June 2023

Strategic regional water resource solutions: standard gate two final decision for Thames to Affinity Transfer

Ofwat

Contents

1. Introduction

The purpose of this publication is to set out our final decision about whether the Thames to Affinity Transfer (T2AT) [1] solution should continue to receive development funding[2]. The solution owners, Thames Water and Affinity Water, submitted their standard gate two reports on 14 November 2022 for assessment. Further information concerning the background and context of the Thames Water and Affinity Water T2AT can be found in the T2AT publication document on the Affinity Water website[3].

This publication should be read in conjunction with the final decision letter issued to each solution owner. Both this document and draft decision letters have been published on our website.

The assessment process is overseen by RAPID, with input from the partner regulators Ofwat, the Environment Agency and the Drinking Water Inspectorate. The Environment Agency together with Natural England and Natural Resources Wales (for solutions involving Wales), have reviewed the environmental sections of the submissions, and provided feedback to RAPID. The Consumer Council for Water provided input to the assessment on customer engagement.

The solution owners and other interested parties had the opportunity to respond to the draft decision during the representation period, which followed the publication of the decisions on 30 March 2023. We have taken all relevant representations into account in making our final decision.

We would like to thank Thames Water and Affinity Water for the level of engagement, collaboration and innovation that they have exhibited during this stage in the gated process.

[1] Referred to in PR19 final determination as “Thames Water – Affinity Water transfer”

[2] PR19 final determinations: Strategic regional water resource solutions appendix

[3] Thames to Affinity Transfer

2. Solution Summary

2.1 Solution summary

The Thames to Affinity Transfer (T2AT) solution involves a transfer of water from proposed sources available in Thames Water's London Water Resource Zone to Affinity Water's Central Region. Two options for the transfer were selected in the Water Resource South East (WRSE) emerging regional plan in January 2022. These two options have been appraised by Thames Water and Affinity Water in the T2AT gate two submission.

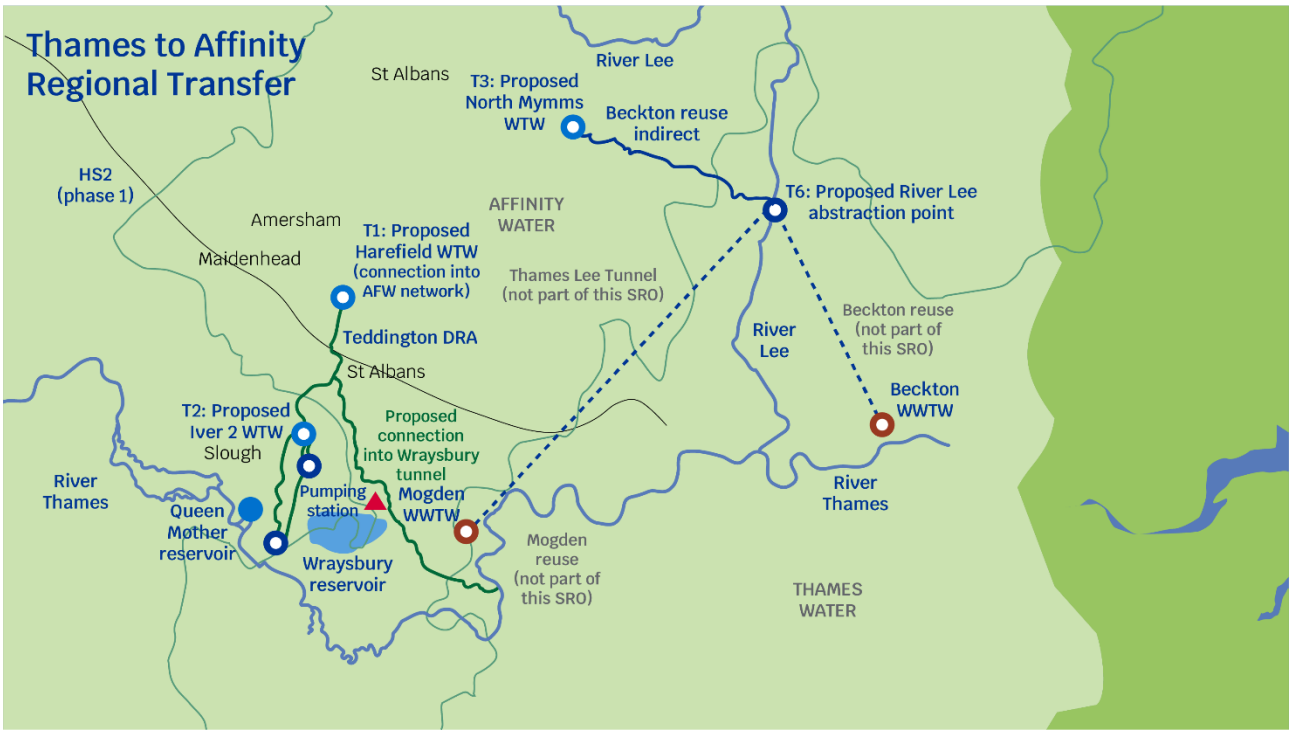
The two options considered in the gate two submission are:

- The Lower Thames Reservoir (LTR) option – A transfer from Thames Water's Lower Thames Reservoir system to Affinity Water, supported by new water resource from the South East Strategic Reservoir Option (SESRO) or the Severn to Thames Transfer (STT).
- The Beckton Reuse Indirect (BRI) option – A transfer from a new abstraction on the River Lee flood relief channel to Affinity Water, dependent on recycled water being fed into the river from either the Beckton effluent reuse option or Teddington Direct River Abstraction (DRA) option of the London Effluent Reuse solution.

Both options for the transfer could deliver between 50 and 100 megalitres per day (Ml/d) in a dry year during a 1 in 500 year drought. The LTR option is selected in the WRSE draft Regional Plan and in the draft Water Resource Management Plan (WRMP) 2024 for both partner companies, linked to the development of the South East Strategic Resource Option solution, for use by 2040. The larger capacity option is preferred, transferring up to 100 Ml/d annual average deployable output to Affinity Water. The transfer will be phased, with 50 Ml/d available by 2040 and a further 50 Ml/d available by 2044/2045.

The LTR option (100 Ml/d) is selected for implementation in 2040 by the WRSE draft Regional Plan and by the draft WRMP24. Thames Water and Affinity Water therefore recommend that this option proceeds to gate three. The BRI option is not selected in the reported future pathway of the draft plans; the BRI option is therefore considered only as a future back-up scheme should an issue arise with the LTR option. Thames Water and Affinity Water propose that the BRI option is indefinitely deferred, and that no further work is undertaken on this option after gate two.

Figure 1. Thames to Affinity Transfer Solution Schematic



3. Summary of representations

3.1 Representations received

We have received the following representations relevant to the Thames to Affinity Transfer.

