



# Draft Water Resources Management Plan 2024

Resource Options – Direct River Abstraction  
Feasibility Report Addendum



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## Executive Summary

This report provides a summary of changes that have been made to the Direct River Abstraction (DRA) options since Thames Water's 2019 Water Resources Management Plan (WRMP19) as part of the 2024 Water Resources Management Plan (WRMP24) development.

This report acts as an addendum to [Thames Water WRMP19 Resource Options Direct River Abstraction Feasibility report, September 2018, Rev 05](#).

The options under WRMP19 have been re-reviewed and changes have been incorporated accordingly.

Teddington DRA option, which was rejected during the validation stage at WRMP19, has been re-evaluated. Compared to WRMP19 smaller capacity sizes are being considered for this option to address environment and navigational concerns that were highlighted during WRMP19 feasibility assessment.

Lower River Lee DRA option was also reconsidered, however due to the current abstraction pressures on the river the joint review with EA determined that the option will only add to the pressure and hence the option is not considered to be feasible before 2060.

Backchecking of the WRMP19 screening decisions has been undertaken for WRMP24 and where appropriate options have been further developed.

The updated WRMP24 feasibility assessment presents the WRMP19 options and the WRMP24 options. The findings for Stage 1, Stage 2 and Stage 3 Assessments were unchanged from the WRMP19 feasibility assessments.

The following list of options are the confirmed list of feasible DRA options:

- Teddington DRA (up to 75 Ml/d)<sup>1</sup>
- River Lee DRA

It should be noted that River Lee DRA is mutually exclusive with Deephams Reuse. At WRMP19 River Lee DRA was rejected following fine screening as Deephams Reuse was found to be the preferred option. This was backchecked at WRMP24. Deephams Reuse was again found to be the preferred option and River Lee DRA was rejected as a result at Further Screening. Neither Deephams Reuse or Lower Lee DRA can be delivered before 2060, this does not change the screening decision. For further details on rejection reasoning refer to WRMP24 Appendix Q – Rejection Register.

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<sup>1</sup> Since the WRMP24 feasibility assessment London Effluent Reuse SRO has continued to undertake environmental investigations and river modelling which have concluded that impacts on river temperature would be acceptable up a capacity of 100Ml/d. This increase in maximum capacity will be reflected in the final WRMP24.



## 1 Introduction

Thames Water is developing options for the 2024 Water Resources Management Plan (WRMP24). These options build on options developed as part of Thames Water's 2019 Water Resources Management Plan (WRMP19). This report provides a summary of changes that have been made to the Direct River Abstraction options since WRMP19 and as part of WRMP24 development.

This report acts as an addendum to **Thames Water WRMP19 Resource Options Direct River Abstraction Feasibility report, September 2018, Rev 05**. This report should be read alongside the WRMP19 report. Information in this report supersedes information provided in the WRMP19 report.

Changes to the WRMP19 Direct River Abstraction Options have been detailed in Section 2 - Updates since WRMP19. A backchecking exercise has been completed to assess if any changes are required to WRMP19 decisions as a result of identification of the new options or option development since WRMP19. Backchecking also provides the opportunity to take into account any changes of circumstance that might affect how an option is considered. This might include a change in the planning and environmental status of a site, changes in national and local planning policy and the emergence of viable technical solutions that were unavailable at the time the original assessment was undertaken.

The WRMP24 screening, option development and backchecking methodology is detailed in Section 7 - Appraisal of Resource Options.

This report summarises changes to the Direct River Abstraction options up to the end of feasibility backchecking and screening. Information on option development and investment modelling can be found in WRMP24 Section 7 - Appraisal of Resource Options.

London Effluent Reuse was identified by Ofwat as a strategic regional water resource solution (SRO) in the PR19 final determination<sup>2</sup>. SROs are being developed through a gated process overseen by the Regulators' Alliance for Progressing Infrastructure Development (RAPID). Although Teddington DRA is not an effluent reuse option, it is reliant on effluent from Mogden Sewage Treatment Works (STW) and has therefore been considered as one of the SRO options.

