Water Resources Management Plan 2024

Resource Options – Groundwater Feasibility Report Addendum

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Executive Summary

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

2 This report acts as an addendum to Thames Water WRMP19 Resource Options Groundwater feasibility report, September 2018, Rev 03 (the "WRMP19 Groundwater Feasibility report"). The updated WRMP24 feasibility assessment presents the WRMP19 options and the additional WRMP24 options.

3 Six new groundwater options have been identified at WRMP24, one of which was rejected as a duplicate of an existing option. The remaining five options have been screened using the same approach as WRMP19 and passed all the stages to be included on the Feasible List.

4 The deployable output (DO) of the groundwater options has been reviewed at WRMP24, and some minor changes made to the benefit and costs of the options. Addington Groundwater option is the only option where these changes resulted in the design of the option being updated. None of these changes have resulted in changes to the feasibility scoring of these options completed at WRMP19.

5 Several options were rejected at both WRMP19 and WRMP24, subsequent to the feasibility scoring. One option (Ladymead WTW removal of constraints to DO) has also been removed from the WRMP24 list, as it is being progressed in AMP7.

6 The WRMP19 option GW-Datchet has been replaced with Datchet Increase DO for WRMP24.

7 Three groundwater options were included on the WRMP19 Preferred Plan for London for delivery in AMP7 (2020-25); New River Head Removal of Constraints, Horton Kirby Aquifer Storage and Recovery and Southfleet/Greenhithe (new WTW). Since WRMP19 the delivery of these options have been deferred beyond the end of AMP7 as the supply demand balance in the London WRZ is in surplus, they have therefore been considered as WRMP24 options.

8 This leaves twenty three groundwater options on the WRMP24 list of feasible options.

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

- London:
  - Kidbrooke Aquifer Recharge/Aquifer Storage and Recovery (SLARS1)
  - Merton Abbey Aquifer Recharge (SLARS3)
  - Streatham Aquifer Recharge (SLARS2)
  - South East London (Addington) Aquifer Storage and Recovery
  - Thames Valley Central Aquifer Storage and Recovery
  - Horton Kirby Aquifer Storage and Recovery
  - Groundwater Addington
  - Southfleet/Greenhithe (new WTW)
  - London Confined Chalk (north)

- Groundwater (GW) – Honor Oak
- Honor Oak Increase DO
- Merton Recommissioning
- New River Head Removal of Constraints

- SWOX:
  - Woods Farm Increase DO
  - Moulsford 1
  - Ashton Keynes borehole pumps - Removal of Constraints to DO
- SWA:
  - Datchet Increase DO
  - Dorney Increase DO
  - Taplow Increase DO
- Guildford:
  - Dapdune Licence Disaggregation
  - Dapdune RoC
- Kennet Valley:
  - Mortimer Disused Source (Recommission)
  - East Woodhay borehole pumps Removal of Constraints to DO

Introduction

10 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 groundwater options since WRMP19 and as part of WRMP24 development.

11 This report acts as an addendum to WRMP19 Groundwater Feasibility report. This report should be read alongside the WRMP19 report. Information in this report supersedes information provided in the WRMP19 report.

12 New groundwater options have been identified at WRMP24; these options have been screened following the same methodology as used at WRMP19. This methodology is detailed in Section 3: Methodology of the WRMP19 report. Screening of new groundwater options is detailed in Section 3: New WRMP24 Groundwater Options.

13 Changes to the WRMP19 Groundwater Options have been detailed in Section 0. A backchecking exercise has been completed to assess if any changes are required to WRMP19 options as a result of identification of the new options or development of WRMP19 options. 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.

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

15 This report summarises changes to the groundwater options up to the end of feasibility screening since publication of WRMP19.

Structure of this report

16 Table 1 summarises the structure of this report.

Section	Name	Description
	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 options and changes to Deployable Output (DO).
3	New WRMP24 Groundwater Options	Summary of the new groundwater options identified at WRMP24 and their feasibility assessment scoring,
4	Updated feasibility assessment	Provides a summary of the current feasibility assessment for all options including options identified at both WRMP19 and WRMP24.
5	Option verification and conclusion	Validation of risk and uncertainty for all options and the confirmation of the feasible list of options.

Section	Name	Description
6	Reference information	A list of useful links and references
App A	Environmental Agency Letter, Information Letter: EA/11/2021	A copy of the Environmental Agency Letter: Information Letter: EA/11/2021 is provided in Appendix A.

Table 1 Structure of this report

Updates since WRMP19

Option Identification

18 To align with the Water Resource Planning Guideline and Water Resources South East WRSE approach, the following updates have been made to option identification for WRMP24:

- 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 1:200 at WRMP19) and the need to plan for a long-term environmental destination that achieves and maintains a sustainable level of abstraction by 2050.
- A review has been undertaken to identify new options to be considered in addition to the existing WRMP19 options. New options have been identified (in addition to the existing WRMP19 options). These new options are summarised in Section 0. As a result of the above review six new groundwater options were identified at WRMP24:
  - Taplow Increase DO
  - Datchet DO
  - Dorney Increase DO
  - Honor Oak DO
  - Woods Farm
  - Nonsuch Increase DO – rejected during screening

19 As part of the option identification exercise, a review has been undertaken in which we have considered the constraints on Deployable Output at all our existing sources. Where sources are not limited by hydrological/hydrogeological availability, available licence or water quality constraints (i.e., where a source's output is constrained either by treatment capability or pumping capacity), an option to make full use of the existing licence has been considered within the unconstrained option list. These options have been screened alongside other options. Please note that this exercise has been documented in the groundwater feasibility report because our existing surface water Deployable Outputs are limited either by licence (New Gauge, Shalford) or hydrological availability (Farmoor, Fobney, Lower Thames, Lower Lee).

20 Three groundwater options were included on the WRMP19 Preferred Plan for London for delivery in AMP7 (2020-25); New River Head Removal of Constraints, Horton Kirby Aquifer Storage and Recovery and Southfleet/Greenhithe (new WTW). Since WRMP19 the delivery of these options have been deferred beyond the end of AMP7 as the supply demand balance in the London WRZ is in surplus, they have therefore been considered as WRMP24 options.

21 The WRMP19 option GW-Datchet has been replaced with Datchet Increase DO for WRMP24.

Feasibility Screening Criteria

22 The following tables detail the criteria used for feasibility screening, which is further detailed in the Thames Water WRMP19 Resource Options Groundwater feasibility report. This is a 3 stage process.

