - Removal of	RES-RC-NRV	Screened out at Step 1 as compliant
Constraints – 3.45 MI/d		
Overall assessment	There is no risk of deterioration to any WFD surface water bodies.	

NTC_Dapdune

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
RC Dapdune - removal of constraints to DO - 3.2 Ml/d	RES-RC-DAP	Screened out at Step 1 as compliant
Overall assessment	There is no risk of deterioration to any WFD water bodies.	

NTC_Ladymead (+ Shalford to Albury transfer main)

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
Ladymead WTW - removal of	RES-RC-LAD	Screened out at Step 1 as compliant
constraints to DO - 7.8 Ml/d		·
Shalford to Netley Mill	NET-GUI-SFD-NML	Screened out at Step 1 as compliant
Overall assessment	There is no risk of deterioration to any WFD water bodies.	

Oxford Canal to Cropredy Resource 15 Ml/d

Option assessed for compliance in the following WFD water bodies:

GB40402G992400 -Tame Anker Mease - Coal Measures Black Country

GB40401G301000 - Tame Anker Mease - PT Sandstone Birmingham Lichfield

GB104028046930 - Tame (W/ton Arm) source to conf Oldbury

GB104028046842 - Tame - conf two arms to R Rea

GB106039037310 - Cherwell (Cropredy to Nell Bridge)

GB106039037431 - Cherwell (Nell Bridge to Bletchingdon) GB106039037432 - Cherwell (Bletchingdon to Ray)

Element Name	Element Reference	Risk of deterioration of WFD status	
Oxford Canal Transfer to	RES-RWTS-OXC-CRP-15	Assessment of compliant but with further work	
Cropredy 15MI/d		required to confirm conclusions (see Appendix B)	
Overall assessment	of impact and mitigation mea	Assessment of WFD compliant but with further work required to confirm level of impact and mitigation measures. With further assessment and development of appropriate mitigation measures, the option is likely to be WFD compliant.	

RC Ashton Keynes borehole pumps 2.5 Ml/d

Option assessed for compliance in the following WFD water bodies:

GB40601G60040 - Burford Jurassic

GB106039029750 - Churn (Baunton to Cricklade)

Element Name	Element Reference	Risk of deterioration of WFD status
RC Ashton Keynes borehole	RES-RC-ASH	Uncertain. Potential risk of deterioration to river
pumps - 2.5 Ml/d		water body (River Churn (GB106039029750))
		linked to likely groundwater drawdown of
		GB40601G600400 (Burford Jurassic). The
		extent of impact of the licence (including to
		licence capacity which this option would enable)
		will be subject to review of its sustainability
		under the WINEP in AMP7.
Overall assessment	Currently uncertain pending further evidence. With further assessment and development of appropriate mitigation measures, the option is likely to be	
	WFD compliant.	

RC Britwell 1.31 Ml/d

Option assessed for compliance in the following WFD water bodies:

GB40601G601000 - Vale of White Horse Chalk

GB106039023740 - Chalgrove Brook

Element Name	Element Reference	Risk of deterioration of WFD status
Britwell - Removal of Constraints		Uncertain. Potential risk of deterioration to river water body (Chalgrove Brook (GB106039023740)) linked abstraction from Vale of White Horse Chalk (GB40601G601000) – further investigation and mitigation needed.
Overall assessment	Currently uncertain pending further evidence. With further assessment and development of appropriate mitigation measures, the option may be WFD compliant but delivery of the appropriate mitigation measures may be challenging.	

RC Epsom borehole pumps 2.13Ml/d (groundwater scheme)

Option assessed for compliance in the following WFD water bodies:

GB40602G602300 - Bromley Tertiaries GB106039017440 - Hogsmill River

Element Name	Element Reference	Risk of deterioration of WFD status
Epsom - Removal of Constraints		Uncertain. Potential risk of deterioration to river water body (Hogsmill River (GB106039017440)) linked to abstraction impacting GB40602G602300 (Bromley Tertiaries). The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the WINEP in AMP7. Currently a 3 rd party flow augmentation scheme is in operation. The proposed increase in abstraction at Epsom (within current licence) may be accommodated through implementation of appropriate mitigation measures following options appraisal.
		This could include an increase in flow augmentation at Ewell, however this is subject to the planned investigation and would be agreed with the Environment Agency.
Overall assessment	Currently uncertain pending further evidence. With further assessment and development of appropriate mitigation measures, such as extension of the existing river flow augmentation scheme, the option is considered likely to be WFD compliant.	

Severn-Thames Transfer

Option assessed for compliance in the following WFD water bodies:

GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy

GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy

GB109054049852 - Afon Vyrnwy DS of Banwy confluence

GB109054049800 - Afon Vyrnwy - conf Afon Tanat to conf R Severn

GB109054049142 - Severn - conf Bele Bk to conf Sundorne Bk

GB104028046841 - Tame - R Rea to R Blythe

GB109054044402 - Avon (Wark) conf R Leam to Tramway Br, Stratford

GB109054044404 - Severn - conf R Avon to conf Upper Parting

GB106039030334 - Thames (Evenlode to Thame)

GB106039030331 - Thames (Wallingford to Caversham)

GB106039023233 - Thames (Reading to Cookham)

GB106039023231 - Thames (Cookham to Egham)

GB106039023232 - Thames (Egham to Teddington)

Element Name	Element Reference	Risk of deterioration of WFD status
CON_Deerhurst to Culham 300 Ml/d (Lon only)	CON-RWT-DEH-CLM-300	Assessed as compliant at Step 2 (see Appendix B)
Transfer of Minworth Effluent 115 MI/d	RES-RWTS-MIN	Currently uncertain pending further water quality evidence to enable more detailed assessment of water quality compliance, and linked ecological quality compliance, particularly under low flow conditions in the River Avon downstream of Warwick. With further assessment and development of appropriate mitigation measures, such as additional tertiary treatment, the option is considered likely to be WFD compliant.
Raw Water Transfer Mythe 15 Ml/d (Lon only)	RES-RWTS-MYT	Screened out at Step 1 as compliant
Netheridge Final Effluent Transfer	RES-RWTS-NTH	Assessed as compliant at Step 2 (see Appendix B)
Vyrnwy Transfer to Severn Trent Water 30Ml/d	RWP_STT UU/ST OPT B	Assessed as compliant at Step 2 (see Appendix B)
Raw Water Transfer: Upper Severn - Vyrnwy Reservoir 60 Ml/d	RES-RWTS-VYR-60	Provisional assessment of compliant with further work required to confirm level of impact and mitigation measures
Overall assessment	Currently uncertain pending further evidence on the Minworth effluent transfer support element and its potential water quality effects on the River Avon locally downstream of Warwick. Further work is also required to confirm level of impact and mitigation measures specifically associated with effects on the Afon Vyrnwy and River Wye both of which are considered as provisionally compliant and this should be secured with appropriate mitigation measures.	

Severn-Thames Transfer 1

Option assessed for compliance in the following WFD water bodies:

GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy

GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy

GB109054049852 - Afon Vyrnwy DS of Banwy confluence

GB109054049800 - Afon Vyrnwy - conf Afon Tanat to conf R Severn

GB109054044404 - Severn - conf R Avon to conf Upper Parting

GB106039030334 - Thames (Evenlode to Thame)

GB106039030331 - Thames (Wallingford to Caversham)

GB106039023233 - Thames (Reading to Cookham)

GB106039023231 - Thames (Cookham to Egham)

GB106039023232 - Thames (Egham to Teddington)

Element Name	Element Reference	Risk of deterioration of WFD status
CON_Deerhurst to Culham 300 Ml/d (Lon only)	CON-RWT-DEH-CLM-300	Assessed as compliant at Step 2 (see Appendix B)
Raw Water Transfer Mythe 15 Ml/d (Lon only)	RES-RWTS-MYT	Screened out at Step 1 as compliant
Netheridge Final Effluent Transfer	RES-RWTS-NTH	Assessed as compliant at Step 2 (see Appendix B)
Vyrnwy Transfer to Severn Trent Water 30Ml/d	RWP_STT UU/ST OPT B	Assessed as compliant at Step 2 (see Appendix B)
Raw Water Transfer: Upper Severn - Vyrnwy Reservoir 60 Ml/d	RES-RWTS-VYR-60	Provisional assessment of compliant, with further work required to confirm level of impact and the mitigation measures required (which may include discharge direct to River Severn to secure WFD compliance).
Overall assessment	Provisional assessment of WFD compliant with further work required to confirm level of impact and mitigation measures specifically associated with effects on the Afon Vyrnwy (this may include discharge direct to River Severn to secure WFD compliance). With further assessment and development of appropriate mitigation measures, the option is likely to be WFD compliant.	

Severn-Thames Transfer 2

Option assessed for compliance in the following WFD water bodies:

GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy

GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy

GB109054049852 - Afon Vyrnwy DS of Banwy confluence

GB109054049800 - Afon Vyrnwy - conf Afon Tanat to conf R Severn

GB104028046841 - Tame - R Rea to R Blythe

GB109054044402 - Avon (Wark) conf R Leam to Tramway Br, Stratford

GB109054044404 - Severn - conf R Avon to conf Upper Parting

GB106039030334 - Thames (Evenlode to Thame)

GB106039030331 - Thames (Wallingford to Caversham)
GB106039023233 - Thames (Reading to Cookham)
GB106039023231 - Thames (Cookham to Egham)

GB106039023232 - Thames (Egham to Teddington)

=-		
Element Name	Element Reference	Risk of deterioration of WFD status
CON_Deerhurst to Culham 300 Ml/d (Lon only)	CON-RWT-DEH-CLM-300	Assessed as compliant at Step 2 (see Appendix B)
Transfer of Minworth Effluent 115 MI/d	RES-RWTS-MIN	Currently uncertain pending further water quality evidence to enable more detailed assessment of water quality compliance, and linked ecological quality compliance, particularly under low flow conditions in the River Avon downstream of Warwick. With further assessment and development of appropriate mitigation measures, such as additional tertiary treatment, the option is considered likely to be WFD compliant.
Raw Water Transfer Mythe 15 Ml/d (Lon only)	RES-RWTS-MYT	Screened out at Step 1 as compliant
Netheridge Final Effluent Transfer	RES-RWTS-NTH	Assessed as compliant at Step 2 (see Appendix B)
Raw Water Transfer: Upper Severn - Vyrnwy Reservoir 60 Ml/d	RES-RWTS-VYR-60	Provisional assessment of compliant, with further work required to confirm level of impact and the mitigation measures required (which may include discharge direct to River Severn to secure WFD compliance).
Overall assessment	Currently uncertain pending further evidence on the Minworth effluent transfer support element and its potential water quality effects on the River Avon locally downstream of Warwick. Further work is also required to confirm level of impact and mitigation measures specifically associated with effects on the Afon Vyrnwy, considered as provisionally compliant (and compliance can be secured if necessary by discharging direct to the River Severn).	