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<sup>2</sup> <https://www.ofwat.gov.uk/publication/pr19-final-determinations-strategic-regional-water-resource-solutions-appendix/>



## 1.1. Structure of this report

Table 1.1 summarises the structure of this report.

**Table 1.1: Structure of this report**

| <b>Section</b> | <b>Name</b>                        | <b>Description</b>   |
|----------------|------------------------------------|--|
|                | Executive summary                  | Summary of addendum report   |
| 1              | Introduction                       | This section   |
| 2              | Updates since WRMP19               | Summary of the changes made to the options list since WRMP19, including changes to WRMP19 options, new WRMP24 phasing options and changes to Deployable Output (DO). |
| 3              | Updated feasibility assessment     | Provides a summary of the current feasibility assessment for all options including options identified at both WRMP19 and WRMP24.                                     |
| 4              | Option verification and Conclusion | Validation of risk and uncertainty for all options and the confirmation of the feasible list of options.   |
| 5              | Reference information              | A list of useful links and references  |



## 2 Updates since WRMP19

### 2.1. Option Identification

To ensure Thames Water is aligned with the WRSE approach, the following updates have been made to option identification for WRMP24:

- Generic option screening has been revised to reflect the updated list of generic option types recommended by WRSE (refer to Section 7).
- The WRMP19 rejection register has been revisited to ensure that the rejection reasoning remains robust for all rejected options.
- Rejected options have been reviewed to identify any options which should be revisited due to potential for regional benefits, particularly in light of changes in requirements to plan for 1: 500 drought resilience (previously 1 in 200 year at WRMP19) and the need to plan for a long-term environmental destination that achieves and maintains a sustainable level of abstraction by 2050. Where this led to a change in screening decision this is highlighted in Section 2.2.
- A review has been undertaken to identify new options to be considered in addition to the existing WRMP19 options. This process did not identify any new direct river abstraction options.

### 2.2. Feasibility Screening Updates

The overall changes to options and approach since WRMP19 are described in WRMP24 Section 7 Appraisal of Resource Options. Specific changes applicable to Direct River Abstraction Options are detailed in Table 2.1 and Table 2.2: Option DO changes since WRMP19. These tables should be read alongside the WRMP19 report.



Table 2.1: Option changes since WRMP19

| WRMP19 Option Reference and name | WRSE ID Option Reference and name           | Changes to the Option   | WRMP19 Feasibility Screening Outcome | WRMP24 Feasibility Screening Outcome  |
|----------------------------------|---|---|--------------------------------------|---|
| River Lee DRA <sup>3</sup>       | TWU_LON_HI-RAB_ALL_ALL_rivleeabstractiontml | <p>Option was previously rejected at WRMP19 due to being mutually exclusive with Deephams, however as Deephams is now being reviewed. The River Lee DRA option has also been reviewed for WRMP24 to take account of environmental investigations carried out on the River Lee since WRMP19.</p> <p>Joint review<sup>4</sup> with the Environment Agency of a range of candidate water resources options to meet Thames Water’s 2030 drought resilience target has established that both Deephams Reuse and the Lower Lee DRA option are not environmentally promotable given the existing abstraction pressures on the Lower Lee. As such Thames Water has withdrawn these options as feasible options<sup>5</sup> from future WRMPs until the Environment Agency’s environmental destination objectives for the River Lee have been delivered in 2060.<sup>6</sup></p> | Included on Feasible List of Options | Included on Feasible List of Options with an earliest completion date of 2060 |

<sup>3</sup> Further Screening of River Lee DRA option is detailed in Section 7 – Options Appraisal

<sup>4</sup> 13 October 2021: Project meeting between Thames Water, Environment Agency, Ricardo, and Atkins Ltd

<sup>5</sup> Environment Agency, Natural Resources Wales and Ofwat (2021) Water Resources Planning Guideline