- Stage 1 – Option identification and assessment of absolute and other key constraints
- Stage 2 - Assessment of site performance and compilation of short list
- Stage 3 - Further detailed assessment

23 Stage 1:

- Assessment of the options identified against absolute and other key constraints to the development of new groundwater options - the criteria for which is detailed in Table 2. This is a pass / fail assessment for each criterion

24 At Stages 2 and 3 the assessed performance of each option is reviewed against a red / amber / green classification system, as:

- Red – issue or constraint can be overcome, but will be very challenging
- Amber – issue or constraint can be overcome
- Green – no constraint posed

25 Additionally, Stage 3 allows for costing of each option to provide a comparison across all water resource options. The Stage 2 criteria are shown in Table 3 and the Stage 3 criteria are shown in Table 4.

Groundwater Stage 1 assessment criteria	Basis for assessment
National / international nature conservation sites	Is any part of the option likely to impact on an existing conservation site, including SSSI, Ramsar and Special Protection Areas?
National / international heritage sites	Is any part of the option likely to impact on an existing Heritage site?
Areas of major built development	Is there sufficient space at the abstraction location? Will local water quality be an issue as a result of current or historical industrial pollution?
Water availability (CAMS/ALS status)	Is there sufficient flow at the location of abstraction and are there any anticipated adverse effects on the waterbody due to abstraction?
Realistic prospect of acceptable abstraction licence	Will existing abstraction licences be affected?
Competing demand for source water (other companies etc.)	Are there any nearby licensed or unlicensed abstractors? Will abstraction compromise their abstraction rates?
Proximity to source water	Is there a significant distance between the abstraction point and treatment location? Is there a significant distance between the treatment location and preferred locations for discharge to the network?

Groundwater Stage 1 assessment criteria	Basis for assessment
Source quality (treatability)	Is the quality of the source currently treatable, within reasonable cost and technical feasibility?

Table 2: Stage 1 Criteria

Criterion	Stage 2 criteria	Assessment		
		Green	Amber	Red
Ownership of site and tenancies	Is there sufficient space required to build the facilities?	Existing TWUL land is available and sufficient unconstrained space is available both for now and the future.	Some TWUL land is available, additional land may also be acquired for treatment sites and/or pipe laying required in private land under Statutory Notice. Space is available but is constrained both for now and the future.	No TWUL land available. Private land will need to be acquired. Pipe laying required in land that cannot be served with Statutory Notice. No extra space for growth / there is not enough space for the scheme capacity.
Floodplain encroachment	Percentage of site covered by floodplain	Less than 25% of the site within Flood Zones two or three or site solely located within flood zone one.	Between 25-50% of the site located within Flood Zones two or three, or if 50% of the site benefits from existing flood protection measures.	Over 50% of the site located within Flood Zones two or three and the site does not benefit from existing flood protection measures.
Nature conservation and biodiversity	Are any designated species and/or areas of nature conservation/biodiversity importance affected?	No international / national or regional designations likely to be adversely affected, or effect likely to be positive. Site does not contain sites of nature conservation importance.	Designation of regional or local importance likely to be adversely affected. Site includes or lies within a regionally designated site (County Wildlife Site, Site of Importance for Nature Conservation) or Local Nature Reserve.	Designation of international / national importance likely to be adversely affected. Site includes or lies within an internationally or nationally statutory designated site (Special Protection Area, RAMSAR, Site of Special Scientific Interest) and / or site of Ancient Woodland.
Non-traffic impact of construction on local residents	Will construction activities (excluding traffic impacts) affect local residents within a 350 m radius of the site?	Fewer than 100 residential properties likely to be affected by construction.	Between 100 and 299 residential properties likely to be affected by construction.	More than 300 residential properties likely to be affected by construction.

Criterion	Stage 2 criteria	Assessment		
		Green	Amber	Red
Water resources and water quality	Are there likely impacts on water resources and water quality, including Water Framework Directive targets?	Minor adverse impacts likely; no deterioration to WFD status.	Moderate adverse impacts likely; low risk of deterioration to WFD status.	Major adverse impacts likely; high risk of deterioration to WFD status.
Network reinforcement requirements	Are significant network reinforcements likely to be needed to distribute water?	No change to infrastructure.	Limited modifications to existing network infrastructure.	Significant network reinforcement required.
OPEX cost	Pumping head - Is the pumping head significant?	The pumping head is <50 m.	The pumping head is between 50-99 m.	The pumping head is in excess of 100 m.
Water source and availability	Uncertainty around scheme capacity. Uncertainty around availability of recharge water (for AR/ASR).	DO guaranteed in all scenarios.	Scheme capacity is affected by one or two issues that are expected to be resolved.	DO is affected by more than two issues or one issue that is unlikely to be resolved.
Cost/benefit of further investigation to validate yield	Cost of investigation to ascertain DO with confidence vs. potential magnitude of DO.	Cost of investigation / DO <£1,000/Ml/day of potential DO	Cost of investigation / DO >£1,000/Ml/day but <£4,000/Ml/day	Cost of investigation / DO >£4,000/Ml/day
Resilience	Is the option resilient to climate change and other external pressures?	Option considered fully resistant to climate change.	Option considered partially resistant to climate change.	Option considered not resistant to climate change.
Hydrogeological suitability	Ability of aquifer to provide DO or accept and recover recharge water.	Aquifer properties certain (data available at nearby sites). Aquifer able to provide required yield or accept and recover recharge water.	Aquifer properties are uncertain (no nearby data available). Unclear whether aquifer able to provide required yield or accept and recover recharge water.	Aquifer properties certain (data available at nearby sites). Aquifer not able to provide required yield or accept and recover recharge water.

Criterion	Stage 2 criteria	Assessment		
		Green	Amber	Red
Construction complexity	Adverse ground conditions, major crossings, potential need for unusual construction techniques	No major crossings required or contaminated land risks identified.	1-7 major crossings required or contaminated land risks identified.	8-15 major crossings required or significant contaminated land risks identified.
Operational complexity	Option requires operational capabilities that are outside TW standard operating practices or outside TW supply area.	No issues/ Typical operation and maintenance procedures.	Operation of average complexity, with relatively complex processes/ operations and requirement for relatively substantial operation and maintenance procedures.	Operation of high complexity, with complex processes/ operations and requirement for major operation and maintenance procedures at regular intervals.

Table 3 Criteria for Stage 2 and basis for assessment of site performance

Criterion	Stage 3 criteria	Method	Assessment		
			Green	Amber	Red
Nature conservation and biodiversity	Are there likely effects on site/habitats and protected species?	Consider the extent to which impacts on protected and designated species and sites of nature conservation importance can be mitigated with regard to the concept design.	No constraint posed.	Issue or constraint can be overcome.	Issue or constraint can be overcome, but will be very challenging.
Water resources and water quality	Are there likely impacts on water resources and water quality, including Water Framework Directive targets?	Consider the extent to which impacts identified at Stage 2 can be mitigated.	No constraint posed.	Issue or constraint can be overcome.	Issue or constraint can be overcome, but will be very challenging.
Normalised cost	£/m^3	Costs are normalised for comparison.	<£1/m^3	>£1/m^3	> £1.50/m^3
Water source and availability	Constraints on water source utilisation / availability	Consider whether there are unknowns that need to be worked through in terms of water availability. Is the quantity of available water dependent on any other constraints?	Availability of water is well understood and not dependent on other constraints.	Availability of water is well understood but dependent on other constraints.	Significant constraints on the water availability.