Severn-Thames Transfer 3

Option assessed for compliance in the following WFD water bodies:

GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy

GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy

GB109054049852 - Afon Vyrnwy DS of Banwy confluence

GB109054049800 - Afon Vyrnwy - conf Afon Tanat to conf R Severn

GB109055037112 - Wye - Hampton Bishop to conf Kerne Br

GB109055037111 - Wye - conf Walford Bk to Bigsweir Br

GB109054049142 - Severn - conf Bele Bk to conf Sundorne Bk

GB104028046841 - Tame - R Rea to R Blythe

GB109054044402 - Avon (Wark) conf R Leam to Tramway Br, Stratford

GB109054044404 - Severn - conf R Avon to conf Upper Parting

GB106039030334 - Thames (Evenlode to Thame)

GB106039030331 - Thames (Wallingford to Caversham)

GB106039023233 - Thames (Reading to Cookham)

GB106039023231 - Thames (Cookham to Egham)

GB106039023232 - Thames (Egham to Teddington)

Element Name	Element Reference	Risk of deterioration of WFD status
Raw Water Transfer Deerhurst to Culham 400 Ml/d	CON-RWT-DEH-CLM-400	Assessed as compliant at Step 2 (see Appendix B)
Transfer of Minworth Effluent 115 MI/d	RES-RWTS-MIN	Currently uncertain pending further water quality evidence to enable more detailed assessment of water quality compliance, and linked ecological quality compliance, particularly under low flow conditions in the River Avon downstream of Warwick. With further assessment and development of appropriate mitigation measures, such as additional tertiary treatment, the option is considered likely to be WFD compliant.
Raw Water Transfer Mythe 15 Ml/d (Lon only)	RES-RWTS-MYT	Screened out at Step 1 as compliant
Netheridge Final Effluent Transfer	RES-RWTS-NTH	Assessed as compliant at Step 2 (see Appendix B)
Vyrnwy Transfer to Severn Trent Water 30Ml/d	RWP_STT UU/ST OPT B	Assessed as compliant at Step 2 (see Appendix B)
Raw Water Transfer: Upper Severn - Vyrnwy Reservoir 60 Ml/d	RES-RWTS-VYR-60	Provisional assessment of compliant, with further work required to confirm level of impact and the mitigation measures required (which may include discharge direct to River Severn to secure WFD compliance).
River Wye to Deerhurst 60 Ml/d	RES-RWTS-WYE-60.3	Provisional assessment of compliant with further work required to confirm level of impact and mitigation measures
Overall assessment	support element and its poter locally downstream of Warwic of impact and mitigation meas Afon Vyrnwy and River Wye be	ourther evidence on the Minworth effluent transfer natial water quality effects on the River Avon ck. Further work is also required to confirm level sures specifically associated with effects on the both of which are considered as provisionally use can be secured with appropriate mitigation

South East Strategic Reservoir Option 125Mm³

Option assessed for compliance in the following WFD water bodies:

GB106039023360 - Cow Common Brook and Portobello Ditch

GB106039030334 - Thames (Evenlode to Thame)

GB106039030331 - Thames (Wallingford to Caversham)

GB106039023233 - Thames (Reading to Cookham)

GB106039023231 - Thames (Cookham to Egham)

GB106039023232 - Thames (Egham to Teddington)

Element Name	Element Reference	Risk of deterioration of WFD status
New Reservoir South East Strategic Reservoir Option 125Mm ³	RES-RRR-ABI-125Mm ³	Assessed as compliant at Step 2 (see Appendix B)
Overall assessment	There is no risk of deterioratio	n to any WFD surface water bodies.

South East Strategic Reservoir Option 150Mm³

Option assessed for compliance in the following WFD water bodies:

GB106039023360 - Cow Common Brook and Portobello Ditch

GB106039030334 - Thames (Evenlode to Thame)

GB106039030331 - Thames (Wallingford to Caversham)

GB106039023233 - Thames (Reading to Cookham)

GB106039023231 - Thames (Cookham to Egham)

GB106039023232 - Thames (Egham to Teddington)

Element Name	Element Reference	Risk of deterioration of WFD status
New Reservoir South East Strategic Reservoir Option 150Mm ³	RES-RRR-ABI-150Mm ³	Assessed as compliant at Step 2 (see Appendix B)
Overall assessment	There is no risk of deterioration	n to any WFD surface water bodies.

Wessex to SWOX (Flaxlands)

Option does not include any WFD water bodies

Element Name	Element Reference	Risk of deterioration of WFD status
Inter-Company Transfer -	RES-ICT-WSX-FLX	Screened out at Step 1 as compliant
Wessex to SWOX 2.9 MI/d		
(Flaxlands)		
Overall assessment	There is no risk of deterioratio	n to any WFD water bodies.

APPENDIX D:

WFD COMPLIANCE ASSESSMENT OUTCOMES FOR EACH OF THE SET OF "REASONABLE ALTERNATIVE" PROGRAMMES (STEP 4)

This section presents the outcomes of the WFD compliance assessment for each of the set of WRMP19 "reasonable alternative" programmes as well as the preferred programme. As the assessment is at the programme level it is a cumulative assessment of all options within that programme.

Preferred programme

Table D.1 sets out the options included in the preferred programme of the WRMP19 and the WFD water bodies they have been assessed for. Where there are multiple options potentially impacting on the same water body, these water bodies are reviewed below.

In addition, it is re-stated (from Section 4) that the Vyrnwy flow support element of a Severn-Thames Transfer requires the collection and consideration of further evidence prior to confirming WFD compliance in the first three water bodies of the Afon Vyrnwy downstream of Vyrnwy Reservoir. These are GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy; GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy; and GB109054049852 - Afon Vyrnwy DS of Banwy confluence. If necessary, compliance for the Vyrnwy flow support option can be secured by direct discharge to the River Severn rather than to the Afon Vyrnwy.

Following discussion with the Environment Agency in response to its representation on the revised draft WRMP19, further supporting environmental investigations will be undertaken to confirm the assessment of WFD compliance of the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option. For the Deephams Reuse option, the scope of further investigation relates to the potential changes in flow and water quality pressures on aquatic ecology in the lower freshwater River Lee (GB106038077852 - Lee Tottenham Locks to Bow Locks/Three Mills Locks) and any effects of reduced pass-forward flow to the tidal system (GB530603911402 - Thames Middle). For the Oxford Canal Transfer to Cropredy option the scope of further investigation relates to the potential changes in groundwater abstraction from the Birmingham aquifers (GB40402G992400 -Tame Anker Mease - Coal Measures Black Country, and GB40401G301000 - Tame Anker Mease - PT Sandstone Birmingham Lichfield) and their linked surface waters at the abstraction points (GB104028046930 - Tame (W/ton Arm) source to conf Oldbury, and GB104028046842 - Tame - conf two arms to R Rea respectively). The scope also includes improving the baseline evidence base for flow, water quality and aquatic ecology and the understanding of impacts in the River Cherwell, particularly in the most upstream water body that would receive the transferred water (GB106039037310 - Cherwell (Cropredy to Nell Bridge)). Where necessary, additional mitigation measures will be considered as part of these further investigations. The scope of these further environmental investigations is set out in Section 11 of the WRMP19.

GB106039030334 - Thames (Evenlode to Thame)

Locally at Culham, Thames Water would manage in-combination abstractions for the South East Strategic Reservoir Option (from 2037), the Culham to Farmoor transfer (from 2037), regulating releases from the South East Strategic Reservoir Option (from 2037) and the supported Severn-Thames Transfer (from 2083). Supporting evidence has identified that the continuous nature of these discharges during low flow periods presents fewer risks to fish and aquatic invertebrates, albeit the cumulative magnitude of the flow increase would be to the indicative threshold identified. The Culham to Farmoor transfer and the abstraction for the South East Strategic Reservoir Option would operate within licence conditions including hands-off flow conditions to protect low river flows and limit daily maximum abstraction rate. Combined operation would therefore modulate the flow regime of the River Thames, with reduced high flows or enhanced low flows regularly and for long periods. A combined

operating strategy would be developed with regulators and other stakeholders to manage these effects in terms of the potential ecological impacts on the River Thames locally and downstream. A modulated flow regime would be most apparent until the next significant tributary, the River Thame, although modulation of the flow regime of downstream waterbodies cannot be ruled out at this stage.

The in-combination effect with cessation of abstraction from the River Thames at Farmoor at low flow conditions to improve flows in the Oxford Watercourses (by re-locating the abstraction at low flows to the new Culham intake) would also need considering, noting that these would be flow-neutral in the River Thames downstream of Culham. The Oxford Canal Transfer supplementing flow in the River Thames upstream of Culham would not represent a significant cumulative effect due to its low magnitude of flow change. Further downstream in the water body, the Didcot Raw Water Purchase option (from 2020) would not represent a change in river flow.

Subject to development of the detailed appropriate operating strategy for the Culham-related options, the combined effect on the River Thames at Culham and downstream is assessed as WFD compliant.

GB106039017440 - Hogsmill

As set out in Appendix B, the Epsom groundwater (removal of constraints) element has the potential to baseflow in the Hogsmill River. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the Water Industry National Environment Programme (WINEP) in AMP7. A 3rd party flow augmentation is currently operated on a tributary of the Hogsmill River at Ewell. The proposed increase in abstraction at Epsom (within current licence) may be accommodated through appropriate mitigation measures, if adverse impacts are identified in the investigation. This could include an increase in flow augmentation at Ewell, however this is subject to the planned investigation and would be agreed with the Environment Agency. The risk of adverse effects requires further investigation and is currently assessed as having a degree of uncertainty, prior to the completion of the planned investigation, and if necessary, inclusion of additional mitigation. The mitigation could include extension of the existing river flow augmentation scheme and/or additional abstraction licence controls. With any required mitigation measures in place, WFD compliance can be secured.