Section 8.22 states: *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.*

<sup>6</sup> Joint position between Environment Agency and Thames Water on water environment effects of a Lower Lee Direct River Abstraction water resources option Dec 2021 v0.2 (003)



| WRMP19 Option Reference and name                                     | WRSE ID Option Reference and name  | Changes to the Option   | WRMP19 Feasibility Screening Outcome      | WRMP24 Feasibility Screening Outcome   |
|--|--|---|---|--|
| RES-DRA-TED-300<br>Teddington DRA: Mogden Effluent Transfer 300 MI/d | TWU_KGV_HI-RAB_teddington dra 50<br><br>Teddington DRA Tertiary Treatment Plant - 50MI/d<br><br>TWU_KGV_HI-RAB_teddington dra 75<br><br>Teddington DRA Tertiary Treatment Plant - 75MI/d | <b>This is the treatment component of Teddington DRA</b><br><br>The option capacity considered at WRMP19 was 300 MI/d. Further work has identified that the maximum credible limit for the option is 75 MI/d <sup>7</sup> . Two option capacities have been developed - 50 MI/d and 75 MI/d.<br><br>Refer to London Effluent Reuse Gate 2 submission for development of the engineering design and environmental assessment since WRMP19. | Rejected at Feasibility stage, Validation | Passed – included on Feasible List of options as part of the Teddington DRA option |
| CON-RA-TED-TLT<br>Teddington to Thames Lee Tunnel Shaft 300 MLD      | TWU_KGV_HI-TFR_teddington dra ted/tlt<br><br>Direct River Abstraction - Teddington to Thames Lee Tunnel Shaft  | <b>This is the intake / abstraction component of Teddington DRA</b><br><br>The Teddington abstraction to Thames Lee Tunnel (TLT) connection is sized at 75 MI/d capacity. This includes intake structure and pipelines and connection onto Thames Lee Tunnel plus pumps for 75 MI/d.<br><br>Refer to London Effluent Reuse Gate 2 submission for development of the engineering design and environmental assessment since WRMP19.         | Rejected at Feasibility stage, Validation | Passed – included on Feasible List of options as part of the Teddington DRA option |

<sup>7</sup> Since the WRMP24 feasibility assessment London Effluent Reuse SRO has continued to undertake environmental investigations and river modelling which have concluded that impacts on river temperature would be acceptable up a capacity of 100MI/d. This increase in maximum capacity will be reflected in the final WRMP24.



| WRMP19 Option Reference and name   | WRSE ID Option Reference and name   | Changes to the Option   | WRMP19 Feasibility Screening Outcome      | WRMP24 Feasibility Screening Outcome   |
|--|---|---|---|--|
| CON-RA-MOG-TED-TUN<br>Mogden STW to Teddington Weir Recycled Water Transfer Tunnel | TWU_WLJ_HI-TFR_teddington dra mog/ted<br><br>Teddington DRA Conveyance from Mogden to River Thames (Teddington Outfall) | <b>This is the conveyance component of Teddington DRA</b><br><br>The design of the conveyance has been revised to reflect the reduced option capacity.<br><br>Refer to London Effluent Reuse Gate 2 submission for development of the engineering design and environmental assessment since WRMP19. | Rejected at Feasibility stage, Validation | Passed – included on Feasible List of options as part of the Teddington DRA option |

Table 2.2: Option DO changes since WRMP19

| WRMP19 Option Name                                | WRMP24 Option Name               | WRMP19 DO (MI/d) |      | WRMP24 DO (MI/d) |                  |               | Difference (MI/d) |      | Impact on Feasibility Assessment Scoring<br><br>(all options Passed Stage 3 and Fine Screening – on Constrained List at WRMP19) |
|---|----------------------------------|------------------|------|------------------|------------------|---------------|-------------------|------|---|
|   |                                  | Average          | Peak | 1 in 2 average   | 1 in 500 average | 1 in 500 peak | Average           | Peak |   |
| Teddington DRA: Mogden Effluent Transfer 300 MI/d | TWU_KGV_HI-RAB_teddington dra 50 | 268              | N/A  | 46               | 46               | 46            | N/A               | N/A  | DO has reduced as option capacity has reduced, no impact on feasibility assessment scoring                                      |
|   | TWU_KGV_HI-RAB_teddington dra 75 |                  |      | 67               | 67               | 67            | N/A               | N/A  | DO has reduced as option capacity has reduced, no impact on feasibility assessment scoring                                      |



### 2.3. Strategic resource options

This section outlines the updates made to SRO options at WRMP24 and through development through the Ofwat Gate 1 and Gate 2 submissions.