Table 1. Summary of representations

Representation from	Summary of representation
Wantage and Grove Campaign Group (WaGCG)	**Solution costs** • WaGCG are concerned about the financial burden of RAPID solutions on future generations. They strongly support the call by Group Against Reservoir Development (GARD) that Regulated Capital Value (RCV) should be included in the intergenerational equity metric. They also assert that the impact on customer bills should be required in the submissions and gated assessment. **Interconnectedness** • WaGCG suggest that the gated process should consider the connected solutions together. • They assert that the carbon footprint, financial cost, return on value, cost to the consumer, recreation and amenity value, and environmental impact of any integrated solution is impossible to define from the fragmentation of the strategies. • They find that the current process does not allow for comparison of different options. **Water resource planning** • WaGCG are concerned that the data used for population and climate change forecasts is inappropriate.
Wantage Town Council	**Stakeholder engagement** • The Council note that they have not been considered a consultee for T2AT (and other RAPID projects), and it is presumed that this is due to them falling outside their parish boundaries. • Urge RAPID to consider how consultees are selected and include the local authorities that represent residents who may be impacted by construction traffic, changes to the local environment and potential bill increases. **Solution costs** • The Council request that costs to customers in terms of future billing are considered by RAPID, and the figures used to calculate this are made accessible to stakeholders.

	Best value planning • The Council suggest that the assessment used for the solutions does not guarantee the attainment of the "best" outcome for the environment and for cost to customers. • Suggest that non-capital options have not been adequately considered by water companies and regulators. **Environment** • Suggest that RAPID have not considered the need for infrastructure to be developed to protect the environment and prevent the release of raw sewage into waterways.
Chalk Streams First (CSF)	**Chalk streams** • CSF note that the construction of the Thames to Affinity Transfer is contingent on the construction of SESRO and the Severn to Thames Transfer and note concern that this could delay the abstraction reduction needed to protect chalk streams. • Propose that the urgent need for abstraction reduction and CSF's proposals for minimising any deployable output loss via a groundwater insurance scheme should be factored into the timing of the Thames to Affinity Transfer scheme. • CSF suggest that the scheme is rescheduled and renamed 'Supply 2030' and that an action should be set at gate two for the investigation of such a scheme combined with the acceleration of Supply 2050 to 2030.
Group Against Reservoir Development (GARD)	**Solution costs** • GARD say that although there is now a fair amount of cost detail available in the gate two reports for the strategic options, there are no option cost comparisons to justify the selection of options and their sequence of development. These comparisons might be expected to be prominently available in regional plans and the WRMPs, but there are none to be seen. This is a major failing in transparency which needs to be addressed in gate three. **Solution design** • Sourcing the T2AT transfer water by direct connection to an existing reservoir and the London supply system was proposed by GARD during the finalisation of PR19 and referenced by Ofwat in the appendix to its final PR19 determination, which defined the scope of the SRO investigations. The matter was raised again in their response to Ofwat's T2AT gate one decision report. Although this was acknowledged in Ofwat's final gate one decision report, there was no specific action recommended and nothing more has been done. Propose that it is addressed specifically in Ofwat's final gate two decision report. • GARD propose that Ofwat's gate two decision report should require a gate three investigation of the West Berkshire Groundwater Scheme concept in the Chilterns chalk streams

	as part of the continuing Thames to Affinity transfer development. **Water resource planning** • The scheme is needed urgently to enable much needed reductions in chalk groundwater abstractions, allowing re-naturalisation of flows in the heavily over abstracted Chilterns chalk streams. The gate two report proposes that the transfer is sourced by water from Abingdon reservoir, so it has to wait until at least 2040 before it can be operational. GARD consider this delay to be unacceptable and unnecessary. • GARD's assessment of Thames Water's supply-demand balance shows that the raw water transfer can be sourced by the Teddington DRA scheme and Thames Water leakage and per capital consumption (PCC) reductions, without the need for Abingdon reservoir.
Oxfordshire County Council (OCC)	**Stakeholder engagement** • OCC note that RAPID schemes should be informed by consultation with people that live close to where the schemes are constructed, and that RAPID should highlight in its decisions the importance of working with local councils and communities. **Water resource planning** • OCC are concerned that additional water supply needed in the South East has been seriously overestimated because of incorrect population growth models and poorly evidenced environmental targets. • They assert that water companies should do more to reduce leakage and reduce demand and then the need for building new items of strategic infrastructure will be reduced. • There are other options which could provide water supply which are not included in the RAPID gated process. The regulators' funding should also support the development of a wide range of options including smaller, more innovative and less environmentally damaging solutions. They state that resilient schemes such as water recycling, water transfers, and desalination should be prioritised so that other options such as the SESRO are not needed. • They would like to see funding, for example, of nature-based catchment management schemes where projects are developed to retain water, manage flood risk and create new nature reserves, alongside a much greater focus on aquifer recharging. • RAPID needs to focus much harder on building early resilience to the accelerating, increasingly malign and radically uncertain impacts of climate change. Radical uncertainty in the face of existential threats requires a "least risk" approach.

	• OCC state that the top priority needs to be building resilience to unpredictable and rapidly evolving climate impacts. This would result in a fundamentally different prioritisation based on resilience to future water shortages and speed of delivery. Given the urgency of climate change, the need for new items of strategic infrastructure that will take a long time to build is over-estimated relative to the need for smaller schemes that can be brought forward quickly and provide resilient sources of water. They favour the use of existing or refurbished infrastructure, such as the canal transfers, or infrastructure which is underground, such as pipelines. • The Council note the increasing impact climate change is having on weather systems, and note concern with the solution delivery times that the RAPID programme is working to. • The Council believe that the water sector should be aiming for resilience against the worst case scenarios that could arise from climate change, for example aiming for extreme multi-year drought by the early 2030s. **Decision making** • The Council expect RAPID will need to review its draft decisions to make sure that the final decisions are consistent with the recently published National Policy Statement. **Gate timing** • RAPID's draft decisions offer various gate three dates going forward. The Council query this amendment to the process which previously envisaged that schemes would be able to be compared with one another at the same time. Comparison is made more complicated with timelines dispersed over six years. **Solution design** • The Council are concerned that it is not clear in the decision document that the T2AT transfer is not solely dependant on SESRO and can take place as a result of other proposals, such as the STT. **Carbon costs** • The Council believe that RAPID should continue to seek evidence that solution partners are embracing innovative designs and opportunities to generate or be powered by renewable energy and/or sequester carbon. • The Council believe that a comparable carbon assessment should be undertaken for each solution and that solutions should set out net zero carbon commitments. • Believe that RAPID should be clear in their decisions that gate submissions will require solution partners to set out the carbon costs of their proposals in relation to the government's commitments to reduce carbon emissions,