Table D.1 Summary of in-combination WFD compliance assessment of the Preferred Programme

				WFD	wat	er bo	odv																			\neg
			nd	ooke	.S3)	ondon J	ines	ater		or 180		_	ington 1	dune	chet	thfleet/ NTW) 8	ew 100	ke to	ssioning	raints		+ transfer	ropredy	ole 	ransfer 1	gic 150Mm³
		River	er Storage a	AR SLARS Kidbrooke (SLARS1) 7 MI/d	lerton (SLAR d	ASR South East London (Addington) 3 MI/d	Chalkstream pipelines	yford Raw W	ermills WTW Ision	Culham to Farmoor 180 MI/d	Deephams Reuse	ot Raw Water	Groundwater Addington 1 Ml/d	Groundwater Dapdune	ndwater Date	Groundwater Southfleet/ Greenhithe (new WTW) 8	oton WTW ne	Medmenham intake to SWA	Merton Recommissioning	New River Head - Removal of Constraints	NTC_Dapdune	Ladymead (ord to Albury	d Canal to C urce 15 MI/d	RC Epsom borehole pumps - 2.13 MI/d	Severn-Thames Transfer	South East Strategic Reservoir Option 150Mm ³
		Basin	Juř	Y-S	≥≥	SR ddi	Ja	hing	ga	g E	eb	55	<u>8</u> 6	ron	5€	<u>e</u> <u>G</u>	Z Z	edr VA	ertc	»e	2	Z Jaf	sso so		eve.	se
Type	ID and name	District	Αğ	AS S	9 2	ĕ≤	$\overline{\circ}$	\overline{c}	ĕΩ.	ōΣ	۵	힏	ֿפֿֿ	Ō	ତ୍ର ତି	ਹੁ ਹੁ	⊼ౖ⋝	ŽΏ	Ž	žž	Ż	Żΰ	Ο̈́Κ	ਲੂ ਧ	Š	<u>ૹૻ</u> ૹૻ
	GB106039037310 – Cherwell (Cropredy to Nell Bridge)	inames																					٧	igspace		
	GB106039037431 - Cherwell (Nell Bridge to Bletchingdon)	Thames																					√	\vdash		
	GB106039037432 - Cherwell (Bletchingdon to Ray)	Thames																					✓	$\vdash \vdash$		√
	GB106039023360 - Cow Common Brook and Portobello Ditch	Thames																						\vdash		√
	GB106039030334 - Thames (Evenlode to Thame) GB106039030331 - Thames (Wallingford to Caversham)	Thames								V		V												\vdash	✓	V
	GB106039023233 - Thames (Wallingford to Caversham) GB106039023233 - Thames (Reading to Cookham)	Thames								v								√						$\vdash \vdash$	V	∨
	GB106039023231 – Thames (Reading to Cookham) GB106039023231 – Thames (Cookham to Egham)	Thames								∨					√			•						$\vdash\vdash\vdash$	∨	✓
	GB106039023237 – Thames (Cookham to Egham) GB106039023232 – Thames (Egham to Teddington)	Thames Thames			√					·/					V									$\vdash \vdash$	<u> </u>	✓
	GB106039017440 - Hogsmill	Thames			•					•														2	•	•
	GB106039017630 - Wey (Shalford to R Thames confluence at	Thames												✓										-		
	Weybridge) GB106038027910 – Pymmes and Salmon Brooks – Deephams STW to Tottenham Locks	Thames									✓															
	GB106038027950 – Lea Navigation Enfield Lock to Tottenham Locks	Thames					✓				✓															
	GB106038077852 – Lee Tottenham Locks to Bow Locks/Three Mills Locks	Thames									✓															
	GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy	Severn																						igspace	✓	
	GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy	Severn																						Ш	✓	
	GB109054049852 - Afon Vyrnwy DS of Banwy confluence GB109054049800 - Afon Vyrnwy - conf Afon Tanat to conf R	Severn																						$\vdash \vdash$	✓	
	Severn	Severn																							✓	
	GB109054044404 - Severn - conf R Avon to conf Upper Parting	Severn																							√	
	GB104028046930 - Tame (W/ton Arm) source to conf Oldbury	Humber																					✓			
	GB104028046842 - Tame – conf two arms to R Rea	Humber																					✓		$\overline{}$	
Lake	GB30641523 – King Georges Reservoir	Thames									✓															
	GB30641659 – William Girling Reservoir	Thames						✓																		
	GB40601G602200 - Epsom North Downs Chalk	Thames				✓							✓													
	GB40601G501800 - West Kent Darent and Cray Chalk	Thames	✓													✓										
	GB40601G500300 - North Kent Medway Chalk	Thames														✓										
	GB40601G601000 - Vale of White Horse Chalk	Thames																								
	GB40601G500500 – Kent Greensand Western	Thames				✓																				
	GB40602G602300 - Bromley Tertiaries	Thames																						✓		
	GB40402G992400 -Tame Anker Mease – Coal Measures Black Country	Humber																					✓			
	GB40401G301000 - Tame Anker Mease – PT Sandstone Birmingham Lichfield	Humber																					✓			

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Key: All WFD water bodies identified in Thames Water preferred programme listed.

Option assessed for WFD compliance in this water body individually and assessed as: ✓ compliant; ? uncertain

Grey indicates no programme level in-combination effect considered likely. Blue indicates potential for programme level alone or in-combination effects, reviewed above.

Least Cost programme (Phased_LC)

Table D.2 sets out the options included in the Least Cost programme and the WFD water bodies they have been assessed for. Where there is potential for programme level alone or in-combination effects these are reviewed below.

In addition, for the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option, further supporting environmental investigations are required by the Environment Agency to confirm the assessment of WFD compliance.

GB106039029750 - Churn (Baunton to Cricklade)

As set out in Appendix B, the Ashton Keynes groundwater (removal of constraints) element could influence the River Churn river water body and further evidence is required to confirm the extent of hydraulic connectivity. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the WINEP in AMP7. The WFD compliance assessment for this water body currently has uncertainty pending this further evidence. With further assessment and development of appropriate mitigation measures, the option is likely to be WFD compliant.

GB106039023740 - Chalgrove Brook

As set out in Appendix B, the Britwell groundwater (removal of constraints) element could influence the Chalgrove Brook river water body. Further evidence is required to confirm the extent of hydraulic connectivity and any impacts on the aquatic ecology. The WFD compliance assessment for this water body currently has uncertainty pending further evidence. With further assessment and development of appropriate mitigation measures, the option may be WFD compliant but delivery of the appropriate mitigation measures could be challenging.

GB106039017440 - Hogsmill

As set out in Appendix B, the Epsom groundwater (removal of constraints) element has the potential to baseflow in the Hogsmill River. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the Water Industry National Environment Programme (WINEP) in AMP7. A 3rd party flow augmentation is currently operated on a tributary of the Hogsmill River at Ewell. The proposed increase in abstraction at Epsom (within current licence) may be accommodated through appropriate mitigation measures, if adverse impacts are identified in the investigation. This could include an increase in flow augmentation at Ewell, however this is subject to the planned investigation and would be agreed with the Environment Agency. The risk of adverse effects requires further investigation and is currently assessed as having a degree of uncertainty, prior to the completion of the planned investigation, and if necessary, inclusion of additional mitigation. The mitigation could include extension of the existing river flow augmentation scheme and/or additional abstraction licence controls. With any required mitigation measures in place, WFD compliance can be secured.

Table D.2 Summary of in-combination WFD compliance assessment of the least cost programme

	WFD water body													C	ptio	n											
Type		River Basin District	Aquifer Storage and Recovery (ASR) Horton Kirby	AR Streatham (SLARS2) 5 MI/d	AR Merton (SLARS3) 5 MI/d	ASR South East London (Addington) 1 Ml/d	ASR Thames Valley/Thames Central 3 MI/d	Beckton Desalination 150	Chingford Raw Water Purchase	Coppermills WTW extension	Deephams Reuse	Didcot Raw Water Purchase	Groundwater Addington 1 MI/d	Groundwater Datchet 6MI/d	Groundwater London confined Chalk (north) 2 Ml/d	Groundwater Moulsford 1 - 3.5 Ml/d	Groundwater Southfleet/ Greenhithe (new WTW) 8 MI/d	Medmenham intake to SWA	Kempton WTW new 100 MI/d	Merton Recommissioning	New River Head - Removal of Constraints	Oxford Canal to Cropredy Resource 15 Ml/d	RC Ashton Keynes borehole pumps 2.5 MI/d	RC Britwell 1.31 MI/d	RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	South East Strategic Reservoir Option 125Mm³	Wessex to SWOX (Flaxlands)
River	GB106039037310 - Cherwell (Cropredy to Nell Bridge)	Thames									_											√					
	GB106039037431 - Cherwell (Nell Bridge to Bletchingdon)	Thames																				✓					
	GB106039037432 - Cherwell (Bletchingdon to Ray)	Thames																				✓					
	GB106039029750 - Churn (Baunton to Cricklade)	Thames																					?				
	GB106039023740 - Chalgrove Brook	Thames																						?			
	GB106039023360 - Cow Common Brook and Portobello Ditch	Thames																								✓	
	GB106039030334 - Thames (Evenlode to Thame)	Thames										✓														✓	
	GB106039030331 - Thames (Wallingford to Caversham)	Thames														✓										✓	
	GB106039023233 - Thames (Reading to Cookham)	Thames																✓								✓	
	GB106039023231 – Thames (Cookham to Egham)	Thames												✓												✓	
	GB106039023232 - Thames (Egham to Teddington)	Thames		✓	✓		✓																			✓	
	GB106039017440 - Hogsmill	Thames																							?		
	GB106038027910 – Pymmes and Salmon Brooks – Deephams STW to Tottenham Locks	Thames									✓																
	GB106038027950 – Lea Navigation Enfield Lock to Tottenham Locks	Thames									✓																
	GB106038077852 – Lee Tottenham Locks to Bow Locks/Three Mills Locks	Thames									✓																
	GB104028046930 - Tame (W/ton Arm) source to conf Oldbury	Humber																				✓					
	GB104028046842 - Tame - conf two arms to R Rea	Humber																				✓					
	GB530603911402 Thames Middle	Thames						✓																			
Lake	GB30641523 – King Georges Reservoir	Thames									✓																
	GB30641659 – William Girling Reservoir	Thames							\																		
Ground	GB40601G602200 - Epsom North Downs Chalk	Thames				✓							✓														
water	GB40601G501800 - West Kent Darent and Cray Chalk	Thames	√														✓										
	GB40601G500300 - North Kent Medway Chalk	Thames															✓										
	GB40601G601000 - Vale of White Horse Chalk	Thames														✓								✓			
	GB40601G500500 - Kent Greensand Western	Thames				✓																					
	GB40602G602300 - Bromley Tertiaries	Thames																							✓		
	GB40601G60040 - Burford Jurassic	Thames																					✓				

Table D.2 cont.