#### Teddington Direct River Abstraction (50MI/d and 75MI/d options)

At WRMP19 the option was developed with a capacity of 300 MI/d and was rejected at the Validation Stage of the Feasibility Assessment due to potential temperature effects and concerns of impact on aquatic ecology.

Teddington DRA (50MI/d and 75MI/d options) has passed screening at WRMP24 and are on the Feasible List.

At Gate 1, the option was considered with a maximum capacity of 150 MI/d. Since Gate 1 further work has been, including modelling of the discharge which has identified a credible capacity limit of 75 MI/d<sup>8</sup> for this option.

The Teddington DRA option design has been further developed for WRMP24 considering phases of 50 MI/d and 75 MI/d. The design of the conveyance elements has been updated to reflect the reduced maximum capacity of the option. Refer to London Effluent Reuse Gate 2 submission for development of the engineering design and environmental assessment since WRMP19.

The following conveyance elements are required as part of the Teddington DRA option; they would be constructed with the initial phase and have sufficient capacity for all subsequent phases:

- **Mogden to River Thames (Teddington Outfall)** – the design of this element has changed from a large diameter tunnel at WRMP19 to a smaller pipe-jack (microtunnel) option for WRMP24. The alignment of the tunnel and the location of the outfall have been reviewed.
- **Direct River Abstraction - Teddington to Thames Lee Tunnel** – the screens and intake pumping station that abstracts water from the River Thames and puts it into the TLT has been redesigned to account for the smaller capacity.

#### Cumulative limits

WRMP19 investigations identified that the decrease in freshwater inputs to the Tideway, arising from water reuse, desalination and DRA options, should be limited to no more than 275-366 MI/d in order to mitigate impacts on potentially sensitive ecological receptors.

A cumulative limit on the total additional capacity of water reuse and desalination options, that decrease in freshwater inputs to the Tideway, of 366 MI/d has therefore been included in the regional modelling. River Lee DRA capacity is included within this cumulative limit.

Further investigation of the cumulative limit is ongoing and will be included in the Final WRMP documentation.

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<sup>8</sup> Since the WRMP24 feasibility assessment London Effluent Reuse SRO has continued to undertake environmental investigations and river modelling which have concluded that impacts on river temperature would be acceptable up a capacity of 100MI/d. This increase in maximum capacity will be reflected in the final WRMP24.

## 3 Updated Feasibility Assessment

### 3.1. Feasibility Assessment Approach

This section of the report outlines the updates made in WRMP24 to the WRMP19 feasibility assessment. This should be read alongside the WRMP19 Direct River Abstraction feasibility report. Where options have been rejected through the screening process the rejection reason is recorded in WRMP24 Appendix Q - Scheme rejection register.

A three-stage feasibility screening approach was employed for WRMP24, this approach is unchanged from WRMP19, details of the approach can be found in the WRMP19 Direct River Abstraction feasibility report.

At WRMP19, fine screening was undertaken for all options which passed the feasibility screening. The WRMP19 fine screening took account of the estimated volume of water resources needs of Thames Water and, where applicable, neighbouring companies. However, the predicted water resources need for the region at WRMP24<sup>9</sup> is significantly higher than at WRMP19, owing to:

- increased sustainability reductions
- a change to planning for water supply resilience for a 1 in 500 year drought from 1 in 200 at WRMP19<sup>10</sup>.

Furthermore, potential new transfers identified by WRSE would allow new resource options in the Thames Water supply area to supply more of the WRSE region than was considered at WRMP19 when estimating potential resource needs. For these reasons, the potential resource need is not being used as a consideration in the screening process at WRMP24. This is to avoid rejecting options based on Thames Water's need where there could be a regional benefit. At WRMP24 the fine screening stage has therefore been replaced by use of the WRSE investment model to compare options against cost, environmental, and resilience criteria.