Table 4: Criteria for Stage 3 and basis for assessment of site performance

Feasibility Screening Updates

26 The overall changes to options and approach since WRMP19 are described in WRMP24 Section 7 Appraisal of Resource Options. Specific changes applicable to Groundwater options are detailed in Table 5**Error! Reference source not found.** and Table 6. These tables should be read alongside the Thames Water WRMP19 Groundwater Feasibility report.

WRMP19 Option Reference and name	WRSE Option Reference and name	Changes to the Option	WRMP19 Feasibility Screening Outcome	WRMP24 Feasibility Screening Outcome
London				
AR - Kidbrooke / Artificial recharge – Kidbrooke SLARS Kidbrooke (SLARS1) / South London Artificial Recharge Scheme Kidbrooke (South London Artificial Recharge Scheme 1) RES-AR-SLARS1-7	Kidbrooke Aquifer Recharge/Aquifer Storage and Recovery (SLARS1) TWU_LON_HI-GRW_ALL_ALL_kidbrooke slars	AR and SLARS Options combined at WRMP19 Fine Screening to make a single option with combined DO.	Both individual options passed Stage 3 – on Feasible List	Combined option included in WRMP24. No changes made to screening of option from WRMP24. Option has been included in the WRMP24 Feasible List of options.
ASR Horton Kirby/ Aquifer storage and Recovery Horton Kirby RES-ASR-HOR	ASR Horton Kirby TWU_LON_HI-GRW_RE1_ALL_asrhortonkirby	Delivery deferred beyond end of AMP7	Passed Stage 3 – on Feasible List	Feasibility assessment has been reviewed for WRMP24 and option is included on the Feasible List.
GW – Addington/ GW – Addington RES-GW-ADD	Groundwater Addington TWU_LON_HI-GRW_ALL_ALL_addington gw	DO significantly increased after modelling by TWUL. Design of option reviewed.	Passed Stage 3 – on Feasible List	Option design reviewed, no changes to Feasibility Assessment Scoring.
RC – Epsom / Removal of constraints – Epsom RES-RC-EPS	Epsom Removal of Constraints TWU_LON_HI-GRW_ALL_ALL_epsom roc	Option passed screening at WRMP19, decision reviewed at WRMP24 in consultation with EA.	Passed Stage 3 – on Feasible List	Option rejected following stakeholder engagement with the Environment Agency (EA). The rejection reasoning can be found in Appendix Q: Rejection Register.
GW – Southfleet / Greenhithe (new WTW) / Groundwater - Southfleet/Greenhithe *RES-GW-SOU*	Southfleet/Greenhithe (new WTW) TWU_LON_HI-GRW_ALL_ALL_s'fleet lic disagg	Delivery deferred beyond end of AMP7	Passed Stage 3 – on Feasible List	Feasibility assessment has been reviewed for WRMP24 and option is included on the Feasible List.

WRMP19 Option Reference and name	WRSE Option Reference and name	Changes to the Option	WRMP19 Feasibility Screening Outcome	WRMP24 Feasibility Screening Outcome
RC – New River Head/Removal of constraints – New River Head RES-RC-NRV	New River Head Removal of Constraints TWU_LON_HI-TFR_LON_ALL_nrv-groundimprov	Delivery deferred beyond the end of AMP 7	Passed Stage 3 – on Feasible List	Feasibility assessment has been reviewed for WRMP24 and option is included on the Feasible List
New WRMP24 option	Honor Oak Increase DO TWU_LON_HI-GRW_ALL_ALL_honoroak do	New option – See Section 3 - WRMP19 existing Honor Oak GW option is dependent on the WRMP24 options	N/A	Passed – on Feasible List of options.
New WRMP24 option	Nonsuch Increase DO TWU_LON_HI-GRW_ALL_ALL_nonsuch do	New option – See Section 3	N/A	Rejected as duplicate of Epsom Removal of Constraints Option. Epson ROC also rejected. Screen decision stands as Nonsuch would be subject to the same constraints as Epsom.
SWOX				
RES-RC-BTW	TWU_SWX_HI-GRW_RE1_ALL_britwell roc	Option passed screening at WRMP19, decision reviewed at WRMP24 in consultation with EA.	Passed Stage 3 – on Feasible List	Option rejected following stakeholder engagement with the Environment Agency (EA).
New WRMP24 option	Woods Farm Increase DO TWU_SWX_HI-GRW_ALL_ALL_woods farm do	New option – Section 3	N/A	Passed – on Feasible List of options

WRMP19 Option Reference and name	WRSE Option Reference and name	Changes to the Option	WRMP19 Feasibility Screening Outcome	WRMP24 Feasibility Screening Outcome
SWA				
Taplow / Taplow No WRMP19 ID as option was rejected at Stage 1.	N/A	Option rejected as superseded by new Taplow Increase DO option	Failed Stage 1	Rejected outside Feasibility Assessment process, superseded by new Taplow Increase DO option
GW – Datchet / Datchet RES-GW-DAT	N/A	Option rejected as superseded by new Datchet Increase DO option	Passed stage 3 – on Feasible List of options	Rejected outside Feasibility Assessment process, superseded by new Datchet Increase DO option
New WRMP24 option	Taplow Increase DO TWU_SWA_HI-GRW_ALL_ALL_taplowincreasedo	New option – See Section 3	N/A	Passed – on Feasible List of options
New WRMP24 option	Datchet Increase DO TWU_SWA_HI-GRW_ALL_ALL_datchet do	New option – See Section 3	N/A	Passed – on Feasible List of options
New WRMP24 option	Dorney Increase DO TWU_SWA_HI-GRW_ALL_ALL_dorney do	New option – See Section 3	N/A	Passed – on Feasible List of options