WFD water body													C	ption	1											
 ID and name GR40402G992400 -Tame Anker Mease - Coal Measures		Aquifer Storage and Recovery (ASR) Horton Kirby	AR Streatham (SLARS2) 5 MI/d	Aerton (SLA	ASR South East London (Addington) 1 MI/d	ASR Thames Valley/Thames Central 3 MI/d	٦ ر	Chingford Raw Water Purchase	Coppermills WTW extension 100 MI/d	Deephams Reuse	Didcot Raw Water Purchase	Groundwater Addington 1 MI/d	Datchet	Groundwater London confined Chalk (north) 2 MI/d	Groundwater Moulsford 1 - 3.5 MI/d	Groundwater Southfleet/ Greenhithe (new WTW) 8 MI/d	Medmenham intake to SWA	Kempton WTW new 100 MI/d	Merton Recommissioning	River Head - straints	Oxford	RC Ashton Keynes borehole pumps 2.5 Ml/d	RC Britwell 1.31 MI/d	RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	th East Strategic on 125Mm ³	Wessex to SWOX (Flaxlands)
Black Country	Humber																				✓					
GB40401G301000 - Tame Anker Mease – PT Sandstone Birmingham Lichfield	Humber																				✓					

Multi-obj_RES programme

Table D.3 sets out the options included in the Multi-obj_RES programme and the WFD water bodies they have been assessed for. Where there is potential for programme level alone or in-combination effects these are reviewed below.

In addition, it is re-stated that the Vyrnwy support element of a Severn-Thames Transfer requires the collection and consideration of further evidence prior to confirming WFD compliance in the first three water bodies of the Afon Vyrnwy downstream of Vyrnwy Reservoir. These are GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy; GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy; and GB109054049852 - Afon Vyrnwy DS of Banwy confluence. If necessary, compliance for the Vyrnwy flow support option can be secured by direct discharge to the River Severn rather than to the Afon Vyrnwy.

This programme includes the 15MI/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in the Least Cost programme.

GB106039029750 - Churn (Baunton to Cricklade)

As set out in Appendix B, the Ashton Keynes groundwater (removal of constraints) element could influence the River Churn river water body and further evidence is required to confirm the extent of hydraulic connectivity. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the WINEP in AMP7. The WFD compliance assessment for this water body currently has uncertainty pending this further evidence. With further assessment and development of appropriate mitigation measures, the option is likely to be WFD compliant.

GB106039023740 - Chalgrove Brook

As set out in Appendix B, the Britwell groundwater (removal of constraints) element could influence the Chalgrove Brook river water body. Further evidence is required to confirm the extent of hydraulic connectivity and any impacts on the aquatic ecology. The WFD compliance assessment for this water body currently has uncertainty pending further evidence. With further assessment and development of appropriate mitigation measures, the option may be WFD compliant but delivery of the appropriate mitigation measures could be challenging.

GB106039017440 - Hogsmill

As set out in Appendix B, the Epsom groundwater (removal of constraints) element has the potential to baseflow in the Hogsmill River. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the Water Industry National Environment Programme (WINEP) in AMP7. A 3rd party flow augmentation is currently operated on a tributary of the Hogsmill River at Ewell. The proposed increase in abstraction at Epsom (within current licence) may be accommodated through appropriate mitigation measures, if adverse impacts are identified in the investigation. This could include an increase in flow augmentation at Ewell, however this is subject to the planned investigation and would be agreed with the Environment Agency. The risk of adverse effects requires further investigation and is currently assessed as having a degree of uncertainty, prior to the completion of the planned investigation, and if necessary, inclusion of additional mitigation. The mitigation could include extension of the existing river flow augmentation scheme and/or additional abstraction licence controls. With any required mitigation measures in place, WFD compliance can be secured.

GB109054044402 - Avon (Wark) conf R Leam to Tramway Br, Stratford

As set out in Appendix B, the Minworth effluent transfer element of a support Severn-Thames Transfer option requires further consideration of the effect on sanitary, nutrient and chemical water quality, as well as water temperature and consequently aquatic ecology of mixing tertiary treated effluent into the River Avon downstream of Warwick, particularly under low river flow conditions in the River Avon. At

present WFD compliance in this water body is considered as uncertain, subject to further investigation and the potential need for additional mitigation which may be challenging to achieve WFD compliance.

Table D.3 Summary of in-combination WFD compliance assessment of the Multi-obj_RES programme

	WFD water body														Op	tion													
Туре	ID and name	River Basin District	Aquifer Storage and Recovery (ASR) Horton Kirby	AR SLARS Kidbrooke (SLARS1) 7 Ml/d	AR Streatham (SLARS2) 5 MI/d	AR Merton (SLARS3) 5 MI/d	ASR South East London (Addington) 1 MI/d	ASR Thames Valley/Thames Central 3 MI/d	Beckton Reuse 200 MI/d (phased 100)	Chingford Raw Water Purchase	Coppermills WTW extension 100 MI/d	Didcot Raw Water Purchase	Groundwater Addington 1 MI/d	Groundwater Datchet 6MI/d	Groundwater Moulsford 1 - 3.5 Ml/d	Groundwater Southfleet/ Greenhithe (new WTW) 8 MI/d	Henley to SWA 5 MI/d	Honor Oak	Kempton WTW new 100 MI/d	Merton Recommissioning	New River Head - Removal of Constraints	Oxford Canal to Cropredy Resource 15 MI/d	RC Ashton Keynes borehole oumps 2.5 MI/d	RC Britwell 1.31 MI/d	RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	Severn-Thames Transfer 2	South East Strategic Reservoir Option 150Mm3	Wessex to SWOX (Flaxlands)	ITZ_North SWX to SWA 72 option
River	GB106039037310 – Cherwell (Cropredy to Nell Bridge)	Thames																				✓							
	GB106039037431 - Cherwell (Nell Bridge to Bletchingdon)	Thames																				✓							
	GB106039037432 - Cherwell (Bletchingdon to Ray)	Thames																				✓							
	GB106039029750 - Churn (Baunton to Cricklade)	Thames																					?						
	GB106039023740 - Chalgrove Brook	Thames																						?					
	GB106039023360 - Cow Common Brook and Portobello Ditch	Thames																									✓		
	GB106039030334 - Thames (Evenlode to Thame)	Thames										✓														✓	✓		
	GB106039030331 - Thames (Wallingford to Caversham)	Thames													✓											✓	✓		
	GB106039023233 - Thames (Reading to Cookham)	Thames																								✓	✓		
	GB106039023231 - Thames (Cookham to Egham)	Thames												✓												✓	✓		
	GB106039023232 – Thames (Egham to Teddington)	Thames			✓	✓		✓																		✓	✓		
	GB106039017440 - Hogsmill	Thames																							?				
	GB106038027950 – Lee Navigation Enfield Lock to Tottenham Locks	Thames							~																				
	GB106038077852 - Lee (Tottenham Locks to Bow Locks/Three Mills Locks)	Thames							✓																				
	GB106039023270 - Ravensbourne (Catford to Deptford)	Thames																✓											
	GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy	Severn																								✓			
	GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy	Severn																								✓			
	GB109054049852 - Afon Vyrnwy DS of Banwy confluence	Severn																								✓			
	GB109054049800 - Afon Vyrnwy - conf Afon Tanat to conf R Severn	Severn																								✓			

Table D.3 cont.

Type	ID and name	River Basin District	Aquifer Storage and Recovery (ASR) Horton Kirby	AR SLARS Kidbrooke (SLARS1)	AR Streatham (SLARS2) 5 MI/d	AR Merton (SLARS3) 5 MI/d	4SR South East London (Addington) 1 MI/d	ASR Thames Valley/Thames Central 3 MI/d	Seckton Reuse 200 MI/d (phased 100)	Chingford Raw Water Purchase	Coppermills WTW extension 100 MI/d	Didcot Raw Water Purchase	Groundwater Addington 1 MI/d	Groundwater Datchet 6MI/d	Groundwater Moulsford 1 - 3.5 M/d	Groundwater Southfleet/ Greenhithe (new WTW) 8 MI/d	Henley to SWA 5 MI/d	Honor Oak	Kempton WTW new 100 MI/d	Merton Recommissioning	New River Head - Removal of Constraints	Oxford Canal to Cropredy Resource 15 MI/d	RC Ashton Keynes borehole bumps 2.5 MI/d	RC Britwell 1.31 MI/d	RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	Severn-Thames Transfer 2	South East Strategic Reservoir Option 150Mm ³	Wessex to SWOX (Flaxlands)	ITZ_North SWX to SWA 72 option
	GB104028046841 - Tame - R Rea to R Blythe	Trent)	<u> </u>						_	-								√	0,0		
	GB109054044402 - Avon (Wark) conf R Leam to Tramway Br, Stratford	Severn																								?			
	GB109054044404 - Severn - conf R Avon to conf Upper Parting	Severn																								✓			
	GB104028046930 - Tame (W/ton Arm) source to conf Oldbury	Humber																				✓							
	GB104028046842 - Tame – conf two arms to R Rea	Humber																				✓							
	GB530603911402 Thames Middle	Thames							✓																				
Lake	GB30641523 – King Georges Reservoir	Thames							✓																				
	GB30641659 – William Girling Reservoir	Thames								✓																			
	GB40601G602200 - Epsom North Downs Chalk	Thames					✓						✓																
water	GB40601G501800 - West Kent Darent and Cray Chalk	Thames	✓													✓													
	GB40601G500300 - North Kent Medway Chalk	Thames														✓													
	GB40601G601000 - Vale of White Horse Chalk	Thames													✓									✓					
	GB40601G500500 - Kent Greensand Western	Thames					✓																						
	GB40602G602300 - Bromley Tertiaries	Thames																							✓				
	GB40601G60040 - Burford Jurassic	Thames																					✓						
	GB40601G602600 - Maidenhead chalk	Thames															✓												
	GB40402G992400 -Tame Anker Mease – Coal Measures Black Country	Humber																				✓							
	GB40401G301000 - Tame Anker Mease – PT Sandstone Birmingham Lichfield	Humber																				✓							

Multi-obj_FP programme

Table D.4 sets out the options included in the Multi-obj_FP programme and the WFD water bodies they have been assessed for. Where there is potential for programme level alone, or in-combination effects these are reviewed below.

In addition, it is re-stated that the Vyrnwy and Wye support elements of a Severn-Thames Transfer require the collection and consideration of further evidence prior to confirming WFD compliance in the first three water bodies of the Afon Vyrnwy downstream of Vyrnwy Reservoir and locally in the River Wye. These are GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy; GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy; GB109054049852 - Afon Vyrnwy DS of Banwy confluence; and in the River Wye GB109055037112 - Wye - Hampton Bishop to conf Kerne Br and GB109055037111 - Wye - conf Walford Bk to Bigsweir Br.

This programme includes the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in the Least Cost programme.