### 3.2. Stage 1 Assessment Results

At WRMP19 a total of 10 options, in combination with 10 sub-options, were identified at Stage 1 through a top-down review of surface water availability and bottom-up review of WRMP14 options:

- Option 1: New Intake at Three Mill Lock on the Lower River Lee
  - Option 1a : transfer to the River Lee Diversion at the top of King George V Reservoir.
  - Option 1b : transfer to North Woolwich Road site for treatment to potable quality, followed by transfer to Woolwich Common Service Reservoir.
- Option 2 : Intake at Culham on the site of disused intake
  - Option 2a : transfer to Farmoor Reservoir via a new raw water main
  - Option 2b : treatment and direct supply to SWOX (Swindon and Oxford WRZ)
- Option 3 : Transfer of effluent from Mogden STW to downstream/upstream of Teddington Weir, allowing additional abstraction upstream of Teddington Weir.

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<sup>9</sup> <https://wrse.uk.engagementhq.com/the-challenge>

<sup>10</sup> A 1 in 500 year event explained: This does not refer to an event that will occur every 500 years, it is better considered an event where there is a 1 in 500 chance of the event occurring in a given year, or a 0.2% chance. The probability of it happening in one year remains the same in each of the following years.



- Option 3a : New intake upstream of Teddington Weir near existing Thames Lee Tunnel location, transfer direct to Thames Lee Tunnel with no proposed treatment.
- Option 3b : New intake upstream of Teddington Weir and transfer to existing West London raw water reservoir for storage.
- Option 3c : New intake and treatment plant upstream of Teddington Weir, full treatment and put into supply.
- Option 4 : Transfer from Mogden STW to downstream/upstream of Teddington Weir, allowing increased abstraction at existing Thames Water intakes.
- Option 5 : Transfer of effluent from Beckton STW to downstream/upstream of Teddington Weir, allowing additional abstraction upstream of Teddington Weir
  - Option 5a : New intake upstream of Teddington Weir near existing Thames Lee Tunnel location, transfer direct to Thames Lee Tunnel with no proposed treatment.
  - Option 5b : New intake and treatment plant upstream of Teddington Weir, and transfer to an existing reservoir for storage.
  - Option 5c : New intake and treatment plant upstream of Teddington weir, full treatment and put into supply.
- Option 6 : New intake on the Lower River Roding, abstraction and transfer to Lee Valley Reservoirs, or full treatment and put into direct supply.
- Option 7 : New intake on the River Mardyke with full treatment and flows put directly into supply.
- Option 8 : New intake on the River Rom/Beam with full treatment and flows put directly into supply.
- Option 9 : New intake on the River Ingrebourne with full treatment and flows put directly into supply.
- Option 10 : New intake at Days Weir and transfer to Farmoor Reservoir or Farmoor WTW

No new options have been identified at WRMP24.

The maximum capacity of Teddington DRA have been reduced from 300MI/d at WRMP19 to 75 MI/d at WRMP24.

The Stage 1 assessment of WRMP24 options is presented in Table 3.1 and is unchanged from WRMP19.