	and that the carbon footprint of solutions could be compared when choosing between options. • Believe that RAPID should compare each of the draft decisions to consistently seeking evidence about carbon costs. • Believe that there should be an account provided of the amount of renewable energy entered into the national grid from the solution once constructed, and whether low carbon hydrogen will be available and will be used by the solution. • Note that low energy demand from the solutions once in use will not be an effective mitigation for high energy use in construction.
Thames Water and Affinity Water	**Solution costs** • Note that the final total gate two expenditure is £1.607M, reduced from the £1.82M estimate. • Note that taking this amended underspend forward to gate three should enable an adjustment to the gate three allowance to £6.78M. **Gate allowance** • Note that gate three funding has been increased by 65% of the forecast shortfall. • Request that RAPID confirm that funding for AMP8 will be separately determined through the 2024 price review (PR24) process and reflect any changes to project schedules arising from the WRMP process. • Endorse RAPID's statement regarding solutions costs increasing due to a number of factors. • Agree with RAPID's assessment that project costs are likely to exceed the PR19 Development Allowance and an uplift to gate three is likely to be required. Thames and Affinity expect such an uplift to be part of the discussions at the PR24 determination, but accept RAPID's draft assessment in the interim that the base funding is increased to £6.52M, plus the £0.26M underspend from gates one and two. **Cost Sharing** • Note that the cost sharing rate is changing and acknowledge RAPID's intention of challenging efficient delivery, however Thames Water and Affinity Water believe that constraining funding may increase risk, and welcome further conversations on this issue and the suitability of cost sharing for major projects. **Gate timing** • Welcome RAPID's invitation to discuss the timing of gate three checkpoint one at a regular meeting, and to formalise any requests relating to scheme progression with associated reasoning through a letter to RAPID.

	Partnering arrangements • Note that Thames Water and Affinity Water will continue as solution partners for AMP 7 with Thames Water exiting from the management and funding of the solution from AMP 8 onwards. • Note RAPID's requirement for changes in partner arrangements to occur at gates and welcome the chance to discuss with RAPID how Thames Waters exit as a solution partner might work in practice, such as through an interim gate at the end of AMP7. **Chalk streams** • No concerns with the actions and recommendations set at gate two, however would welcome clarification on the recommendation to "Include Chalk Streams First in the WRMP process, because this has not been assessed as part of the gate two process." • Request RAPID clarify what the ultimate outcome of the recommendation is anticipated to be and the activity required to fulfil it. • Note the Chalk Streams First (CSF) concept is being delivered through three of Affinity Water's initiatives, as set out in Affinity Water's draft WRMP. • In response to stakeholder concerns to Affinity Water's draft WRMP, Thames and Affinity propose to outline in the gate three report how the CSF concept and T2AT fit into the WRMP24 strategy along with the deployable output benefits that might be expected from the T2AT stage of the strategy.
Historic England	**Historic environment** • Historic England recommend that the solution team begin engagement with Historic England and other heritage stakeholders as soon as possible.

3.2 Our response

We have taken the representations into account in our final decisions and set out below our response to the key points and issues raised. For the representations or parts of representations which indicate support, provide information or give an update without raising key points and issues, we do not provide a response below but are grateful for the comments provided and confirm that we have also taken these into account.

3.2.1 Solution costs

Water resources infrastructure options are considered and selected as part of regional plans and water resource management plans not the gated process. The gated process provides cost information for other purposes.

We are mindful of the financial burden that the solutions will place on current and future generations, however future customers will benefit from the additional water resource. At this stage of the solution's development, Ofwat does not consider it appropriate to ask solution owners to measure the impact on customer bills. Cost estimates are still relatively immature, and any measurement of an impact on customer bills is likely to be misleading at this time. Furthermore, the solution is likely to be delivered by an external delivery partner, hence it will not increase the Regulated Capital Value of water companies.

We have updated the text in section 4.3 to reflect the change in final gate two expenditure derived from the final gate two accounts.

3.2.2 Interconnectedness

RAPID took a decision at gate one that Severn Trent Sources (STS) and other supporting solutions to STT should continue to be developed separately to STT. Although RAPID took a decision at gate one to continue to develop solutions separately rather than collectively, it is recognised that, as water resources planning and the gated process advances, solutions may provide resilience benefits to their own regions, to other solutions, or to other regions beyond those served by the individual solution.

Whilst assessing these solutions individually through the gated process, RAPID does also review them as part of a system they may collectively create. As the solutions progress through gate three and alignment to the final water resource management plans occurs, RAPID will continue to look at solutions in an integrated way, as well as at the individual solutions.

3.2.3 Water resource planning

The water resources planning process assesses the need for these solutions and the socioeconomic assumptions such as those around growth underpinning the modelling for these processes.

Company WRMPs and Regional Plans develop their demand forecasts in line with Water Resource Planning Guidelines, which sets out requirements for using Local Plan and Office for National Statistics population growth projections. Ofwat's long term delivery strategies guidance also defines using two population forecasts in low and high population scenarios. We have assessed where companies have adhered to these methods in order to set out the needs case for the RAPID solutions.

Reducing leakage and being more efficient in using water both have a significant role to play but will not be sufficient alone to ensure security of water supplies in the future.

Water resources infrastructure options are considered and selected as part of regional plans and water resource management plans. These plans consider both demand side measures and supply side measures as part of a twin track approach to water resources and determine the need for new water resource infrastructure. Neither Ofwat nor RAPID has a decision-making role in regional plans or water resource management plans.

The anticipated effects from industry measures to reduce leakage and reduce demand are taken into account in water resource planning as part of the assessment of whether new water resource infrastructure is required. The national framework – published by the Environment Agency in 2020 – set out expectations that the industry reduces demand to around 110 litres per person per day and reduces leakage by 50% both by 2050. The conclusion of the water resource management planning process is that, even with these reductions, new water resource infrastructure will be needed to improve drought resilience, reduce the impact of abstraction on the environment, supply a growing population and adapt to climate impacts.

The draft Water Resource Management Plans (WRMPs) 2024 set out a much broader range of supply and demand options which maintain resilience in the companies' supply-demand balance over the entire planning horizon (at least 25 years), including in the short term such as over the 2025-2030 period, and longer term, such as the inclusion of the RAPID strategic solutions. The forecast supply-demand balance in the WRMPs includes allowances for climate change across the entire planning horizon, including short term and long term, in line with the water resources planning guideline supplementary guidance on climate change. The plans also incorporate adaptive planning, which test several plausible extremes for climate change, to ensure the plans can adapt to different scenarios if they come to fruition, including longer duration extreme multi-year events.

The RAPID programme is one of several approaches the sector is working with to ensure short-term and long-term resilience in the sector.

Ofwat have allocated up to £469 million for companies to investigate and develop integrated strategic regional water resource solutions during 2020-25. This enable companies to develop solutions on behalf of customers that are 'construction ready' for the 2025-2030 period, and that protect and enhance the environment and benefit wider society. This intervention further demonstrates our commitment to supporting long-term resilience and innovation.

There are solutions in the RAPID programme that use existing or refurbished infrastructure, such as Grand Union Canal and North West Transfer. There are also several solutions that are considering the use of pipelines to transfer water such as Anglian to Affinity Water.