GB106039029750 - Churn (Baunton to Cricklade)

As set out in Appendix B, the Ashton Keynes groundwater (removal of constraints) element could influence the River Churn river water body and further evidence is required to confirm the extent of hydraulic connectivity. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the WINEP in AMP7. The WFD compliance assessment for this water body currently has uncertainty pending this further evidence. With further assessment and development of appropriate mitigation measures, the option is likely to be WFD compliant.

GB106039023740 - Chalgrove Brook

As set out in Appendix B, the Britwell groundwater (removal of constraints) element could influence the Chalgrove Brook river water body. Further evidence is required to confirm the extent of hydraulic connectivity and any impacts on the aquatic ecology. The WFD compliance assessment for this water body currently has uncertainty pending further evidence. With further assessment and development of appropriate mitigation measures, the option may be WFD compliant but delivery of the appropriate mitigation measures could be challenging.

GB106039017440 - Hogsmill

As set out in Appendix B, the Epsom groundwater (removal of constraints) element has the potential to baseflow in the Hogsmill River. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the Water Industry National Environment Programme (WINEP) in AMP7. A 3rd party flow augmentation is currently operated on a tributary of the Hogsmill River at Ewell. The proposed increase in abstraction at Epsom (within current licence) may be accommodated through appropriate mitigation measures, if adverse impacts are identified in the investigation. This could include an increase in flow augmentation at Ewell, however this is subject to the planned investigation and would be agreed with the Environment Agency. The risk of adverse effects requires further investigation and is currently assessed as having a degree of uncertainty, prior to the completion of the planned investigation, and if necessary, inclusion of additional mitigation. The mitigation could include extension of the existing river flow augmentation scheme and/or additional abstraction licence controls. With any required mitigation measures in place, WFD compliance can be secured.

GB109054044402 - Avon (Wark) conf R Leam to Tramway Br, Stratford

As set out in Appendix B, the Minworth effluent transfer element of a support Severn-Thames Transfer option requires further consideration of the effect on sanitary, nutrient and chemical water quality, as well as water temperature and consequently aquatic ecology of mixing tertiary treated effluent into the

River Avon downstream of Warwick, particularly under low river flow conditions in the River Avon. At present WFD compliance in this water body is considered as uncertain, subject to further investigation and the potential need for additional mitigation which may be challenging to achieve WFD compliance.

GB530603911402 Thames Middle

Table D.4 indicates the potential for programme level in-combination effects between the Beckton Reuse (300 Ml/d) option and the Beckton Desalination (150 Ml/d) option. These options directly influence freshwater flow into the middle Thames Tideway, with the Beckton Desalination (150 Ml/d) option programmed first (2065) followed by the Beckton Reuse option (2085). The cumulative effect of these two options is a reduction in freshwater flows to the middle Tideway of around 450Ml/d is greater than the indicative impact threshold on salinity of 275-365 Ml/d. Further reductions in freshwater input at this sensitive location for salinity ingress to the middle Thames Tideway could have inherent effects on water quality and supported (saline-sensitive) ecology. The threshold is indicative only and requires further study and analysis to confirm its validity. It is considered that this scale of freshwater reduction could lead to salinity regime changes in the middle Tideway and the Multi-obj_FP programme may not comply with WFD objectives for the ecology of the transitional water body.

Further baseline understanding of the salinity regime of the middle Tideway is required to better understand these patterns, noting that there are no continuous measurements of salinity (by the Environment Agency or others) seawards of Battersea. Further primary understanding of the sensitivity of the infauna communities present to the salinity changes anticipated would also be required. Should there be an actual threshold volume of freshwater required, of the scale currently identified to maintain the salinity profile in the middle Tideway (in respect of WFD compliance of ecology), there are currently no obvious mitigation measures. Salinity effects cannot be directly mitigated and constraining or ceasing operation at a salinity trigger would not reverse the effect, with only a return to high river flows (several thousand MI/d) over-riding the summer saline ingress pattern.

Table D.4 Summary of in-combination WFD compliance assessment of the Multi-obj_FP programme

	WFD water body															ptio	n												\neg
	Wi D water body		1	_				I				0				Pulo	ï									1			
Туре	ID and name	River Basin District	Aquifer Storage and Recovery (ASR) Horton Kirby	AR SLARS Kidbrooke (SLARS1 7 MI/d	AR Streatham (SLARS2) 5 MI/d	AR Merton (SLARS3) 5 MI/d	ASR South East London (Addington) 1 MI/d	ASR Thames Valley/Thames Sentral 3 MI/d	Beckton Desalination 150	Beckton Reuse 300 MI/d (phased 150)	Chingford Raw Water Purchase	Coppermills WTW extension 100 MI/d	Deephams Reuse	Didcot Raw Water Purchase	Groundwater Addington 1 MI/d	Groundwater Datchet 6MI/d	Groundwater London confined Chalk (north) 2 MI/d	Sroundwater Moulsford 1 - 3.5 MI/d	Groundwater Southfleet/ Greenhithe (new WTW) 8 MI/d	TZ_North SWX to SWA 48	Kempton WTW new 100 MI/d	Merton Recommissioning	New River Head - Removal of Constraints	Oxford Canal to Cropredy Resource 15 MI/d	RC Ashton Keynes borehole pumps 2.5 MI/d	RC Britwell 1.31 MI/d	RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	Severn-Thames Transfer 3	South East Strategic Reservoir Option 125Mm3
River	GB106039037310 – Cherwell (Cropredy to Nell		40	41	1	/	ر ت	40	ш	ш		02					00	02	00	_			20	VE	ш о	<u> </u>	ш (0)	0,0
	Bridge)	Thames																						•					
	GB106039037431 - Cherwell (Nell Bridge to Bletchingdon)	Thames																						✓					
	GB106039037432 - Cherwell (Bletchingdon to Ray)	Thames																						✓					
	GB106039029750 - Churn (Baunton to Cricklade)	Thames																							?				
	GB106039023740 - Chalgrove Brook	Thames																								?			
	GB106039023360 - Cow Common Brook and Portobello Ditch	Thames																											✓
	GB106039030334 - Thames (Evenlode to Thame)	Thames												✓														✓	✓
	GB106039030331 - Thames (Wallingford to Caversham)	Thames																✓										✓	✓
	GB106039023233 - Thames (Reading to Cookham)	Thames																										✓	✓
	GB106039023231 – Thames (Cookham to Egham)	Thames														✓												✓	✓
	GB106039023232 – Thames (Egham to Teddington)	Thames			✓	✓		✓																				✓	✓
	GB106039017440 - Hogsmill	Thames																									?		
	GB106038027910 – Pymmes and Salmon Brooks – Deephams STW to Tottenham Locks	Thames											✓																
	GB106038027950 – Lea Navigation Enfield Lock to Tottenham Locks	Thames								✓			✓																
	GB106038077852 – Lee Tottenham Locks to Bow Locks/Three Mills Locks	Thames								✓			✓																
	GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy	Severn																										✓	
	GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy	Severn																										✓	
	GB109054049852 - Afon Vyrnwy DS of Banwy confluence	Severn																										✓	
	GB109054049800 - Afon Vyrnwy - conf Afon Tanat to conf R Severn	Severn																										✓	

Table D.4 cont.

	ID and name	River Basin District	Aquifer Storage and Recovery (ASR) Horton Kirby	AR SLARS Kidbrooke (SLARS1) 7 MI/d	AR Streatham (SLARS2) 5 MI/d	AR Merton (SLARS3) 5 Ml/d	ASR South East London (Addington) 1 MI/d	ASR Thames Valley/Thames Central 3 MI/d	Beckton Desalination 150	Beckton Reuse 300 MI/d (phased 150)	Chingford Raw Water Purchase	Coppermills WTW extension 100 MI/d	Deephams Reuse	Didcot Raw Water Purchase	Groundwater Addington 1 MI/d	Groundwater Datchet 6MI/d	Groundwater London confined Chalk (north) 2 MI/d	Groundwater Moulsford 1 - 3.5 MI/d	Groundwater Southfleet/ Greenhithe (new WTW) 8 MI/d	ITZ_North SWX to SWA 48	Kempton WTW new 100 MI/d	Merton Recommissioning	New River Head - Removal of Constraints	Oxford Canal to Cropredy Resource 15 MI/d	RC Ashton Keynes borehole pumps 2.5 Ml/d	RC Britwell 1.31 MI/d	RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	Severn-Thames Transfer 3	South East Strategic Reservoir Option 125Mm³
River	GB104028046841 - Tame - R Rea to R Blythe	Trent																										✓	
	Kerne Di	Severn																										✓	
	GB109055037111 - Wye - conf Walford Bk to Bigsweir Br	Severn																										✓	
	GB109054049142 - Severn - conf Bele Bk to conf Sundorne Bk	Severn																								<u></u>		✓	
	GB109054044402 - Avon (Wark) conf R Leam to Tramway Br, Stratford	Severn																								<u> </u>		?	
	GB109054044404 - Severn - conf R Avon to conf Upper Parting	Severn																								<u> </u>		✓	
	GB104028046930 - Tame (W/ton Arm) source to conf Oldbury	Humber																						✓		<u> </u>			
	GB104028046842 - Tame – conf two arms to R Rea	Humber																						✓		<u> </u>			
	GB530603911402 Thames Middle	Thames							\checkmark	?																<u></u>		L'	
Lake	GB30641523 – King Georges Reservoir	Thames								✓			✓													<u> </u>			
	GB30641659 – William Girling Reservoir	Thames									✓															<u> </u>			
	GB40601G602200 - Epsom North Downs Chalk	Thames					✓								✓														
	GB40601G501800 - West Kent Darent and Cray Chalk	Thames	✓																✓										
	GB40601G500300 - North Kent Medway Chalk	Thames																	✓										
	GB40601G601000 - Vale of White Horse Chalk	Thames																✓								✓			
	GB40601G500500 - Kent Greensand Western	Thames					✓																						
	GB40602G602300 - Bromley Tertiaries	Thames																									✓		
	GB40601G60040 - Burford Jurassic	Thames																							✓				
	GB40402G992400 -Tame Anker Mease – Coal Measures Black Country	Humber																						✓					
	GB40401G301000 - Tame Anker Mease – PT Sandstone Birmingham Lichfield	Humber																						✓					

NearO_RES programme

Table D.5 sets out the options included in the NearO_RES programme and the WFD water bodies they have been assessed for. Where there is potential for programme level alone or in-combination effects these are reviewed below.

In addition, it is re-stated that the Vyrnwy support element of a Severn-Thames Transfer require the collection and consideration of further evidence prior to confirming WFD compliance in the first three water bodies of the Afon Vyrnwy downstream of Vyrnwy Reservoir. These are GB109054049880 - Vrynwy - Lake Vrynwy to conf Afon Cownwy; GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy; GB109054049852 - Afon Vyrnwy DS of Banwy confluence.