Table 3.1: Stage 1 assessment of all options

| Stage 1 Criteria  | Option 1<br>New intake<br>at Three<br>Mill's Lock | Option 2a<br>Intake at<br>Culham and<br>transfer to<br>Farmoor<br>Reservoir | Option 2b<br>Intake and<br>treatment at<br>Culham<br>and supply<br>to SWOX | Option 3<br>Mogden<br>transfer new<br>abstraction | Option 4<br>Mogden<br>transfer<br>increased<br>abstraction | Option 5<br>Beckton<br>transfer new<br>abstraction | Option 6<br>New intake<br>at River<br>Roding | Option 7<br>River<br>Mardyke | Option 8<br>River Rom/<br>Beam | Option 9<br>River<br>Igrebourne | Option 10<br>Abstraction<br>at Day's<br>Weir |
|---|---|---|--|---|--|--|--|------------------------------|--------------------------------|---------------------------------|--|
| Sufficient area / Proximity to potential abstraction points       | ✓   | ✓   | ✓  | ✓   | ✗  | ✗  | ✓  | ✓                            | ✓                              | ✓                               | ✓  |
| International nature conservation sites                           | ✓   | ✓   | ✓  | ✓   | ✓  | ✓  | ✓  | ✓                            | ✓                              | ✓                               | ✓  |
| International heritage sites                                      | ✓   | ✓   | ✓  | ✓   | ✓  | ✓  | ✓  | ✓                            | ✓                              | ✓                               | ✓  |
| Sufficient flow / Abstraction Licence restrictions                | ✓   | ✓   | ✓  | ✓   | ✓  | ✓  | ✗  | ✗                            | ✗                              | ✗                               | ✓  |
| Potential impact on downstream abstractors (including unlicensed) | ✓   | ✗   | ✓  | ✓   | ✓  | ✓  | ✓  | ✓                            | ✓                              | ✓                               | ✗  |
| Source Quality (treatability)                                     | ✓   | ✓   | ✓  | ✓   | ✓  | ✓  | ✓  | ✓                            | ✓                              | ✓                               | ✓  |
| Connectivity to wider infrastructure system                       | ✓   | ✓   | ✓  | ✓   | ✓  | ✓  | ✓  | ✓                            | ✓                              | ✓                               | ✓  |
| Water Availability<br>(CAMS Status)                               | ✓   | ✓   | ✓  | ✓   | ✓  | ✓  | ✓  | ✓                            | ✓                              | ✓                               | ✗  |
| Resilience to drought conditions                                  | ✓   | ✓   | ✓  | ✓   | ✓  | ✓  | ✗  | ✗                            | ✗                              | ✗                               | ✓  |
| Stage 1 Results   | Pass  | Fail  | Pass   | Pass  | Fail   | Fail   | Fail   | Fail                         | Fail                           | Fail                            | Fail   |

Note:

- The Stage 1 assessment for SRO options had not been reviewed at WRMP24



The reasons for the option rejection are included in WRMP24 Appendix Q - Scheme rejection register.

Further details regarding the Stage 1 assessments are included for WRMP19 option in the Direct River Abstraction Feasibility Report.

### 3.3. Stage 2 assessment results

The Stage 2 assessment of the WRMP19 and WRMP24 options that passed Stage 1 is presented in Table 3.2 providing the red, amber, green assessment of the criteria described in the WRMP19 Direct River Abstraction Feasibility Report. Four options passed the Stage 2 assessment. Further details are included in the WRMP19 Direct River Abstraction Feasibility report.

No changes were made to the WRMP19 RAG status.



Table 3.2: Stage 2 assessment of all options

| Criteria  | Option 1a   | Option 1b   | Option 2b   | Option 3a   | Option 3b   | Option 3c   |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Property &amp; legal</b>                           |             |             |             |             |             |             |
| Ownership of Site and Tenancies                       | Yellow      | Red         | Yellow      | Red         | Red         | Red         |
| Estimated Land Acquisition                            | Yellow      | Red         | Green       | Red         | Red         | Red         |
| <b>Planning &amp; environmental</b>                   |             |             |             |             |             |             |
| Land Use and Land Use Quality                         | Yellow      | Yellow      | Yellow      | Red         | Red         | Red         |
| Floodplain Encroachment                               | Yellow      | Red         | Green       | Green       | Red         | Red         |
| Landscape Character Sensitivity                       | Green       | Green       | Green       | Yellow      | Yellow      | Yellow      |
| Views and Visual Amenity                              | Green       | Yellow      | Green       | Green       | Green       | Green       |
| Nature Conservation and Biodiversity                  | Yellow      | Yellow      | Green       | Yellow      | Yellow      | Yellow      |
| Archaeology and Historic Environment                  | Red         | Red         | Red         | Red         | Red         | Red         |
| Non-traffic Impact of Construction on Local Residents | Red         | Red         | Green       | Red         | Red         | Red         |
| Impact of Construction on Traffic                     | Red         | Red         | Yellow      | Yellow      | Yellow      | Yellow      |
| Impact on Recreation                                  | Yellow      | Yellow      | Green       | Yellow      | Yellow      | Yellow      |
| Water Resources & Water Quality                       | Yellow      | Yellow      | Green       | Yellow      | Yellow      | Yellow      |
| <b>Engineering Criteria</b>                           |             |             |             |             |             |             |
| Network Reinforcement Requirements                    | Yellow      | Red         | Yellow      | Red         | Red         | Red         |
| Length of Conveyance                                  | Yellow      | Yellow      | Green       | Green       | Yellow      | Green       |
| Pumping Head  | Green       | Red         | Green       | Yellow      | Green       | Green       |
| Water Source and Availability                         | Yellow      | Yellow      | Yellow      | Yellow      | Yellow      | Yellow      |
| Access during Construction and Operation              | Yellow      | Yellow      | Yellow      | Yellow      | Yellow      | Yellow      |
| Resilience  | Yellow      | Yellow      | Yellow      | Yellow      | Yellow      | Yellow      |
| Construction Complexity                               | Red         | Red         | Yellow      | Yellow      | Red         | Fail        |
| <b>Stage 2 Assessment Outcome</b>                     | <b>Pass</b> | <b>Fail</b> | <b>Pass</b> | <b>Pass</b> | <b>Pass</b> | <b>Fail</b> |