Through the RAPID programme, solution teams have assessed multiple options representing different configurations, sizing and operational combinations of the solutions. This also has included interconnectivity and interdependencies between different solutions. Continued

development of the solutions has determined feasible and best value preferred options for detailed development and design. The SESRO and London Recycling solution teams have followed this process through the RAPID programme.

In terms of non-capital options, Ofwat are encouraging nature-based solutions through PR24 as referred to in PR24 final methodology Appendix 9 Setting Expenditure Allowances.[4]

3.2.4 Carbon costs

Solution development to gate three should continue to build from the gate two submissions. In particular, in gate three guidance we are asking solutions to continue to follow the Water Resources Planning Guidelines for WRMP24 section 8.3.2 (published in April 2022) which states expectations for accounting for and reducing greenhouse gas emissions. In Wales, expectations are set out in section 3 of the guiding principles (published April 2016) for WRMPs. We are asking companies to reduce and mitigate embodied carbon as much as possible using standard approaches and appropriate frameworks. On 6 January 2022, Ofwat published its net zero principles position paper[5]. Solutions should be designed in line with these principles. In particular companies are encouraged to ensure solutions:

- are reflective of national government targets on net zero
- prioritise the reduction of GHG emissions before the use of offsets, doing so in line with the IEMA GHG Management Hierarchy[6] and;
- clearly address both operation and embedded emissions

3.2.5 Stakeholder engagement

We agree that stakeholder engagement is important. Solutions will need to follow gate three engagement guidance which include:

- pre-planning statutory consultation as described in The Planning Inspectorate Advice Note 11: working with public bodies in the infrastructure planning process and Annexes A-H[7]
- Plans showing ongoing and continued engagement, that have been shared with public and statutory bodies, including any required enhanced advisory services.
- customer engagement, particularly on changes of source where relevant.

[4] PR24 final methodology Appendix 9 Setting Expenditure Allowances

[5] Net-zero-principles-position-paper

[6] The GHG Management Hierarchy, as detailed by the Institute of Environmental Management and Assessment (2020 version), is a framework organisations can use to guide the scoping and strategic planning of their energy and carbon management activities.

[7] Advice notes | National Infrastructure Planning (planninginspectorate.gov.uk)

- Engagement with all stakeholders affected by the solution's development.

3.2.6 Historic environment

During further progress through the gated process, solution owners will continue to develop their environmental assessments, including consideration of the historic environment. A Development Consent Order (DCO) application or an application for local planning permission for the solution will need to be supported by an Environmental Impact Assessment in which the effects of the solution on the historic environment will be assessed and proposals for mitigating any adverse effects will be included. The acceptability of the effects and mitigation will be a matter for the authorities determining those applications and will not be a decision reached by the gated process.

We agree that progress of this solution would benefit from engagement with Historic England. We have added a recommendation to the final decision document.

3.2.7 Best value planning

We agree that additional benefits to the local community and the environment are an important aspect of the RAPID solutions. The assessment of recreational benefits was considered sufficient for gate two. Solution partners will continue to investigate opportunities to realise the wider benefits that could be developed as part of the solution.

Gate three submissions should include a summary of the best value considerations relevant to the preferred option for each solution included in all the individual company WRMPs and regional plans where the solution appears. This should include the consideration of financial cost and how it will achieve an outcome that increases the overall benefit to customers, the wider environment and overall society. Benefits to consider could include any amenity or recreation value, regional economic impact, multisector benefits, and other societal benefits.

3.2.8 Environment

RAPID's remit is to provide oversight of the gated process established to support, review and challenge the development and delivery of the strategic water resource solutions funded as part of the 2019 price review. Part of the reason why these solutions are being developed is to protect, improve and enhance the environment. The amount of water available for water supply has reduced to meet environmental objectives, hence the need for new solutions. Each solution will need to comply with environmental legislation, undertake detailed environmental investigations and demonstrate how they will make a positive contribution to the environment and society. The regulators that look after the environment are fully involved

at every stage of this programme and water companies also have duties in relation to environmental protection.

3.2.9 Chalk streams

We support the restoration of chalk streams and the possibility of delivering reductions in abstraction as soon as is practicable. Whilst the Thames to Affinity Transfer could help support chalk stream recovery, the concept of Chalk Streams First (CSF) as a whole is wider than that of the T2AT solution. Reductions in abstraction from the Chalk by Affinity Water have been included in the demand modelled by WRSE, with best value options to support any reduction in supply also identified through the WRSE modelling. As such, a recommendation has been made that CSF is considered by Affinity Water as part of the WRMP process rather than the gated process. RAPID have confirmed with Affinity Water that the proposal is being taken seriously and that engagement with CSF regarding accelerated delivery is planned.

We included a recommendation that the solution partners should 'Include Chalk Streams First in the WRMP process, because this has not been assessed as part of the gate two process.' We expect that all work planned for the Chalk Streams First concept will be carried out via the WRMP process rather than through activities undertaken as part of the Thames to Affinity RAPID programme. Thames Water and Affinity Water can include an outline of how the CSF concept and T2AT fit into the WRMP24 in the gate three report, however, this will not be assessed through the gated process.

3.2.10 Decision making

The National Policy Statement for Water Resources Infrastructure will be used as the primary basis for examination by the Examining Authority of development consent order applications for water resources nationally significant infrastructure projects. It will also be used by the Secretary of State in making decisions on those applications and may be a material consideration in making decisions on water resources infrastructure development that falls within the local authority planning regimes. As such, the solution owners will need to address the National Policy Statement for Water Resources Infrastructure in the applications that they make at a later stage for development consent orders or planning consents. However, it is not a relevant consideration for Ofwat's earlier decisions at gate two on the continuation of funding for progressing the solutions to gate three.

The funding supports the acceleration of regional solutions that we expect to play a significant role in long-term resilience and will feature in future company business plans and water resources management plans. These regional and inter-regional solutions are complemented by the delivery of other solutions identified in companies' business plans within supply-demand balance enhancement programmes which include smaller supply

options, improved connectivity of networks, water efficiency programmes and leakage management.

3.2.11 Gate allowance

We have considered the representations made on the gate three allowance and have considered further the interests of customers over the lifecycle of the solution's development and delivery. As a consequence, we have decided to increase funding for gate three. We will consider gate four expenditure either as part of the gate three decision or PR24, as appropriate.

We have adjusted Table 4 of the final decision to reflect these changes and have added some explanatory text to section 4.2.

3.2.12 Cost sharing

We have considered the representations made on the appropriateness of the cost-sharing mechanism which appeared in the draft decision and have considered further the interests of customers over the lifecycle of the solution's development and delivery. As a consequence we have decided to remove the cost sharing arrangements for gate three and are instead capping the gate three allowance at a higher level. This means that the solution may pass on to customers the costs of gate three activities but only up to the higher cap. The solution will be allowed to use its previous underspends to offset expenditure above the cap to provide some flexibility against cost uncertainty.