This programme includes the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in the Least Cost programme.

GB106039029750 - Churn (Baunton to Cricklade)

As set out in Appendix B, the Ashton Keynes groundwater (removal of constraints) element could influence the River Churn river water body and further evidence is required to confirm the extent of hydraulic connectivity. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the WINEP in AMP7. The WFD compliance assessment for this water body currently has uncertainty pending this further evidence. With further assessment and development of appropriate mitigation measures, the option is likely to be WFD compliant.

GB106039023740 - Chalgrove Brook

As set out in Appendix B, the Britwell groundwater (removal of constraints) element could influence the Chalgrove Brook river water body. Further evidence is required to confirm the extent of hydraulic connectivity and any impacts on the aquatic ecology. The WFD compliance assessment for this water body currently has uncertainty pending further evidence. With further assessment and development of appropriate mitigation measures, the option may be WFD compliant but delivery of the appropriate mitigation measures could be challenging.

GB106039017440 - Hogsmill

As set out in Appendix B, the Epsom groundwater (removal of constraints) element has the potential to baseflow in the Hogsmill River. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the Water Industry National Environment Programme (WINEP) in AMP7. A 3rd party flow augmentation is currently operated on a tributary of the Hogsmill River at Ewell. The proposed increase in abstraction at Epsom (within current licence) may be accommodated through appropriate mitigation measures, if adverse impacts are identified in the investigation. This could include an increase in flow augmentation at Ewell, however this is subject to the planned investigation and would be agreed with the Environment Agency. The risk of adverse effects requires further investigation and is currently assessed as having a degree of uncertainty, prior to the completion of the planned investigation, and if necessary, inclusion of additional mitigation. The mitigation could include extension of the existing river flow augmentation scheme and/or additional abstraction licence controls. With any required mitigation measures in place, WFD compliance can be secured.

GB109054044402 - Avon (Wark) conf R Leam to Tramway Br, Stratford

As set out in Appendix B, the Minworth effluent transfer element of a support Severn-Thames Transfer option requires further consideration of the effect on sanitary, nutrient and chemical water quality, as well as water temperature and consequently aquatic ecology of mixing tertiary treated effluent into the River Avon downstream of Warwick, particularly under low river flow conditions in the River Avon. At present WFD compliance in this water body is considered as uncertain, subject to further investigation

and the potential need for additional mitigation which may be challenging to achieve WFD compliance.

Table D.5 Summary of in-combination WFD compliance assessment of the NearO_RES programme

	WFD water body												Opt	ion										$\overline{}$
Туре	ID and name	River Basin District	Aquifer Storage and Recovery (ASR) Horton Kirby	AR Merton (SLARS3) 5 MI/d	ASR South East London Addington) 1 MI/d	ASR Thames Valley/Thames Central 3 Ml/d	Beckton Desalination 150	Chingford Raw Water Purchase	Coppermills WTW extension 100 MI/d	Deephams Reuse	Didcot Raw Water Purchase	Groundwater Addington 1 MI/d	Groundwater Datchet 6MI/d	Sroundwater London confined Chalk (north) 2 MI/d	Groundwater Moulsford 1 - 3.5 MI/d	Groundwater Southfleet/ Greenhithe (new WTW) 8 MI/d	Medmenham intake to SWA	Kempton WTW new 100 Ml/d	New River Head - Removal of Constraints	Oxford Canal to Cropredy Resource 15 MI/d	RC Ashton Keynes borehole pumps 2.5 MI/d	RC Britwell 1.31 MI/d	RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	Severn-Thames Transfer
	GB106039037310 - Cherwell (Cropredy to Nell Bridge)	Thames	~ _		4)	~~ 0	ш		02					00	02	00	_		20	V	ш О	_=	<u> </u>	-07
	GB106039037431 - Cherwell (Nell Bridge to Bletchingdon)	Thames																		✓				
	GB106039037432 - Cherwell (Bletchingdon to Ray)	Thames																		✓				
	GB106039029750 - Churn (Baunton to Cricklade)	Thames																			?			
	GB106039023740 - Chalgrove Brook	Thames																				?		
	GB106039030334 - Thames (Evenlode to Thame)	Thames									✓													✓
	GB106039030331 - Thames (Wallingford to Caversham)	Thames													✓									✓
	GB106039023233 - Thames (Reading to Cookham)	Thames															✓							✓
	GB106039023231 - Thames (Cookham to Egham)	Thames											✓											✓
	GB106039023232 - Thames (Egham to Teddington)	Thames		✓		✓																		✓
	GB106039017440 - Hogsmill	Thames																					?	
	GB106038027910 – Pymmes and Salmon Brooks – Deephams STW to Tottenham Locks	Thames								✓														
	GB106038027950 – Lea Navigation Enfield Lock to Tottenham Locks	Thames								✓														
	GB106038077852 – Lee Tottenham Locks to Bow Locks/Three Mills Locks	Thames								✓														
		Severn																						✓
	GB109054049720 - Afon Vyrnwy - conf Afon Cownwy to conf Afon Banwy	Severn																						\
	GB109054049852 - Afon Vyrnwy DS of Banwy confluence	Severn																						✓
	GB109054049800 - Afon Vyrnwy - conf Afon Tanat to conf R	Severn																				, ,	ı	✓
	Severn																						ш	
	GB104028046841 - Tame - R Rea to R Blythe	Trent																					ш	✓
		Severn																					ш	✓
	GB109054044402 - Avon (Wark) conf R Leam to Tramway Br, Stratford	Severn																						?
		Severn																						✓
	GB104028046930 - Tame (W/ton Arm) source to conf Oldbury	Humber																		✓				

Table D.5 cont.

	WFD water body												Opt	ion										
Type	ID and name	River Basin District	Aquifer Storage and Recovery (ASR) Horton Kirby	AR Merton (SLARS3) 5 MI/d	SR South East London	ASR Thames Valley/Thames Central 3 MI/d	Seckton Desalination 150	Chingford Raw Water Purchase	Soppermills WTW extension 100 MI/d	Deephams Reuse	Didcot Raw Water Purchase	Sroundwater Addington 1 MI/d	Groundwater Datchet 6MI/d	broundwater London confined thalk (north) 2 MI/d	Groundwater Moulsford 1 - 3.5 MI/d	Groundwater Southfleet/ Greenhithe (new WTW) 8 MI/d	Medmenham intake to SWA	Kempton WTW new 100 Ml/d	lew River Head - Removal of constraints	Oxford Canal to Cropredy Sesource 15 MI/d	RC Ashton Keynes borehole pumps 2.5 MI/d	RC Britwell 1.31 MI/d	RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	fer
71:-	GB104028046842 - Tame – conf two arms to R Rea	Humber	Q S	4	a S	40	ш	0	02			U	O	00	0 2	00	2	×	20	V V	LE O	<u> </u>	4 0	0)
	GB530603911402 Thames Middle	Thames					√													1				1
	GB30641523 – King Georges Reservoir	Thames								✓														
	GB30641659 – William Girling Reservoir	Thames						✓																ı
Ground	GB40601G602200 - Epsom North Downs Chalk	Thames			✓							✓												
water	GB40601G501800 - West Kent Darent and Cray Chalk	Thames	✓													✓								
	GB40601G500300 - North Kent Medway Chalk	Thames														✓								
	GB40601G601000 - Vale of White Horse Chalk	Thames													✓							✓		
	GB40601G500500 - Kent Greensand Western	Thames			✓																			
	GB40602G602300 - Bromley Tertiaries	Thames																					✓	
	GB40601G60040 - Burford Jurassic	Thames																			✓			
	GB40402G992400 -Tame Anker Mease – Coal Measures Black Country	Humber																		✓				
	GB40401G301000 - Tame Anker Mease – PT Sandstone Birmingham Lichfield	Humber																		✓				

NearO_TP programme

Table D.6 sets out the options included in the NearO_TP programme and the WFD water bodies they have been assessed for. There are no programme level effects for this programme, either alone or incombination.

Table D.6 Summary of in-combination WFD compliance assessment of the NearO_TP programme

	WFD water body		1						
Туре	ID and name	River Basin District	Beckton Desalination 150	Chingford Raw Water Purchase	Coppermills WTW extension 100 MI/d	Didcot Raw Water Purchase	Kempton WTW new 100 Ml/d	Medmenham intake to SWA	South East Strategic Reservoir Option 150Mm ³
River	GB106039023360 - Cow Common Brook and Portobello Ditch	Thames							✓
	GB106039030334 - Thames (Evenlode to Thame)	Thames				✓			✓
	GB106039030331 - Thames (Wallingford to Caversham)	Thames							✓
	GB106039023233 - Thames (Reading to Cookham)	Thames						✓	✓
	GB106039023231 - Thames (Cookham to Egham)	Thames							✓
	GB106039023232 - Thames (Egham to Teddington)	Thames							√
TRAC	GB530603911402 Thames Middle	Thames	✓						
Lake	GB30641659 – William Girling Reservoir	Thames		✓					

Key: All WFD water bodies identified in programme listed.

Option assessed for WFD compliance in this water body individually and assessed as: √ compliant

Grey highlight indicates no programme level in-combination effect considered likely.

Min_IGEQ programme

Table D.7 sets out the options included in the Min_IGEQ programme and the WFD water bodies they have been assessed for. Where there is potential for programme level alone or in-combination effects these are reviewed below.

This programme includes the Deephams Reuse option and the 15Ml/d Oxford Canal Transfer to Cropredy option with the same WFD issues as set out in the Least Cost programme.

GB106039029750 - Churn (Baunton to Cricklade)

As set out in Appendix B, the Ashton Keynes groundwater (removal of constraints) element could influence the River Churn river water body and further evidence is required to confirm the extent of hydraulic connectivity. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the WINEP in AMP7. The WFD compliance assessment for this water body currently has uncertainty pending this further evidence. With further assessment and development of appropriate mitigation measures, the option is likely to be WFD compliant.

GB106039023740 - Chalgrove Brook

As set out in Appendix B, the Britwell groundwater (removal of constraints) element could influence the Chalgrove Brook river water body. Further evidence is required to confirm the extent of hydraulic connectivity and any impacts on the aquatic ecology. The WFD compliance assessment for this water body currently has uncertainty pending further evidence. With further assessment and development of appropriate mitigation measures, the option may be WFD compliant but delivery of the appropriate mitigation measures could be challenging.