Notes:

- Option 1a - Transfer to Lee Valley Reservoirs, Option 1b – Treatment new Three Mills Lock and Supply to local distribution, Option 2b – Intake at Culham on the site of disused intake, Option 3a – Teddington Direct River Abstraction with transfer to Thames-Lee Tunnel, Option 3b - Teddington Direct River Abstraction with transfer to Queen Mother Reservoir, Option 3c - Teddington Direct River Abstraction with full treatment and supply to network.
- The RAG assessment for SRO options had not been reviewed at WRM24



Two options were rejected at Stage 2; the reasons for the option rejection are included in the WRMP24 Appendix Q - Scheme rejection register.

There are no changes to the WRMP19 Stage 2 feasibility assessment outcomes and the following options were therefore taken forward to Stage 3:

- Option 1a : New Intake at Three Mill Lock on the Lower River Lee, partial treatment and transfer flow to King George V reservoir via Lockwood.
- Option 2b : Intake at Culham on the site of disused intake, treatment and direct supply to SWOX.
- Option 3a : Transfer of up to 75 Ml/d of effluent from Mogden STW to Teddington Weir, allowing additional abstraction upstream of Teddington Weir. New intake upstream of Teddington Weir near existing Thames Lee Tunnel location. Direct transfer to Thames Lee Tunnel with no proposed treatment.
- Option 3b : Transfer of 300Ml/d from Mogden STW to Teddington Weir, allowing additional abstraction upstream of Teddington Weir. New intake and treatment plant upstream of Teddington Weir, to provide partial treatment and transfer to reservoir for storage.

### 3.4. Stage 3 assessment results

Assessment against Stage 3 criteria of options has been undertaken for all options that passed Stage 2.

The Stage 3 assessment of the WRMP19 and WRMP24 options that passed Stage 2 is presented in Table 3.3 providing the red, amber, green assessment of the criteria described in WRMP19 Direct River Abstraction Feasibility report. Two options passed the Stage 3 assessment. Further details are included in the WRMP19 Direct River Abstraction Feasibility report.

No changes were made to the WRMP19 RAG status.