We have added some explanatory text to section 4.2 to reflect these changes.

3.2.13 Solution design

The two options considered in the gate two submission are:

- The Lower Thames Reservoir (LTR) option – A transfer from Thames Water's Lower Thames Reservoir system to Affinity Water, supported by new water resource from SESRO or STT.

- The Beckton Reuse Indirect (BRI) option – A transfer from a new abstraction on the River Lee flood relief channel to Affinity Water, dependent on recycled water being fed into the river from either the Beckton effluent reuse option or Teddington Direct River Abstraction (DRA) option of the London Effluent Reuse solution.

The option taken forward is the LTR option which makes use of the Queen Mother and Wraysbury reservoirs and the existing tunnel connection to Iver treatment works.

We have added to the solution summary in section 2.1 that the LTR option can be supported from SESRO or STT.

RAPID disagree that a West Berkshire Groundwater scheme concept should be investigated in the Chilterns chalk as part of the Thames to Affinity transfer and the gated process because its concept is to provide relief to headwaters during a drought, not to provide long term water supply.

3.2.14 Gate timing

The solutions are due to start construction at different times, therefore after gate two the solutions need follow different timetables. Beyond gate two, gate alignment across the whole programme becomes less important. It is more important the gates align with pre- planning application activities. Beyond gate three the timings also become more dependent on external factors such as the planning application process. The need for flexibility and bespoke solution gate timings will be reflected in future decisions.

4. Solution assessment summary

Table 2. Final decision summary

Recommendation item	Thames to Affinity Transfer
Solution owners	Thames Water and Affinity Water
Should further funding be allowed for the solution to progress to gate three?	Yes
Is there evidence all expenditure is efficient and should be allowed?	Yes
Delivery incentive penalty?	No
Is there any change to partner arrangements?	No
Are there priority actions for urgent completion?	No
Are all priority actions and actions from previous gates addressed?	Either complete, partially complete or incomplete as set out in Section 5.2
Suitable timing for gate three has been proposed	Yes, December 2029 is suitable for gate three.

4.1 Solution progression to standard gate three

The evidence suggests that the solution is a potentially valuable way of supplying water to customers. Based on our assessment of a wide range of areas that could concern the progression of the solution, we have concluded that the solution, LTR option, should progress through the gated process to gate three and agree with Thames Water and Affinity Water's recommendation that the BRI option is indefinitely deferred, and that no further work is undertaken on this option after gate two.

Figure 2 below summarises the area of any progression concerns, including indication of the significance. The reasons for this assessment conclusion are set out in table 3 below.

Decisions on funding as a result of this progression decision, are set out in section 4.2.

Figure 2. Assessment of solution's progression concerns

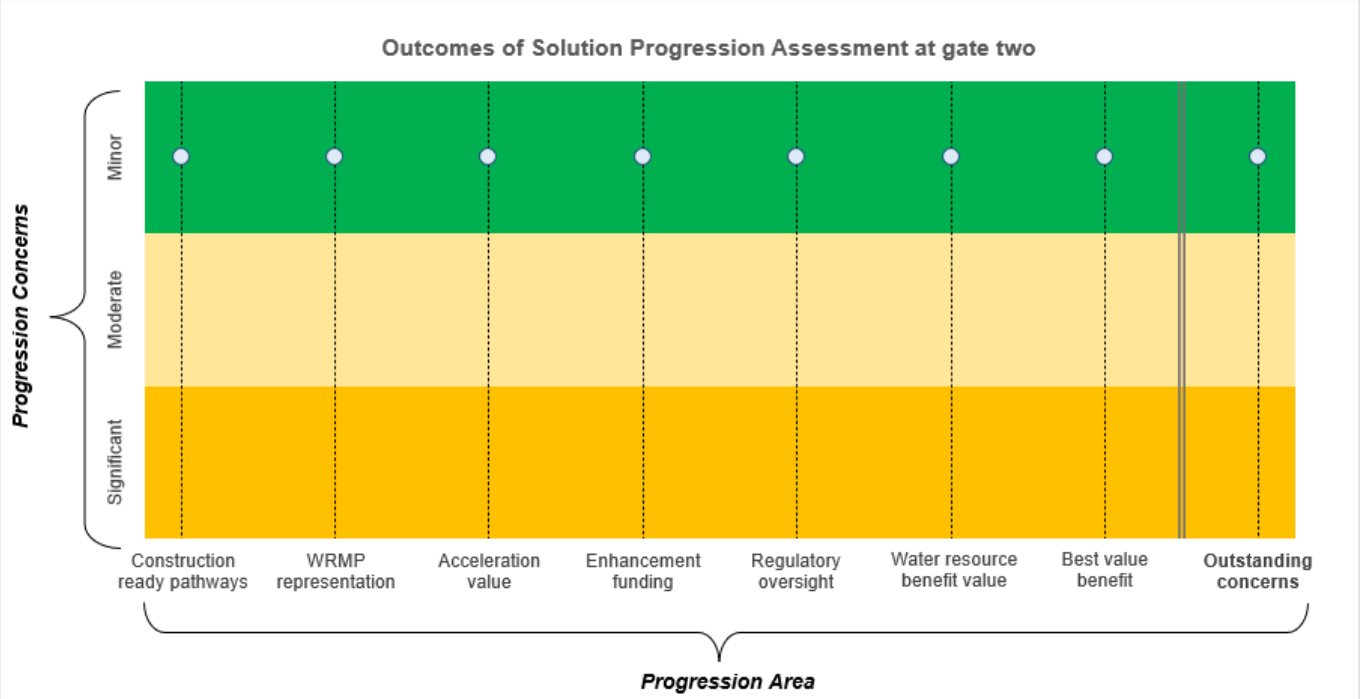


Table 3. Final decision progression criteria

Progression criteria	Thames to Affinity Transfer
Solution owners	Thames Water and Affinity Water
Is the solution in a preferred or alternative pathway in relevant regional plan or WRMP (where applicable) to be construction ready by 2030?	Yes. The solution is chosen in Thames Water's and Affinity Water's draft WRMP24s, as a solution on their preferred pathways, which is the relevant plan for the standard track. The solution is also in the WRSE draft regional plan. The solution will be construction ready by 2034.
	No further action is required on this progression criteria.
Do regulators have any significant concerns with the solution's inclusion or non-inclusion in a WRMP or regional plan or with any aspects that may impact its selection, to a level that they have (or intend to) represent on it when consulted?	No, the regulators do not have concerns on how the solution is represented, or the information about it in Thames Water's or Affinity Water's draft WRMP24, or the WRSE draft regional plan.
	No further action is required on this progression criteria.
Is there value in accelerating the solution's development to meet a company's or region's forecast supply deficit?	Yes. A solution is required to address Thames Water's and Affinity Water's forecast deficits.
	No further action is required on this progression criteria.
Does the solution need continued enhancement funding for investigations and development to progress?	Yes. Continued funding is required to develop a solution to be delivered in time for the planned construction ready date.
	No further action is required on this progression criteria.