GB106039017440 - Hogsmill

As set out in Appendix B, the Epsom groundwater (removal of constraints) element has the potential to baseflow in the Hogsmill River. The extent of impact of the licence (including to licence capacity which this option would enable) will be subject to review of its sustainability under the Water Industry National Environment Programme (WINEP) in AMP7. A 3rd party flow augmentation is currently operated on a tributary of the Hogsmill River at Ewell. The proposed increase in abstraction at Epsom (within current licence) may be accommodated through appropriate mitigation measures, if adverse impacts are identified in the investigation. This could include an increase in flow augmentation at Ewell, however this is subject to the planned investigation and would be agreed with the Environment Agency. The risk of adverse effects requires further investigation and is currently assessed as having a degree of uncertainty, prior to the completion of the planned investigation, and if necessary, inclusion of additional mitigation. The mitigation could include extension of the existing river flow augmentation scheme and/or additional abstraction licence controls. With any required mitigation measures in place, WFD compliance can be secured.

Table D.7 Summary of in-combination WFD compliance assessment of the Min_IGEQ programme

	WFD water body													С	ptio	n											
		River Basin	Aquifer Storage and Recovery (ASR) Horton Kirby	AR Streatham (SLARS2) 5 MI/d	AR Merton (SLARS3) 5 MI/d	ASR Thames Valley/Thames Central 3 MI/d	Beckton Desalination 150	Chingford Raw Water Purchase	Coppermills WTW extension 100 MI/d	Deephams Reuse	Didcot Raw Water Purchase	Groundwater Addington 1 MI/d	Groundwater Datchet 6MI/d	oundwater London confined nalk (north) 2 Ml/d	oundwater Moulsford 1 - 3.5 /d	Groundwater Southfleet/ Greenhithe (new WTW) 8 MI/d	Honor Oak	Medmenham intake to SWA	Kempton WTW new 100 Ml/d	Merton Recommissioning	New River Head - Removal of Constraints	ford Canal to Cropredy	2 Ashton Keynes borehole Imps 2.5 MI/d	RC Britwell 1.31 MI/d	S Epsom borehole pumps - 13Ml/d (groundwater scheme)	South East Strategic Reservoir Option 150Mm ³	Wessex to SWOX (Flaxlands)
-/-			ĕ٤	ΑF	ΑF	ĞΫ	Be	ਠ	ŏ≥	۵	D	Ģ	ē	تَىٰ	ο̄Ξ	<u> </u>	Ĭ	Š	ᇫ	Š	žŏ	Ôκ	<u> </u>	ž	8.9	йÖ	≶
River	GB106039037310 – Cherwell (Cropredy to Nell Bridge) GB106039037431 - Cherwell (Nell Bridge to Bletchingdon)	Thames Thames																				∨			\vdash	\longrightarrow	
	GB106039037431 - Cherwell (Nell Bridge to Bletchingdon) GB106039037432 - Cherwell (Bletchingdon to Ray)	Thames																				V			\vdash	-+	
	GB106039029750 - Churn (Baunton to Cricklade)	Thames																					?			\rightarrow	
	` '	Thames																					•	?			-
	GB106039023360 - Cow Common Brook and Portobello Ditch	Thames																								✓	
	GB106039030334 - Thames (Evenlode to Thame)	Thames									✓															✓	
	GB106039030331 - Thames (Wallingford to Caversham)	Thames													✓											✓	
	GB106039023233 - Thames (Reading to Cookham)	Thames																✓								✓	
	GB106039023231 – Thames (Cookham to Egham)	Thames											✓													✓	
	GB106039023232 - Thames (Egham to Teddington)	Thames		✓	✓	✓																				✓	
	GB106039017440 - Hogsmill	Thames																							?		
	GB106038027910 – Pymmes and Salmon Brooks – Deephams STW to Tottenham Locks	Thames								✓															ſ		
	GB106038027950 – Lea Navigation Enfield Lock to Tottenham Locks	Thames								✓																	
	GB106038077852 – Lee Tottenham Locks to Bow Locks/Three Mills Locks	Thames								✓																	
		Thames															✓										
	GB104028046930 - Tame (W/ton Arm) source to conf Oldbury	Humber																				✓					
	GB104028046842 - Tame – conf two arms to R Rea	Humber																				✓					
TRAC	GB530603911402 Thames Middle	Thames					✓																				

Table D.7 cont.

	WFD water body													0	ption)											
Type	ID and name	River Basin District	Aquifer Storage and Recovery (ASR) Horton Kirby	4R Streatham (SLARS2) 5 MI/d	AR Merton (SLARS3) 5 MI/d	ASR Thames Valley/Thames Central 3 MI/d	Seckton Desalination 150	Chingford Raw Water Purchase	Coppermills WTW extension 100 MI/d	Deephams Reuse	Didcot Raw Water Purchase	Groundwater Addington 1 MI/d	Groundwater Datchet 6MI/d	Sroundwater London confined Chalk (north) 2 MI/d	Groundwater Moulsford 1 - 3.5 MI/d	sroundwater Soutmireet/ Sreenhithe (new WTW) 8 MI/d	Honor Oak	Medmenham intake to SWA	Kempton WTW new 100 MI/d	Merton Recommissioning	New River Head - Removal of Constraints	Oxford Canal to Cropredy Resource 15 MI/d	RC Ashton Keynes borehole pumps 2.5 MI/d	RC Britwell 1.31 MI/d	RC Epsom borehole pumps - 2.13Ml/d (groundwater scheme)	South East Strategic Reservoir Option 150Mm ³	Wessex to SWOX (Flaxlands)
	GB30641523 – King Georges Reservoir	Thames	~ _	_	_	√ O	ш		02	7	ш			00	020	-	_	_		_	20		ш	ш	<u> </u>	3, 0	
	GB30641659 – William Girling Reservoir	Thames						✓																	ı		
Ground	GB40601G602200 - Epsom North Downs Chalk	Thames										✓													i i		
	GB40601G501800 - West Kent Darent and Cray Chalk	Thames	✓													✓									i		
	GB40601G500300 - North Kent Medway Chalk	Thames														✓									i		
	GB40601G601000 - Vale of White Horse Chalk	Thames													✓									✓			
	GB40602G602300 - Bromley Tertiaries	Thames																							✓		
	GB40601G60040 - Burford Jurassic	Thames																					✓				
	GB40402G992400 -Tame Anker Mease – Coal Measures Black Country	Humber									·											✓					
	GB40401G301000 - Tame Anker Mease – PT Sandstone Birmingham Lichfield	Humber																				✓					

APPENDIX E:

TEDDINGTON DIRECT RIVER ABSTRACTION WFD COMPLIANCE ASSESSMENT OUTCOME

This section presents the outcomes of the WFD compliance assessment for the Teddington DRA scheme.

Thames Water has taken account of the representations made on the draft WRMP19 WFD assessment of this option, notably those from the Environment Agency and the updated information presented in this Appendix has been informed by the further dialogue with the Environment Agency, and with other interested stakeholders, during spring and summer 2018 on this scheme. As a result of this further consultation, Thames Water has concluded that the WFD issues relating to temperature effects of the Teddington DRA scheme cannot reliably be mitigated to prevent the risk of WFD deterioration based on the current assessment work carried out. Consequently, this scheme has been removed as an option from the Feasible List for the WRMP19.

For completeness, the WFD compliance assessment of the Teddington DRA scheme taking account of the current mitigation measures discussed with the Environment Agency is presented below.

As communicated to stakeholders at our August 2018 Water Resources Forum, Thames Water will continue to investigate this scheme to seek to identify a cost-effective and feasible solution to the WFD compliance challenge that we are unable to resolve currently in dialogue with the Environment Agency and other interested stakeholders. Further details are provided in Appendix L of the WRMP19.

Resource: River Abstraction - Direct River Abstraction - Teddington Weir (Mogden Effluent Transfer) 300 Ml/d - RES-DRA-TED

	WED		T /E	(- T- 12			1
	WFD water body		Thames (Egham	to Leadington)			
	WFD water body		River	S I	11/25	-1	
	WFD managemen		Maidenhead to S	Sunbury	WFD wa	1/20	106039023232
	River Basin Distri		Thames	.	body ID)	
	WED Chatter and		NFD Designation erall Status	ns, Objectives a Objectiv		05:	ective (2027)
	WFD Status and			Objectiv	e (2021)	Obj	ective (2027)
φ	Objectives		oor	heavily modified			-
poq	Hydromorphologi	icai designation		meavily modified			
water body	Water Body Mitigation Measures	No published m	itigation measure	S			
			WFD	Protected Area	s		
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Shellfis Directive	
	NO	YES	YES	NO	YES	NO	YES
	Scheme compone affecting water bo		fish screens to r channel velocity channel width, w abstraction inta Regulations. Operation: New Weir with corres outfall to the Upp TRAC (GB53060 abstraction of riv Option element a operational trigg Thames Gatewa permit conditions phosphate, low E	neet Eel Regular increases to locarith velocity change with approper discharge of entroponding reduction per Thames Tider (33911403)). A new reassessed at full cers for Thames Very Water Treatmes, enhanced treat (30D, low suspending increases of the cers for Thames Very Water Treatmes, enhanced treat (30D, low suspending increases of the certain the ce	tions and a desical around the outfiges kept off the riviate fish screen anced treated en in final effluent way at Isleworth way at Isleworth way at Service River Thames a apacity (300 MM/V vater's existing sent (desalination) ted effluent such ded solids, low a	gn that is e fall, and only ght bank. Cens, particutifluent upstrational discharged Ait (located eat Kingstond) and using trategic scheller. Subthat discha ammonia an	Upon-Thames. g existing emes, such as eject to discharge rge is low d dissolved oxygen
	WFD element	RBMP2 (2015) status		Assessed status			local to the outfall.
(Br	Fish	Not assessed	Uncertain	Construction wi	II be managed	by good p	ractice construction
ig	Macro-	Good	Uncertain		y risk to the wate		
၁၁	invertebrates	Good	Officertain			ıction will no	t cause deterioration
WFD assessment (scoping)	Macrophytes & Phytobenthos	Poor	Uncertain	Thames on the Mogden STW et planned to be Overall, the sch with a probability the year. The consented/licens deterioration to VUp to 300Ml/d of treatment at the to tertiary stands suspended solid the physico-che (currently at moderic addition, not modelling currently at moderic addition, not measures by up to short reach between the measures are to indicates the disoutfall and Tecurrently indicates	intake site will north side of the fiftuent transfer di operational for peme would be op of the fiftuent transfer di operational for peme would be op of it being oper e scheme will sed by the Envig WFD ecological side of Mogden STW siderate for ammorals; therefore ther mical quality electrate status). This indicates that of 3°C in autumn (ween the new out aken to mitigate charge could am ddington Weir, tes that the loc	River Thar ischarge. Ti periods onc perational for le need to ironment Ar status. effluent will tte. The disc nia, phosph re will be a le ments of the discharge ers and med t the river w (potentially in fall and Ted this effect. hend velociti unless mi ation of the	ater temperature will more in winter) in the Idington Weir, unless Modelling currently ies between the new