Table 3.3: Stage 3 assessment

| Criteria   | Option 1a: River Lee DRA | Option 2b: abstraction at Culham | Option 3a: Teddington DRA to supply to Thames Lee Tunnel | Option 3b: Teddington DRA supply to West London |
|--|--------------------------|----------------------------------|--|---|
| <b>Property &amp; legal</b>  |                          |                                  |  |   |
| Ownership of Site and Tenancies  | Yellow                   | Yellow                           | Red  | Red   |
| <b>Planning, socio-economic &amp; environmental</b>                          |                          |                                  |  |   |
| Planning Policy and History  | Red                      | Red                              | Red  | Red   |
| Land Use and Land Use Quality  | Red                      | Yellow                           | Red  | Red   |
| Floodplain Encroachment (loss of floodplain / need for compensation storage) | Yellow                   | Green                            | Green  | Yellow  |
| Landscape Character Sensitivity  | Green                    | Green                            | Yellow   | Yellow  |
| Views and Visual Amenity   | Yellow                   | Green                            | Yellow   | Yellow  |
| Employment and Local Economy   | Green                    | Green                            | Green  | Green   |
| Nature Conservation and Biodiversity   | Yellow                   | Green                            | Yellow   | Yellow  |
| Opportunity for Biodiversity Improvement                                     | Yellow                   | Yellow                           | Yellow   | Yellow  |
| Archaeology and Historic Environment   | Red                      | Yellow                           | Red  | Red   |
| Non-traffic Impact of Construction on Local Residents                        | Yellow                   | Green                            | Red  | Red   |
| Impact on Recreation   | Yellow                   | Green                            | Yellow   | Yellow  |
| Water Resources & Water Quality  | Yellow                   | Green                            | Yellow   | Yellow  |
| <b>Engineering Criteria</b>  |                          |                                  |  |   |
| Length of Conveyance   | Yellow                   | Green                            | Red  | Red   |
| Normalised Cost – CAPEX, OPEX Carbon and Optimism Bias Cost                  | Green                    | Red                              | Green  | Green   |
| Water Source and Availability  | Yellow                   | Green                            | Yellow   | Yellow  |
| Water Treatability and Process Complexity                                    | Yellow                   | Yellow                           | Yellow   | Yellow  |
| Power Supply   | Green                    | Green                            | Green  | Green   |
| Construction Complexity  | Red                      | Yellow                           | Red  | Red   |
| <b>Stage 3 Assessment Outcome</b>  | <b>Pass</b>              | <b>Fail</b>                      | <b>Pass</b>  | <b>Fail</b>                                     |

Notes:

- The RAG assessment for SRO options had not been reviewed at WRMP24



Two options were rejected at Stage 3; the reasons for the option rejection are included in WRMP24 Appendix Q - Scheme rejection register.

The following list of options passed Stage 3 feasibility assessment and were taken forward for further consideration :

- Option 1a : New Intake at Three Mill Lock on the Lower River Lee, partial treatment and transfer flow to King George V reservoir via Lockwood.
- Option 3a : Transfer of up to 75 Ml/d of effluent from Mogden STW to Teddington Weir, allowing additional abstraction upstream of Teddington Weir. New intake upstream of Teddington Weir near existing Thames Lee Tunnel location. Direct transfer to Thames Lee Tunnel with no proposed treatment.



## 4 Option Verification and Conclusion

The validation discussion of risk and uncertainty in Section 7 of the WRMP19 Water DRA Feasibility report remains unchanged. Where options have been rejected through the screening process the rejection reason is recorded in WRMP24 Appendix Q - Scheme rejection register.

### 4.1. Confirmation of feasible list of options

The following list of options are the confirmed list of feasible DRA options for WRMP24:

- Teddington DRA (up to 75MI/d)
- River Lee DRA

This report summarises changes to the DRA options up to the end of feasibility screening. It should be noted that River Lee DRA is mutually exclusive with Deephams Reuse. At WRMP19 River Lee DRA was rejected following fine screening as Deephams Reuse was found to be the preferred option. This was backchecked at WRMP24. Deephams Reuse was again found to be the preferred option and River Lee DRA was rejected as a result at Further Screening. Neither Deephams Reuse or Lower Lee DRA can be delivered before 2060, this does not change the screening decision. For further details on rejection reasoning refer to Appendix Q – Rejection Register. Information on option development and investment modelling can be found in WRMP24 Section 7 - Appraisal of Resource Options.



## 5 Reference information

The draft WRMP24 and Technical Appendices can be found on the Thames Water website at:

[Water resources | Regulation | About us | Thames Water](#)

Please contact [consultation@thames-wrmp.co.uk](mailto:consultation@thames-wrmp.co.uk) for access to WRMP19 reports

SRO documents referenced in report can be found on the Thames Water website at:

[Regional water resources | Regulation | About us | Thames Water](#)