Table 5: Option changes since WRMP19

		WRMP19 DO (Ml/d)**		WRMP24 DO (Ml/d)			Difference (Ml/d)		Impact on Feasibility Assessment Scoring
WRMP19 Option Name	WRMP24 Option Name	Average	Peak	1 in 2 average	1 in 500 average	1 in 500 peak	Average	Peak	
London									
AR - Kidbrooke / Artificial recharge – Kidbrooke SLARS Kidbrooke (SLARS1) / South London Artificial Recharge Scheme Kidbrooke (South London Artificial Recharge Scheme 1) RES-AR-SLARS1-7	Kidbrooke Aquifer Recharge/Aquifer Storage and Recovery (SLARS1) TWU_LON_HI-GRW_ALL_ALL_kidbrooke slars	7*	NA	8	8	8	1	NA	Minor changes to DO and therefore no change to option design or Feasibility Assessment scoring.
AR Merton (SLARS3) / Artificial recharge Merton (South London Artificial Recharge Scheme 3) RES-AR-SLARS3	Merton Aquifer Recharge (SLARS3) TWU_LON_HI-GRW_ALL_ALL_merton ar	5	NA	6	6	5	1	NA	Minor changes to DO. No change to option design, as existing design was capable of treating current flows. Therefore no change to Feasibility Assessment scoring.
AR Streatham (SLARS2) / Artificial recharge Streatham (South London Artificial Recharge Scheme 2) RES-AR-SLARS2	Streatham Aquifer Recharge (SLARS2) TWU_LON_HI-GRW_ALL_ALL_streatham ar	4	NA	5	5	7	1	NA	Change due to reassessment of baseline DO. Feasibility Assessment scoring reviewed and no changes.

		WRMP19 DO (Ml/d)**		WRMP24 DO (Ml/d)			Difference (Ml/d)		Impact on Feasibility Assessment Scoring
WRMP19 Option Name	WRMP24 Option Name	Average	Peak	1 in 2 average	1 in 500 average	1 in 500 peak	Average	Peak	
GW – Addington/ GW – Addington RES-GW-ADD	Groundwater Addington TWU_LON_HI-GRW_ALL_ALL_addington gw	1	NA	2.7	2.7	5.7	1.7	NA	Option design reviewed and no changes to Feasibility Assessment scoring.
GW – Southfleet / Greenhithe (new WTW) / Groundwater - Southfleet/Greenhithe RES-GW-SOU	Southfleet/Greenhithe (new WTW) TWU_LON_HI-GRW_ALL_ALL_s'fleet lic disagg	8	NA	8.8	8.8	8.8	0.8	NA	DO change due to review of benefit and process losses. No increase to peak, so no change to option design or Feasibility Assessment scoring.
GW – Honor Oak / Groundwater – Honor Oak RES-GW-HON	GW – Honor Oak TWU_LON_HI-GRW_ALL_ALL_honor oak gw	1	NA	1.4	1.4	2.7	0.4	NA	DO change due to review of benefit and process losses. No increase to peak so no change to option design or Feasibility Assessment scoring.
Merton recommissioning / Removal of constraints - Merton recommissioning RES-RC-MTN	Merton Recommissioning TWU_LON_HI-GRW_ALL_ALL_merton recommission	2	NA	2	2	6	0	NA	Minor changes to DO. No increased impact on any Feasibility Assessment scores so not reassessed.
RC – Epsom / Removal of constraints – Epsom RES-RC-EPS	Epsom Removal of Constraints TWU_LON_HI-GRW_ALL_ALL_epsom roc	2	NA	3	3	2.8	1	NA	Rejected – refer to Table 2.1.

		WRMP19 DO (Ml/d)**		WRMP24 DO (Ml/d)			Difference (Ml/d)		Impact on Feasibility Assessment Scoring
WRMP19 Option Name	WRMP24 Option Name	Average	Peak	1 in 2 average	1 in 500 average	1 in 500 peak	Average	Peak	
SWOX									
Ashton Keynes borehole pumps / Ashton Keynes borehole pumps RES-RC-ASH	Ashton Keynes borehole pumps - Removal of Constraints to DO TWU_SWX_HI-GRW_ALL_ALL_ashton keynes roc	NA	1.5	0	0	2	NA	0.5	Change due to reassessment of current source peak DO – no change to option design or total DO from source – therefore no change to Feasibility Assessment scoring.

*The WRMP19 Kidbrooke AR/SLARS DO is the sum of the DOs of two separate options

** From WRMP19 Section 7, Table 7-3 Climate Change 2080s DO (Ml/d)

Table 6: Option DO changes since WRMP19

New WRMP24 Groundwater Options

27 Six new groundwater options were identified at WRMP24, a summary of these options is provided in Table 7. Five of the new options passed the three stages of screening and are included on the Feasible List of options. Nonsuch increase DO option was rejected at Stage 1 as this was found to be a duplicate of the WRMP19 Epsom option, Epsom has also been rejected (refer to Appendix Q: rejection register for full rejection reasoning). Nonsuch was then reviewed and it was found that this would have been rejected for the same reason at Epsom, for this reason Nonsuch continues to be rejected. A summary of the screening undertaken for the new groundwater options can be found in Section 4.

Option Name	Option Description	DO Benefit	Outcome of screening
Datchet increase DO	Increase current DO limited by pump capacity to the annual average licence limit.	Average 1.6 Ml/d, Peak 6.2 Ml/d	Passed
Dorney increase DO	Increase current DO to licence limit by drilling an additional borehole.	Average 0 Ml/d, Peak 4.3 Ml/d	Passed
Taplow increase DO	Increase current DO to licence limit by drilling an additional borehole.	Average 0 Ml/d, Peak 5.7Ml/d	Passed
Woods Farm increase DO	Increase current DO to licence limt by drilling an additional borehole.	Average 2.4 Ml/d, Peak 2.9 Ml/d	Passed
Honor Oak increase DO	Recommission Honor Oak WTW and well.	Average 1.66 Ml/d, Peak 1.66 Ml/d	Passed
Nonsuch increase DO	This option was rejected as further review confirmed option was a duplicate of Epsom Removal of Constraints.	1.27 Ml/d at Nonsuch and ~2 Ml/d at Epsom	Failed

Table 7 Summary of New WRMP24 Groundwater Options

Updated Feasibility Assessment

Feasibility Assessment Approach

28 This section of the report outlines the updates made in WRMP24 to the WRMP19 feasibility assessment. This should be read alongside the Thames Water WRMP19 Resource Options Groundwater feasibility report. Where options have been rejected through the screening process the rejection reason is recorded in WRMP24 Appendix Q Rejection Register.

29 A three-stage feasibility screening approach was taken at WRMP24, this approach is unchanged from WRMP19, details of the approach can be found in the Thames Water WRMP19 Resource Options Groundwater feasibility report. This process was reviewed by WRSE at the start of WRMP24 and was found to be appropriate.

30 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 need for Thames Water and, where applicable, neighbouring companies. However, the potential water resources need for the region at WRMP24[1] 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[2]

31 Furthermore, new transfers identified by WRSE through the regional planning process could allow new resource options in the Thames Water supply area to supply more WRSE WRZs than were 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 investment model to compare options against cost, environmental, and resilience criteria.