Does the solution need the continued regulatory support and oversight provided by the Ofwat gated process and RAPID?	Yes. The solution will continue to benefit from the regulatory support and oversight provided by being included in the RAPID programme.
	No further action is required on this progression criteria.
Does the solution provide a similar or better cost / water resource benefit ratio compared to other solutions?	Yes. This solution does provide a similar or better cost / water resource benefit ratio compared to other solutions.
	No further action is required on this progression criteria.
Does the solution have the potential to provide similar or better value (environmental, social and economic value – aligned with the Water Resources Planning Guideline) compared to other solutions?	Yes. This solution has the potential to provide similar or better value (environmental, social and economic value – aligned with the Water Resources Planning Guideline) compared to other solutions.
	No further action is required on this progression criteria.
Does a regulator or regulators have outstanding concerns that have not been addressed through the strategic planning processes, taking into account proposed mitigation?	No outstanding concerns have been identified at this stage; however, they may emerge during gate three pending further environmental and other assessments and evidence.
	No further action is required on this progression criteria.

4.2 Solution funding to standard gate three

We are changing the funding of this solution. The details of this funding decision are set out in Table 3 below, and details on the forward programme in section 8.1.

Table 4. Thames to Affinity Transfer funding allowances (2017/18 Prices)

	Gate one	Gate two	Gate three	Gate four	Total
Thames to Affinity Transfer gated allowance	£1.09m	£1.64m	£7.97m	£4.37m	£15.07m
Comment	10% of development allowance calculated as 6% of total solution costs	15% of development allowance calculated as 6% of total solution costs	Allowance has been revised and capped.	We will review gate four expenditure as part of gate three assessment or PR24.	Updated to reflect revised gate three expenditure cap.
Previous Allowance	£1.09m	£1.64m	£3.82m	£4.37m	£10.92m
Change from Previous Allowance	£0.00m	£0.00m	£4.15m	£0.00m	£4.15m

This funding has been revised to account for forecast costs at gate three. We have determined that across all solutions gate three costs have risen due to factors such as increases in solution design costs, changes in scope and additional funding required to

develop the environmental impact assessment (EIA), water quality assessments, ground investigations and other environmental field studies and assessments.

Thames to Affinity Transfer will be allowed to spend up to £7.97 million to undertake gate three activities, representing an increase of £1.45 million from our draft decision. This figure has been reached based on funding 100% of the forecast costs for gate three. We are not amending the gate 4 allowances at this point.

We are removing the cost sharing arrangements for gate three which were in our draft decision and are instead capping the allowance at a higher level. This means that the solution may pass on the costs of gate three development but only up to the higher cap. The solution will be allowed to use its previous underspends to offset expenditure above the cap to provide some flexibility against cost uncertainty.

These arrangements will be implemented through the PR19 reconciliation mechanism. The impact on the solution owner(s) of any expenditure above or below the cap will depend on the extent to which the solution was already funded at PR19.

The solution may bring forward some gate four activities, which can be funded from the gate four allowance. There must be a clear rationale for undertaking the expenditure early, including evidence of the benefits of doing so instead of waiting for greater solution certainty.

We confirm that any funding for AMP 8 will be decided through the PR24 process.

4.3 Evidence of efficient expenditure

The PR19 final determination specified that any expenditure on activities outside the gate activities for the identified solutions (or solutions that transfer in) will be considered as inefficient and be returned to customers. We will consider whether gate activity is efficient by considering the relevance, timeliness, completeness, and quality of the submission which should be supported by benchmarking and assurance.

T2AT has carried forward £0.24m underspend from gate one, increasing the allowance available to them at gate two to £1.87m.

Our assessment of the efficient costs as spent on standard gate two activities results in an allowance for this solution of £1.61m (of £1.61m claimed). T2AT has therefore underspent its combined gates one and two allowance by £0.27m and may take this underspend forward to gate three, increasing the allowance available to them at gate three to £8.24m.

From gate two, we will move to look at the cumulative gate spend against the cumulative total allowance, across all gates consistent with the activities being undertaken. For example,

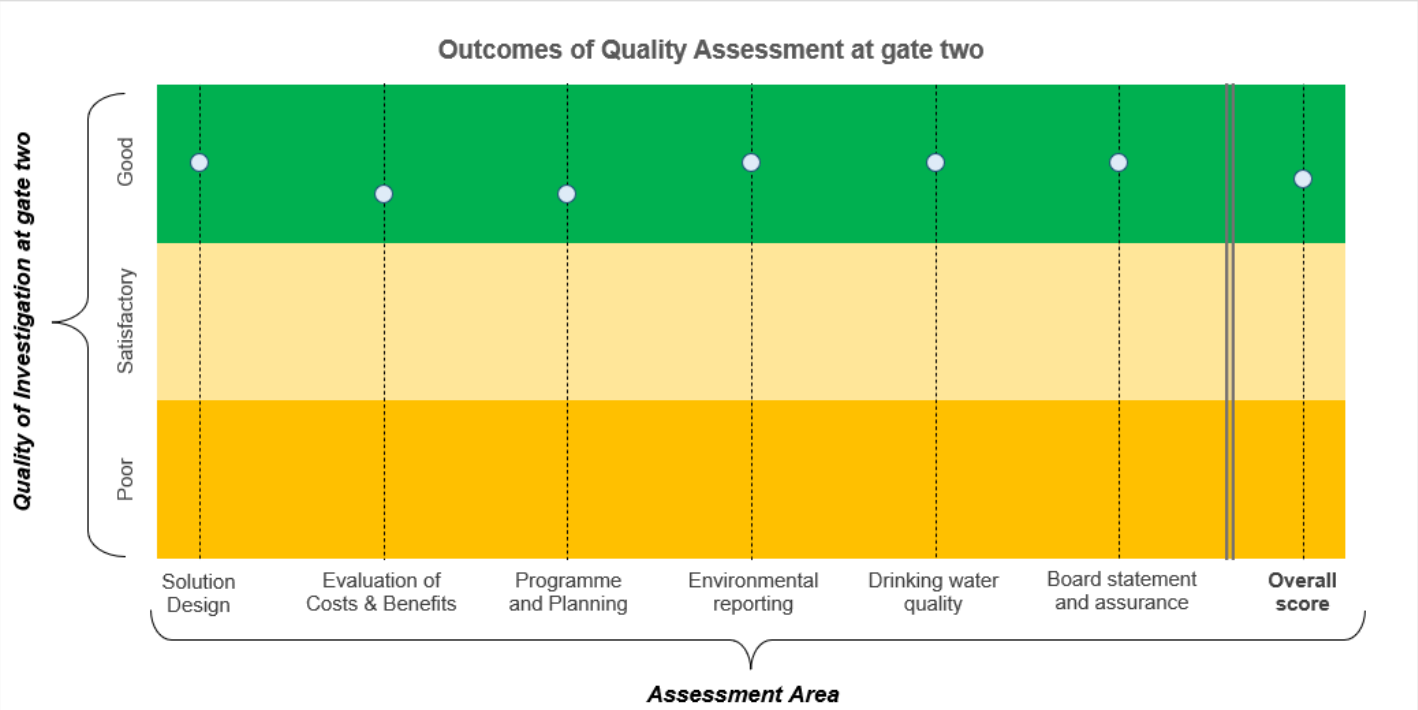
any gate four allowance that is brought forward towards gate three should be for the purpose of early gate four activities. As T2AT is progressing to gate three, this will apply here.