				in the hydrodynamics with backwaters occurring once ev years.	ery five
				Although fish status is not assessed, because of limitation FCS2 classification tool in large rivers, impacts on m salmonids and resident fish from water temperature and changes between intake and outfall would be likely. temperature effects also present a risk to early emerg macroinvertebrates emerging in early spring.	igratory velocity Water
				Increased residence time between intake and outfall ma algal community and dominance of invasive non-native (e.g. floating pennywort already present).	,
-	hemical Overall)	Good		Further assessment of the pollutant concentrations in the treated effluent is required.	,
				water: The water body is a drinking water protected area. The dispertiary treated and designed to avoid risks to drinking water quality	
Pı	rotected Area De	etails	area un under th affect th	sensitive areas: The water body is associated with a nutrient sensitive the Nitrates Directive and the River Thames is a nutrient sensitive Urban Waste Water Treatment Directive. However, the scheme e management of the protected area and no significant changes are expected or would be permitted through the EA discharge.	ve area will not n water
			of water and ser site bec	Vest London water bodies SPA (and Ramsar): the site comprises supply reservoirs and former gravel pits that support a range of ma ni-natural open-water habitats. There will be no impact on the Evaluation of the support of the site from this scheme.	n-made
<u> </u>	oes the compon	ent comply with	1 WFD C		
	No deterioration		classes	Uncertain. Further work has been undertaken by Thames Water since public the dWRMP setting out both: 1) an ecological need for mitigation temperature effects of a DRA option in the freshwater River Tham estuarine Tideway; and 2) potential mitigation approaches. The fill were discussed at meetings with the Environment Agency on 1 M 2018 and consequently on 13 July 2018. Based on these further discussions since the dWRMP position, both parties agree that th compliance with WFD objectives of a Teddington DRA option remuncertain. Research to date has not been sufficient to satisfactor determine the required extent of, or to identify, a viable mitigation to deliver WFD compliance with certainty. In consequence, a Ted DRA option cannot be considered a feasible option in a proposed WRMP programme at this time.	of nes and ndings ay e nains ily option dington
	No impediments			Yes; no impediments to GEP.	
	. No compromises ojectives	s to water body		Yes; no compromises to water body objectives.	
	. No effects on oth			Uncertain; Modelling has identified potential effects on Thames U TRAC water body (GB530603911403)	pper
ob	. Assists attainme ojectives			No; does not assist with attainment of water body objectives.	
	Assists attainme	nt of protected a	rea	No; does not assist with the attainment of any mitigation measure	S
ob	ojectives			required for the protected areas.	

	lures :		- · · ·				7
	WFD water body		Thames Upper	or.			
	WFD water body to WFD management		Transitional Water Thames TraC	er	WFD wa	ator	
	River Basin Distri		Thames		body ID	IGB530	603911403
	Kiver Basin Bistri		NFD Designation	ns. Ohiectives a			
	WFD Status and		erall Status	Objectiv		Obiecti	ve (2027)
>	Objectives		erate			0.0,000	-
ро	Hydromorphologi	ical designation		heavily modified			
Water body	Water Body Mitigation Measures	No published mi	itigation measure	s			
			WFD	Protected Area	ıs		I I I I I I I I I I I I I I I I I I I
	Bathing Water Directive	Drinking Water Directive	Conservation of Wild Birds Directive	Habitats Directive	Nitrates Directive	Shellfish Directive	Urban Waste Water Treatment Directive
	NO	NO	NO	NO	YES	NO	YES
			Construction: n Operation: A re		learn of the start	- (() (- (- () N -	Associate OTIA
	Scheme compone affecting water bo	ody	outfall to the Tha	imes Tideway at imposition (but no Teddington Wei 106039023232)) existing operation	Isleworth Ait, po to the rate) of the r (see upstream b. Option elemental triggers for Th	tentially to as lo water passed water body Tha at assessed at f names Water's	ow as 20Ml/d. A forward from the ames (Egham to ull capacity (300 existing
	WFD element	RBMP2 (2015) status		Assessed status	s (construction	and operation)
	Fish	Good	Uncertain	There will be a d	continued, but lov	wer rate, of disc	harge from
	Invertebrates	Not assessed	Uncertain	Mogden STW at	t Isleworth Ait int	o the Tideway v	with potentially
	Macroalgae	Not assessed	Not assessed		onditions due to		
	Phytoplankton	High	High		d river flows at Teperational for pe		
WFD assessment (scoping)	Angiosperms	Not assessed	Not assessed	operation at the is assessed as I Modelling of the there is the pote tidal exposure, r where these are up to 3°C in autupper parts of the these effects, or scheme is requi and freshwater f assessed, becauvery low brackis invertebrates an water temperatu	water passed for the passed for minor exacerbatic already present umn (potentially in a water body. Vin a water body. Vi	s-forward flow of 5 years). rward has currenanges in tidal lion of brackish vand a temperamore in winter) Vithout addition ing every 5 years ould impact on a vertebrate statt of the IQI class there are potenative invertebrates and mitigation.	ently identified evels and inter- vater conditions ture increase of particularly in all mitigation, rs when the diadromous fish us is not sification tool in attal impacts on ate species from
	Chemical (Overall)	Good	Uncertain	flow at Teddingt Teddington flow in the concentra body as a result scheme will be r Environment Ag chemical status.		nated by diverte ess), there is a is in the upper T on and dispersi eed and consell to deterioration	d effluent (at risk of increases ideway water ion. The nted with the to WFD
	Protected Area Do		Nutrient sensitive sensitive area ur significant chang EA discharge pe	nder the Urban W Jes in water quali rmit process.	/aste Water Trea	itment Directive	. However, no
	Does the compon	ent comply with					
	1. No deterioration	between status	classes the dWF tempera estuarin were dis 2018 an	work has been u RMP setting out b ture effects of a e Tideway; and 2 cussed at meeting d consequently o	ooth: 1) an ecolo	gical need for me freshwater Ri ation approacher ironment Agend Based on these	ver Thames and es. The findings by on 1 May e further

		compliance with WFD objectives of a Teddington DRA option remains uncertain. Uncertainty remains, in a WFD context, around the required extent of temperature mitigation of a Teddington DRA option. Research to date has not been sufficient to satisfactorily determine the required extent of, or to identify, a viable mitigation option to deliver this. In consequence, a Teddington DRA option cannot be considered a feasible option in a proposed WRMP programme at this time.
2. No impediments to 0	GES/GEP	Yes; no impediments to GEP.
3. No compromises to objectives	water body	Yes; no compromises to water body objectives.
4. No effects on other	water bodies	Yes; following review of potential effects on the Thames Middle TRAC water body (GB530603911402) assessed below
Assists attainment of objectives	f water body	No; does not assist with attainment of water body objectives.
6. Assists attainment objectives	f protected area	No; does not assist with the attainment of any mitigation measures required for the protected areas.

	WFD water body i	name	Thames	Middle												
	WFD water body t	уре	Transitio		ter											
	WFD managemen		Thames	TraC			WFD w	ater								
	River Basin Distri		Thames				body II		GB530	0603911402						
			WFD Desi	gnation	s, Objectives	and Mitig										
	WFD Status and		Overall Sta			tive (2021			Objecti	ve (2027)						
	Objectives		oderate			-	•			-						
>	Hydromorphologi				heavily modif	ied		ı								
Water body		49.Modify ves				21.Avoid	the ne	ed to dre	edge							
7	Water Body	50.Vessel Ma	nagement			22.Dredging disposal strategy										
'ate	Mitigation	26.Sediment				23.Redu										
\$	Measures	27. Dredge di		selection	n	24.Redu										
		28.Manage di	sturbance			25.Retin	ne dredg	ging or c	lisposal							
				WFD	Protected Are	eas										
		Drinking	Conserva	tion						Urban Waste						
	Bathing Water	Water	of Wild Bi	-	Habitats	Nitrat		Shell		Water						
	Directive	Directive	Directiv	re	Directive	Directi	ve	Direc	tive	Treatment						
	NO	NO	\/F0		NO	\/F0		NC		Directive						
	NO	NO	YES	4 !	NO	YES				YES						
	Scheme compone	ents potentially			n/a – no constr inges in the rat											
	affecting water bo	dy	from the	unetros	am Thames Up	nor water	hody (G	1 01 111 0 1	water pa	13)						
		RBMP2 (201														
	WFD element	status	3,	4	Assessed stat	tus (const	ruction	and op	eration	1)						
	Fish	Good	Go	od	Modelling has	currently	identifie	d that. e	every fiv	e vears on						
	Invertebrates	Good		ood	Modelling has currently identified that, every five years on average, there is the potential for minor exacerbation of											
	Macroalgae	Good		ood	brackish water conditions in this water body where these a											
	Phytoplankton	High		igh	already present, potentially resulting in a change of distribut of freshwater fish present in the upper and middle parts of the											
coping)	Angiosperms	Moderate	Mod	erate	water body (f Gravesend w	rom EA mo here the sa are present any tempor	onitoring ame fres t) on ave ary redis	g sites at shwater erage ev stribution	t Batters fish spe /ery 5 y	sea and ecies and similar ears (or lower						
ınt (sı	Chemical (Overall)	Good	Go	od	No impact tra	nsferred fr	om the	upstrear	m water	body.						
WFD assessment (scoping)	Protected Area De		nutrient Howeve permitte Thames over 60k water qu Europea	sensitiver, no signed through the Estuary cm from the training training the training tra	e areas: The tie area under the inificant chang the EA discharg was Marshes Striss option. Ghydrodynamics	ne Urban V es in water e permit p PA (and Ri iven the di	Vaste W r quality rocess. amsar): stance a	/ater Tre are exp The clos	eatment ected of sest pa fact tha	Directive. It would be It of the site is It no significant						
	Does the compon															
	1. No deterioration		classes	, -	risk of deterio											
	2. No impediments				impediments											
	3. No compromises															
		4. No effects on other water bodies				Yes; there are no potential effects on other water bodies.										
	Assists attainme objectives				es not assist wi											
	6. Assists attainme objectives	nt of protected	area		es not assist wind for the protect			of any m	nitigation	n measures						



The Gemini Building Fermi Avenue Harwell Didcot Oxfordshire OX11 0QR United Kingdom

United Kingdom
t: +44 (0)1235 753000
e: enquiry@ricardo.com

ee.ricardo.com