Stage 1 Assessment Results

32 At WRMP19 a total of 47 options were identified through the top-down and bottom-up investigations for assessment at Stage 1. One option was rejected/removed from the list at WRMP24 as it has been progressed in AMP7:

- Ladymead WTW removal of constraints to DO

33 A further 6 options were identified at WRMP24 as detailed above.

34 Where changes have been made to WRMP19 RAG status this is indicated in Table 10.

[1] https://wrse.uk.engagementhq.com/the-challenge

[2] 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.

35 The Stage 1 assessment of all WRMP19 and WRMP24 options is presented in Table 8 sets out the red, amber, green assessment of the criteria described in the WRMP19 Groundwater Feasibility report. Thirty-five options passed the Stage 1 assessment.

36 Following WRMP24 Stage 1 screening 18 options failed and are included in WRMP24 Appendix Q - Scheme rejection register.

37 Six new options identified at WRMP24 were screened. Five of the options passed Stage 1 of screening. The sixth option, Nonsuch Increase DO was not screened as this was found to be a duplicate of Epsom Removal of Constraints, this was therefore rejected before Stage 1.

38 A WRMP19 option which was completed during AMP7 was removed from the list, see Table 5. There were no changes to WRMP19 decisions at Stage 1 for the remaining options.

39 Further details regarding the Stage 1 assessments are included for WRMP19 options in the Groundwater Feasibility Report. Further details for new WRMP24 options are provided in Section 3.

40 Thirty six options were carried forward to Stage 2.

			Planning, socio-economic and environmental criteria						Engineering Data		
Criterion	WRSE ID	WRMP19 ID	National / international nature conservation sites	National / international heritage sites	Areas of major built development	Water availability (CAMS status)	Realistic prospect of acceptable abstraction licence	Is the option drought resilient	Proximity to source water	Source quality (treatability)	Pass / Fail
London											
Kidbrooke Aquifer Recharge	TWU_LON_HI-GRW_ALL_ALL_kidbrooke slars (Combined with ASR below)	RES-AR-SLARS1-7 (Combined with ASR below at WRMP19 Fine Screening)									Pass
Kidbrooke Aquifer Storage and Recovery (SLARS1)	TWU_LON_HI-GRW_ALL_ALL_kidbrooke slars (Combined with AR above)	RES-AR-SLARS1-7 (Combined with AR above at WRMP19 Fine Screening)									Pass
Merton Aquifer Recharge (SLARS3)	TWU_LON_HI-GRW_ALL_ALL_merton ar	RES-AR-SLARS3									Pass
Streatham Aquifer Recharge (SLARS2)	TWU_LON_HI-GRW_ALL_ALL_streatham ar	RES-AR-SLARS2									Pass
South East London (Addington) Aquifer Storage and Recovery	TWU_LON_HI-GRW_ALL_ALL_addington asr	RES-ASR-SEL									Pass
Thames Valley Central Aquifer Storage and Recovery	TWU_LON_HI-GRW_ALL_ALL_thames valley asr	RES-ASR-TV									Pass
Horton Kirby Aquifer Storage and Recovery	TWU_LON_HI-GRW_RE1_ALL_asrhortonkirby	RES-ASR-HOR									Pass
Groundwater Addington	TWU_LON_HI-GRW_ALL_ALL_addington gw	RES-GW-ADD									Pass

			Planning, socio-economic and environmental criteria						Engineering Data		
Criterion	WRSE ID	WRMP19 ID	National / international nature conservation sites	National / international heritage sites	Areas of major built development	Water availability (CAMS status)	Realistic prospect of acceptable abstraction licence	Is the option drought resilient	Proximity to source water	Source quality (treatability)	Pass / Fail
GW – Epsom	TWU_LON_HI-GRW_RE1_ALL_epsom-gw	Not on Constrained List									Fail
Shortlands	TWU_LON_HI-GRW_RE2_ALL_shortlands	Not on Constrained List									Pass
Southfleet/ Greenhithe (new WTW)	TWU_LON_HI-GRW_ALL_ALL_s'fleet lic disagg	RES-GW-SOU									Pass
London Confined Chalk (north)	TWU_LON_HI-GRW_ALL_ALL_london conchalk	RES-GW-LCC									Pass
London Confined Chalk (north-east)	TWU_LON_HI-GRW_ALL_ALL_london-cc (ne)	Not on Constrained List									Pass
GW – Honor Oak	TWU_LON_HI-GRW_ALL_ALL_honor oak gw	RES-GW-HON									Pass
Honor Oak Increase DO	TWU_LON_HI-GRW_ALL_ALL_honoroak do	NA – new WRMP24 option									Pass
Merton recommissioning	TWU_LON_HI-GRW_ALL_ALL_merton recommission	RES-RC-MTN									Pass
Epsom Removal of Constraints	TWU_LON_HI-GRW_ALL_ALL_epsom roc	RES-RC-EPS									Pass
New River Head Removal of Constraints		RES-RC-NRV									Pass
North London Licence trading		Not on Constrained List									Fail

			Planning, socio-economic and environmental criteria						Engineering Data		
Criterion	WRSE ID	WRMP19 ID	National / international nature conservation sites	National / international heritage sites	Areas of major built development	Water availability (CAMS status)	Realistic prospect of acceptable abstraction licence	Is the option drought resilient	Proximity to source water	Source quality (treatability)	Pass / Fail
SWOX											
AR – Cricklade	TWU_SWX_HI-GRW_RE1_ALL_cricklade-ar	Not on Constrained List									Pass
Woods Farm licence increase	TWU_SWX_HI-GRW_RE2_ALL_wood farm licence	Not on Constrained List									Fail
Woods Farm Increase DO	TWU_SWX_HI-GRW_ALL_ALL_woods farm do	NA – new WRMP24 option									Pass
GW - South Stoke 1	TWU_SWX_HI-GRW_ALL_ALL_gw south stoke 1	Not on Constrained List									Pass
GW - South Stoke 2 (with treatment)	TWU_SWX_HI-GRW_ALL_ALL_gw s stoke 2 w/treat	Not on Constrained List									Fail
GW - Moulsford 1	TWU_SWX_HI-GRW_ALL_ALL_moulsford gw	RES-GW-MOU									Pass
GW - Moulsford 2 (with treatment)	TWU_SWX_HI-GRW_ALL_ALL_gwmoulsford2 w/treat	Not on Constrained List									Fail
Cotswold Edge	TWU_SWX_HI-GRW_RE1_ALL_cotswold edge	Not on Constrained List									Fail
River Marden	TWU_SWX_HI-GRW_RE1_ALL_river marden	Not on Constrained List									Pass
Britwell Removal of Constraints	TWU_SWX_HI-GRW_RE1_ALL_britwell roc	RES-RC-BTW									Pass