4.4 Quality of solution development and investigation

The aim of the assessment was to determine whether gate two activities have been progressed to the completion and the quality expected, for the continued development of the solution.

Figure 3 shows our assessment of the work completed on the solution, which was presented in the gate two submission. Our assessment was made against the criteria of robustness, consistency, and uncertainty to grade each area of the submission as good, satisfactory, or poor in accordance with the standard gate two guidance, (updated version published on 12 April 2022). We also assessed the Board assurance provided.

Figure 3. Assessment of quality of investigation



Our overall assessment for the solution submission is that it is a good submission that meets the expectations of gate two.

We explain our assessment of each area, including any shortfalls in expectations, in the sections below. We have not applied any delivery incentive penalties as a result of this assessment of quality, as further detailed in section 5.

4.4.1 Solution Design

Our assessment of the Solution Design considered the quality of the evidence provided on the initial solution and sub-options; the anticipated operational utilisation of solutions; the interaction of the solution with other proposed water resource solutions and stakeholder and customer engagement. The assessment also considered whether information was provided on the context of the solutions place within company, regional and national plans.

We consider the progress and quality of the submission in developing the solution design at gate two to be satisfactory. Options have been refined to one preferred option, LTR. Scheme utilisation and interactions are described, and the preferred option is chosen in both the WRSE Plan and WRMPs. Further improvements are required in the gate three submission relating to presentation and description of the LTR option, evidence that the scheme is placed in the context of company plans and on customer and stakeholder engagement. The actions and recommendations set for this solution are expected to address the gaps identified at gate two.

4.4.2 Solution costs

Our assessment of the unit costs of delivering the T2AT solution is that they are reasonable at this stage and cost changes from gate one to gate two have been sufficiently explained and are as a result of detailed development of the solution or changing market conditions. For instance, capex estimates have increased due to the movement of the WTWs from a greenfield to brownfield site. The assessment also considers the use of the solution as a drought resilience asset, and therefore cost per capacity is often a more appropriate metric than cost per projected utilisation.

4.4.3 Evaluation of Costs and Benefits

Our assessment of the Evaluation of Costs and Benefits considered the quality of the information provided on initial solution costs; the social, environmental and economic cost and benefits, water resource benefits and wider resilience benefits. The assessment also considered whether evidence was provided on how the solution delivers a best value outcome for customers and the environment.

We consider that Thames Water and Affinity Water have provided sufficient evidence of evaluating the costs and benefits of the solution to an appropriate standard for gate two.

The best value assessment, particularly the natural capital and biodiversity net gain assessments, fell short of expectations for gate two. These assessments will need to be revisited and repeated for gate three to ensure the scheme development is on track for this area. Following the query process, water resources benefits, resilience benefits and best

value all meet requirements for gate two. Recommendations and actions have been set for the solution to ensure that evidence is provided to show that the solution represents the best value option and for conjunctive use benefits to be refined.

4.4.4 Programme and Planning

Our assessment of the Programme and Planning considered whether Thames Water and Affinity Water presented a programme with key milestones and whether its delivery is on track. The assessment also considered the quality of the information provided on risks and issues to solution progression, the procurement and planning route strategy and subsequent gate activities with outcomes, penalty assessment criteria and incentives.

We consider the evidence provided by Affinity Water and Thames Water regarding the programme and planning and risks and issues for T2AT to be of sufficient detail and quality for gate two. Risks and mitigation are characterised well and meet expectations for gate two. While the programme and planning score has been marked down as requirements that solution owners were funded to meet have not been met, we have made a decision that there is no longer a need for value for money assessments for RAPID solutions and therefore no associated gate two action is required.

4.4.5 Environment

Our assessment of Environment considered the initial option-level environmental assessment; the identification of environmental risks and an outline of potential mitigation measures; the detailed programme of work used to address environmental assessment requirements and the initial outline of how the solution will take into account the carbon commitments.

We consider Thames Water and Affinity Water to have provided sufficient evidence of progress in the environmental assessment, potential mitigations, future work programmes and embodied and operational carbon commitments for gate two. All required environmental assessments have been undertaken to the required standard, with risks identified and mitigation provided. Further work to be carried out in a gate three checkpoint has been described in the gate two submission. The carbon assessment meets expectations.

4.4.6 Drinking water quality

Our assessment of Drinking Water Quality considered drinking water quality and risk assessments; evidence that the solution has been presented to the drinking water quality team and a plan for future work to develop Drinking Water Safety Plans.

We consider Thames Water and Affinity Water to have provided sufficient evidence of progress in the drinking water quality and risk assessment, and future work around Drinking Water Safety Plans for gate two.

Some further work is recommended in this area ahead of gate three. Additional monitoring, including for emerging contaminants, is required to inform the company Drinking Water Safety Plan (DWSP), Water Quality Risk Assessment (WQRA) and treatment requirements at the receiving water treatment works. The impact of any source change on customers also needs to be considered as part of future customer and stakeholder engagement.

4.4.7 Board Statement and assurance

The evidence provided relating to assurance is good for this stage of the gated process.

We consider that the Boards of Affinity Water and Thames Water have provided a comprehensive assurance statement and have clearly explained the evidence, information, and external/internal assurance that they have relied on in giving the statement.

5. Actions and recommendations

Where the submission has not been assessed as 'meeting expectations' in the quality assessment, or progression concerns have been raised, we have provided feedback on where we will seek remediation of the issues. We have also identified specific steps that solution owners should take in preparing for standard gate three.

We have categorised these remediation issues and steps into priority actions, actions, and recommendations.

Priority actions are those that should have been completed at gate two and must now be addressed on a short timescale in order to make sure the solutions stay on track. They require urgent remediation in full.

Actions are those that should be addressed in full in the standard gate three submission. The response to these actions will influence the assessment of the gate three submission.

Recommendations are issues where additional information or clarification could improve the quality of future submissions.

We have also assessed progress on actions and recommendations from gate one.

5.1 Actions and recommendations from gate two assessment

No priority actions have been identified for T2AT.

Fifteen actions and recommendations have been identified for T2AT, which should be fully addressed at the gate three submission. Progress against actions will be tracked as part of regular checkpoints the solution holds with us whilst undertaking gate three activities.

The full list of actions and recommendation for T2AT can be found in Appendix A.