			Planning, socio-economic and environmental criteria						Engineering Data		
Criterion	WRSE ID	WRMP19 ID	National / international nature conservation sites	National / international heritage sites	Areas of major built development	Water availability (CAMS status)	Realistic prospect of acceptable abstraction licence	Is the option drought resilient	Proximity to source water	Source quality (treatability)	Pass / Fail
Ashton Keynes borehole pumps - Removal of Constraints to DO	TWU_SWX_HI-GRW_ALL_ALL_ashton keynes roc	RES-RC-ASH									Pass
Witheridge Hill borehole pumps	TWU_SWX_HI-GRW_RE1_ALL_witheridge hill bh	Not on Constrained List									Pass
SWA											
Hampden Bottom-Wendover	TWU_SWA_HI-GRW_RE1_ALL_hampbottom-wendover	Not on Constrained List									Pass
Datchet Increase DO	TWU_SWA_HI-GRW_ALL_ALL_datchet do	NA – new WRMP24 option									Pass
Dorney Increase DO	TWU_SWA_HI-GRW_ALL_ALL_dorney do	NA – new WRMP24 option									Pass
Bourne End (East Marlow)	TWU_SWA_HI-GRW_ALL_ALL_bourne end-e marlow	Not on Constrained List									Fail
Medmenham	TWU_SWA_HI-GRW_RE2_ALL_medmenham	Not on Constrained List									Fail
Taplow	TWU_SWA_HI-GRW_ALL_ALL_taplow	Not on Constrained List									Fail
Taplow Increase DO	TWU_SWA_HI-GRW_ALL_ALL_taplowincreased o	NA – new WRMP24 option									Pass
Remenham	TWU_SWA_HI-GRW_RE2_ALL_remenham	Not on Constrained List									Fail

			Planning, socio-economic and environmental criteria						Engineering Data		
Criterion	WRSE ID	WRMP19 ID	National / international nature conservation sites	National / international heritage sites	Areas of major built development	Water availability (CAMS status)	Realistic prospect of acceptable abstraction licence	Is the option drought resilient	Proximity to source water	Source quality (treatability)	Pass / Fail
GW – West Marlow	TWU_SWA_HI-GRW_RE2_ALL_gw west marlow	Not on Constrained List									Fail
RC - Hampden disinfection upgrade	TWU_SWA_HI-ROC_RE2_ALL_rc-hampden upgrade	Not on Constrained List									Fail
Kennet Valley											
GW - Purley	TWU_KVZ_HI-GRW_ALL_ALL_gw purley	Not on Constrained List									Fail
GW - Mapledurham	TWU_KVZ_HI-GRW_ALL_ALL_gw mapledurham	Not on Constrained List									Fail
GW - Mortimer (transfer peak licence from Arborfield)	TWU_KVZ_HI-OTH_ALL_ALL_mortimer peaklicence	Not on Constrained List									Pass
GW - Mortimer disused source (recommission)	TWU_KVZ_HI-GRW_ALL_ALL_mortimer recomm	RES-GW-MOR									Pass
GW – Hungerford	TWU_KVZ_HI-GRW_ALL_ALL_gw hungerford	Not on Constrained List									Fail
GW - Playhatch (increased licence)	TWU_KVZ_HI-OTH_ALL_ALL_gw playhatch licence	Not on Constrained List									Fail
East Woodhay borehole pumps Removal of Constraints to DO	TWU_KVZ_HI-GRW_ALL_ALL_east woodhay roc	RES-RC-EWO									Pass

			Planning, socio-economic and environmental criteria						Engineering Data		
Criterion	WRSE ID	WRMP19 ID	National / international nature conservation sites	National / international heritage sites	Areas of major built development	Water availability (CAMS status)	Realistic prospect of acceptable abstraction licence	Is the option drought resilient	Proximity to source water	Source quality (treatability)	Pass / Fail
Guildford											
ASR - Guildford (Abbotswood)	TWU_GUI_HI-GRW_ALL_ALL_asr abbotswood	Not on Constrained List									Pass
Dapdune licence disaggregation	TWU_GUI_HI-GRW_ALL_ALL_dapdune lic disagg	RES-GW-DAP									Pass
Mousehill and Rodborough Rehab	TWU_GUI_HI-GRW_RE2_ALL_mousehill rodborough	Not on Constrained List									Fail
Dapdune removal of constraints to DO	TWU_GUI_HI-GRW_ALL_ALL_dapdune roc	Not on Constrained List									Pass
RC - Sturt Road Spring Capture	TWU_GUI_HI-GRW_RE2_ALL_rc sturt road spring	Not on Constrained List									Pass
Henley											
Sheeplands licence disaggregation	TWU_HEN_HI-OTH_ALL_ALL_sheeplands licence	Not on Constrained List									Fail

Table 8: Stage 1 assessment

Stage 2 assessment results

41 The Stage 2 assessment of the WRMP19 and WRMP24 options that passed Stage 1 is presented in Table 9 providing the red, amber, green assessment of the criteria described in the WRMP19 Groundwater Feasibility Report. Twenty-six options passed the Stage 2 assessment. Further details are included in the WRMP19 Groundwater Feasibility report.

42 There were no changes to WRMP19 RAG status as indicated in Table 9.

43 Screening of the remaining WRMP19 options and the new WRMP24 options has been combined and backchecking completed of the WRMP19 assessment, nine options were rejected at Stage 2; the reasons for the option rejection are included in WRMP24 Appendix Q - Scheme rejection register.

44 The five new WRMP24 options which passed Stage 1 passed Stage 2 of the screening.

45 There were no changes to the WRMP19 RAG status this is indicated in Table 10.

46 Further information regarding the investigations into the options is included in the WRMP19 Groundwater Feasibility report and Section 3 of this report.

47 Twenty-seven options were carried forward to Stage 3.

Criterion	WRSE ID	WRMP19 ID	Ownership of site and tenancies	Floodplain encroachment	Nature conservation and biodiversity	Non-traffic impact of construction on local residents	Water resources and water quality	Network reinforcement requirements	OPEX cost	Water source and availability	Cost/benefit of further investigation to validate yield	Resilience	Hydrogeological suitability	Construction complexity	Operational complexity	Pass / Fail
London																
Kidbrooke Aquifer Recharge	TWU_LON_HI-GRW_ALL_ALL_kidbrooke slars (Combined with ASR below)	RES-AR-SLARS1-7 (Combined with ASR below at WRMP19 Fine Screening)														Pass
Kidbrooke Aquifer Storage and Recovery (SLARS1)	TWU_LON_HI-GRW_ALL_ALL_kidbrooke slars (Combined with AR above)	RES-AR-SLARS1-7 (Combined with AR above at WRMP19 Fine Screening)														Pass
Merton Aquifer Recharge (SLARS3)	TWU_LON_HI-GRW_ALL_ALL_merton ar	RES-AR-SLARS3														Pass
Streatham Aquifer Recharge (SLARS2)	TWU_LON_HI-GRW_ALL_ALL_streatham ar	RES-AR-SLARS2														Pass
RES-ASR-SELSouth East London (Addington) Aquifer Storage and Recovery	TWU_LON_HI-GRW_ALL_ALL_addington asr	RES-ASR-SEL														Pass
Thames Valley Central Aquifer Storage and Recovery	TWU_LON_HI-GRW_ALL_ALL_thames valley asr	RES-ASR-TV														Pass