5.2 Actions and recommendations from gate one assessment

We have assessed whether T2AT has met actions that were set out as a result of our gate one assessment.

No priority actions were identified for T2AT.

12 actions and recommendations were identified for T2AT, which were expected to be fully addressed at the gate three submission.

We have decided that the actions have partially been addressed in the gate two submission. Further detail of our conclusion against each individual action is shown in Appendix B.

Partially complete and incomplete actions have been linked to gate two recommendations to ensure that these are fully resolved by gate three.

Further detail of our conclusion against each individual action is shown in Appendix B.

6. Delivery Incentive Penalty

We have not applied delivery incentive penalties to this solution, as a result of the assessment carried out on the gate two submission.

7. Proposed changes to partner arrangements

There are no changes proposed to partner arrangements from gate two.

8. Gate three activities and timing

The solution will continue to be funded to gate three as part of the standard gate track.

For its gate three submission, we expect Thames Water and Affinity Water to complete the activities listed in the PR19 final determinations: strategic regional water resources solutions appendix, as expanded on in section 7 of the T2AT gate two submission. Activities are expected to be completed in line with delivery incentives and expectations set out in RAPID's gate three guidance. We also expect the actions listed in appendix A to be addressed.

8.1 Gate three timing

Thames Water and Affinity Water have proposed a date for gate three of December 2029, with two checkpoints ahead of gate three in June 2024 and early 2028. This is proposed alongside a forward programme of gate four in 2031, proposed planning application submitted in 2031, and solution construction ready in 2034. Half of the transfer (50 Ml/d) will be operational in 2040, with the remaining transfer (50 Ml/d) being operational by 2044/2045.

We agree that the T2AT gate three should be in December 2029. This aligns gate three with solutions on a similar programme, and enables RAPID to efficiently assess progress of activities, ahead of the solutions proposed planning application.

Thames Water and Affinity Water propose two mid-gate checkpoints between gates two and three for the preferred LTR option, one in June 2024 with the intention of deferring the option until 2028, and a second one in 2028 to restart the option. We understand that the reasoning for this is to enable efficient delivery of the subsequent Development Consent Order (DCO) and scheme delivery, when required. RAPID has decided that solution owners should bring this discussion to a regular checkpoint meeting at an opportune time and formalise any requests relating to scheme progression with associated reasoning through a letter to RAPID.

We agree with the forward programme for gate four.

The forward programme proposed by the solution is in line with the principles of RAPID's standard programme. Funding arrangements are set out in section 3.2 of this document.

Appendix A: Gate two actions and recommendations

Actions – to be addressed in standard gate three submission		
Number	**Area**	**Detail**
1	Solution Design	Confirm to RAPID that the solution aligns with Affinity Water's and Thames Water's WRMPs and relevant Regional Plans at the next available regular checkpoint meeting after the publication of the WRMPs and Regional Plans.
2	Evaluation of Costs and Benefits	Revisit the Natural Capital Assessment and Biodiversity Net Gain Assessment using the feedback from the Environment Agency to shape scope.
Recommendations		
Number	**Area**	**Detail**
1	Solution Design	Refine the schematic of the potential pipe location. Further clarify the work required by Affinity Water in Harefield to disseminate the extra resource from the solution.
2	Solution Design	Clarify the work required downstream from Harefield by Affinity Water. This should form part of the project as it is critical for the success of the solution. Explain how the solution fits in to company plans.
3	Solution Design	Engage with customers ahead of gate three to explain source water changes and show how the outcomes of this engagement have influenced scheme development.
4	Solution Design	Clarify and state where solution responsibilities lie between Thames Water and Affinity Water.
5	Solution Design	Carry out community engagement.
6	Evaluation of Costs and Benefits	Show directly how the benefits of the solution align with Ofwat's Public Value Principles.
7	Evaluation of Costs and Benefits	Include Chalk Streams First in the WRMP process, because this has not been assessed as part of the gate two process.
8	Evaluation of Costs and Benefits	Account for conjunctive use benefit with the SESRO and the Severn to Thames Transfer (STT) plus any other in-combination deployable output impact with other solutions in WRSE modelling.
9	Evaluation of Costs and Benefits	Work with local area Environment Agency teams to refine conjunctive use benefits as outlined in WRMPs.

10	Environment	Check all designated site features and potential impact pathways have been identified, undertake in-combination assessments, and reroute any options to avoid SSSIs where this has not already been done.
11	Drinking Water Quality	Continue to develop work to determine the impact of algae (required in Water Quality Risk Assessment) and the impact on the upstream water treatment works.
12	Drinking Water Quality	Engage with all stakeholders, including regulatory bodies, to fulfil the All Company Working Group requirements for emerging hazards.
13	Solution design	We recommend that the solution owner continues to engage with Historic England on the work required to consider the historic environment. We recommend that the programme of planned investigations and assessments is reviewed regularly with Historic England.

Appendix B: Gate one actions and recommendations

Actions – addressed in standard gate two submission			
Number	**Area**	**Detail**	**RAPID assessment outcome**
1	Costs and Benefits	Include resilience metric scores associated with the solution and options and clarify how resilience risks and benefits are captured within the regional best value plan.	Complete
2	Costs and Benefits	Ensure climate change impacts are included in the water resource benefits.	Complete
3	Costs and Benefits	Assess conjunctive use benefits.	Partially complete – Link to recommendation 7.
4	Costs and Benefits	Further consider operational issues as the solution could be considered low utilisation.	Complete
5	Environment	Ensure and provide evidence that PAS 2080 and a science-based approach have been used to guide the carbon assessment.	Complete
6	Solution Design	Complete a detailed assessment of interdependencies and in-combination impacts with other strategic resource solutions and other solutions following the output of regional modelling.	Partially complete – Link to recommendation 7.
Recommendations			
Number	**Area**	**Detail**	**RAPID assessment outcome**
1	Solution Design	Ensure lead times are consistently included across all options.	Complete
2	Solution Design	Clarify and state where solution responsibilities lie between Thames Water and Affinity Water.	Incomplete – Recommendation carried forward link to recommendation 4
3	Solution Design	Use regional modelling outputs to inform utilisation.	Complete
4	Environment	Reference key methodologies and associated relevant frameworks used to calculate operational and embodied carbon and to guide the carbon assessment.	Complete

5	Environment	Check all designated site features and potential impact pathways have been identified, undertake in-combination assessments, and reroute any options to avoid SSSIs where this has not already been done.	Partially complete – Recommendation carried forward link to recommendation 10
6	Environment	Thoroughly consider the CSF proposal for flow recovery at gate two and engage with RAPID and interested stakeholders on how this might best be accomplished.	Complete

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We regulate the water sector in England and Wales.

Ofwat
Centre City Tower
7 Hill Street
Birmingham B5 4UA
Phone: 0121 644 7500

This document is also available from our website at www.ofwat.gov.uk.

Any enquiries regarding this publication should be sent to mailbox@ofwat.gov.uk.

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