Criterion	WRSE ID	WRMP19 ID	Ownership of site and tenancies	Floodplain encroachment	Nature conservation and biodiversity	Non-traffic impact of construction on local residents	Water resources and water quality	Network reinforcement requirements	OPEX cost	Water source and availability	Cost/benefit of further investigation to validate yield	Resilience	Hydrogeological suitability	Construction complexity	Operational complexity	Pass / Fail
Horton Kirby Aquifer Storage and Recovery	TWU_LON_HI-GRW_RE1_ALL_asrhortonkirby	RES-ASR-HOR														Pass
Groundwater Addington	TWU_LON_HI-GRW_ALL_ALL_addington gw	RES-GW-ADD														Pass
Shortlands	TWU_LON_HI-GRW_RE2_ALL_shortlands	Not on Constrained List														Fail
Southfleet/ Greenhithe (new WTW)	TWU_LON_HI-GRW_ALL_ALL_s'fleet lic disagg	RES-GW-SOU														Pass
London Confined Chalk (north)	TWU_LON_HI-GRW_ALL_ALL_londonconchalk	RES-GW-LCC														Pass
London Confined Chalk (north-east)	TWU_LON_HI-GRW_ALL_ALL_london-cc (ne)	Not on Constrained List														Fail
GW – Honor Oak	TWU_LON_HI-GRW_ALL_ALL_honoroak gw	RES-GW-HON														Pass
Honor Oak Increase DO	TWU_LON_HI-GRW_ALL_ALL_honoroak do	NA – new WRMP24 option														Pass
Merton recommissioning	TWU_LON_HI-GRW_ALL_ALL_mertonrecommission	RES-RC-MTN														Pass
Epsom Removal of Constraints	TWU_LON_HI-GRW_ALL_ALL_epsomroc	RES-RC-EPS														Pass

Criterion	WRSE ID	WRMP19 ID	Ownership of site and tenancies	Floodplain encroachment	Nature conservation and biodiversity	Non-traffic impact of construction on local residents	Water resources and water quality	Network reinforcement requirements	OPEX cost	Water source and availability	Cost/benefit of further investigation to validate yield	Resilience	Hydrogeological suitability	Construction complexity	Operational complexity	Pass / Fail
New River Head Removal of Constraints		RES-RC-NRV														Pass
SWOX																
AR – Cricklade	TWU_SWX_HI-GRW_RE1_ALL_cricklade-ar	Not on Constrained List														Fail
Woods Farm Increase DO	TWU_SWX_HI-GRW_ALL_ALL_woods farm do	NA – new WRMP24 option														Pass
GW - South Stoke 1	TWU_SWX_HI-GRW_ALL_ALL_gw south stoke 1	Not on Constrained List														Pass
GW - Moulsford 1	TWU_SWX_HI-GRW_ALL_ALL_moulsford gw	RES-GW-MOU														Pass
River Marden	TWU_SWX_HI-GRW_RE1_ALL_river marden	Not on Constrained List														Fail
Ashton Keynes borehole pumps - Removal of Constraints to DO	TWU_SWX_HI-GRW_ALL_ALL_ashton keynes roc	RES-RC-ASH														Pass
Witheridge Hill borehole pumps	TWU_SWX_HI-GRW_RE1_ALL_witheridge hill bh	Not on Constrained List														Fail
Britwell Removal of Constraints	TWU_SWX_HI-GRW_RE1_ALL_britwell roc	RES-RC-BTW														Pass

Criterion	WRSE ID	WRMP19 ID	Ownership of site and tenancies	Floodplain encroachment	Nature conservation and biodiversity	Non-traffic impact of construction on local residents	Water resources and water quality	Network reinforcement requirements	OPEX cost	Water source and availability	Cost/benefit of further investigation to validate yield	Resilience	Hydrogeological suitability	Construction complexity	Operational complexity	Pass / Fail
SWA																
Hampden Bottom-Wendover	TWU_SWA_HI-GRW_RE1_ALL_hampbottom-wendover	Not on Constrained List														Fail
Datchet Increase DO	TWU_SWA_HI-GRW_ALL_ALL_datchetdo	NA – new WRMP24 option														Pass
Dorney Increase DO	TWU_SWA_HI-GRW_ALL_ALL_dorneydo	NA – new WRMP24 option														Pass
Taplow Increase DO	TWU_SWA_HI-GRW_ALL_ALL_taplowincreasedo	NA – new WRMP24 option														Pass
Kennet Valley																
GW - Mortimer disused source (recommission)	TWU_KVZ_HI-GRW_ALL_ALL_mortimer recomm	RES-GW-MOR														Pass
GW - Mortimer (transfer peak licence from Arborfield	TWU_KVZ_HI-OTH_ALL_ALL_mortimer peaklicence	Not on Constrained List														Fail
East Woodhay borehole pumps Removal of Constraints to DO	TWU_KVZ_HI-GRW_ALL_ALL_eastwoodhay roc	RES-RC-EWO														Pass
Guildford																
ASR - Guildford (Abbotswood)	TWU_GUI_HI-GRW_ALL_ALL_asrabbotswood	Not on Constrained List														Fail

Criterion	WRSE ID	WRMP19 ID	Ownership of site and tenancies	Floodplain encroachment	Nature conservation and biodiversity	Non-traffic impact of construction on local residents	Water resources and water quality	Network reinforcement requirements	OPEX cost	Water source and availability	Cost/benefit of further investigation to validate yield	Resilience	Hydrogeological suitability	Construction complexity	Operational complexity	Pass / Fail
Dapdune licence disaggregation	TWU_GUI_HI-GRW_ALL_ALL_dapdune lic disagg	RES-GW-DAP														Pass
Dapdune removal of constraints to DO	TWU_GUI_HI-GRW_ALL_ALL_dapdune roc	RES-RC-DAP														Pass
RC - Sturt Road Spring Capture	TWU_GUI_HI-GRW_RE2_ALL_rc sturt road spring	Not on Constrained List														Fail

Table 9: Stage 2 assessment

Stage 3 assessment results

48 Assessment against Stage 3 criteria of options has been undertaken for all options that passed Stage 2. Two options were changed following the Stage 2 assessment (changes made at WRMP19 and are carried through to WRMP24); the updated options have been taken forward for the Stage 3 assessment:

- SLARS Kidbrooke: one site has been removed from the option due to issues with land ownership (further detail is provided in Appendix Q), with a resultant decrease in the potential DO benefit from 7 Ml/d average and 8 Ml/d peak to 4 Ml/d average and 5.1 Ml/d peak; and
- Groundwater Addington:
  - At Stage 3 WRMP19 an upgrade to the WTW was included in the proposed scope of this option. As a result the mutual exclusivity between the South East London (Addington) Aquifer Storage and Recovery option and the groundwater development options at Addington was removed. The two options were still interdependent
  - At WRMP24 it was decided the cost of the WTW upgrade required if both South East London (Addington) Aquifer Storage and Recovery and Groundwater Addington Options were selected would be considered at post-processing. The capital cost of the WTW was thus removed from Addington Groundwater
  - Addington Groundwater DO was also reviewed and increased significantly at WRMP24, leading to a design update for the option. The feasibility scores at all stages were reviewed, but no changes were required

49 The Stage 3 assessment of the WRMP19 and WRMP24 options that passed Stage 2 is presented in Table 10 providing the red, amber, green assessment of the criteria described in WRMP19 Groundwater Feasibility report. Twenty-six options passed the Stage 3 assessment. Further details are included in the WRMP19 Groundwater Feasibility report and Section 3 of this report.

50 Where changes have been made to WRMP19 RAG status this is indicated in Table 10.

51 At WRMP24 assessment of the five new options and backchecking of the remaining WRMP19 options was completed. Twenty-eight options passed the Stage 3 assessment and none failed the Stage 3 assessment. Kidbrooke Aquifer Recharge and Kidbrooke Aquifer Storage and Recovery (SLARS1) were combined at the Fine Screening Stage at WRMP19, resulting in twenty-five options.

52 The five new WRMP24 options which passed Stage 2 also passed Stage 3 of the screening.

Criterion	WRSE ID	WRMP19 ID	Nature conservation and biodiversity	Water resources and water quality	Normalised cost	Water source and availability	Pass / Fail
London							
Kidbrooke Aquifer Recharge	TWU_LON_HI-GRW_ALL_ALL_kidbrooke slars (Combined with ASR below)	RES-AR-SLARS1-7 (Combined with ASR below at WRMP19 Fine Screening)					Pass
Kidbrooke Aquifer Storage and Recovery (SLARS1)	TWU_LON_HI-GRW_ALL_ALL_kidbrooke slars (Combined with AR above)	RES-AR-SLARS1-7 (Combined with AR above at WRMP19 Fine Screening)					Pass
Merton Aquifer Recharge (SLARS3)	TWU_LON_HI-GRW_ALL_ALL_merton ar	RES-AR-SLARS3					Pass
Streatham Aquifer Recharge (SLARS2)	TWU_LON_HI-GRW_ALL_ALL_streatham ar	RES-AR-SLARS2					Pass
RES-ASR-SELRES-ASR-SELSouth East London (Addington) Aquifer Storage and Recovery	TWU_LON_HI-GRW_ALL_ALL_addington asr	RES-ASR-SEL					Pass
Thames Valley Central Aquifer Storage and Recovery	TWU_LON_HI-GRW_ALL_ALL_thames valley asr	RES-ASR-TV					Pass

Criterion	WRSE ID	WRMP19 ID	Nature conservation and biodiversity	Water resources and water quality	Normalised cost	Water source and availability	Pass / Fail
Horton Kirby Aquifer Storage and Recovery	TWU_LON_HI-GRW_RE1_ALL_asrhortonkirby	RES-ASR-HOR					Pass
Groundwater Addington	TWU_LON_HI-GRW_ALL_ALL_addington gw	RES-GW-ADD					Pass
Southfleet/ Greenhithe (new WTW)	TWU_LON_HI-GRW_ALL_ALL_s'fleet lic disagg	RES-GW-SOU					Pass
London Confined Chalk (north)	TWU_LON_HI-GRW_ALL_ALL_london conchalk	RES-GW-LCC					Pass
GW – Honor Oak	TWU_LON_HI-GRW_ALL_ALL_honor oak gw	RES-GW-HON					Pass
Honor Oak Increase DO	TWU_LON_HI-GRW_ALL_ALL_honoroak do	NA – new WRMP24 option					Pass
Merton recommissioning	TWU_LON_HI-GRW_ALL_ALL_merton recommission	RES-RC-MTN					Pass
Epsom Removal of Constraints	TWU_LON_HI-GRW_ALL_ALL_epsom roc	RES-RC-EPS					Pass
New River Head Removal of Constraints		RES-RC-NRV					Pass
SWOX							
GW - South Stoke 1	TWU_SWX_HI-GRW_ALL_ALL_gw south stoke 1	Not on Constrained List – failed at Fine Screening					Pass

Criterion	WRSE ID	WRMP19 ID	Nature conservation and biodiversity	Water resources and water quality	Normalised cost	Water source and availability	Pass / Fail
Woods Farm Increase DO	TWU_SWX_HI-GRW_RE2_ALL_wood farm licence	NA – new WRMP24 option					Pass
GW - Moulsford 1	TWU_SWX_HI-GRW_ALL_ALL_moulsford gw	RES-GW-MOU					Pass
Ashton Keynes borehole pumps - Removal of Constraints to DO	TWU_SWX_HI-GRW_ALL_ALL_ashton keynes roc	RES-RC-ASH					Pass
Britwell Removal of Constraints	TWU_SWX_HI-GRW_RE1_ALL_britwell roc	RES-RC-BTW					Pass
SWA							
Datchet Increase DO	TWU_SWA_HI-GRW_ALL_ALL_datchet do	NA – new WRMP24 option					Pass
Dorney Increase DO	TWU_SWA_HI-GRW_ALL_ALL_dorney do	NA – new WRMP24 option					Pass
Taplow Increase DO	TWU_SWA_HI-GRW_ALL_ALL_taplowincreasedo	NA – new WRMP24 option					Pass
Kennet Valley							
GW - Mortimer disused source (recommission)	TWU_KVZ_HI-GRW_ALL_ALL_mortimer recomm	RES-GW-MOR					Pass
East Woodhay borehole pumps Removal of Constraints to DO	TWU_KVZ_HI-GRW_ALL_ALL_east woodhay roc	RES-RC-EWO					Pass

Criterion	WRSE ID	WRMP19 ID	Nature conservation and biodiversity	Water resources and water quality	Normalised cost	Water source and availability	Pass / Fail
Guildford							
Dapdune licence disaggregation	TWU_GUI_HI-GRW_ALL_ALL_dapdune lic disagg	RES-GW-DAP					Pass
Dapdune removal of constraints to DO	TWU_GUI_HI-GRW_ALL_ALL_dapdune roc	RES-RC-DAP					Pass

Table 10: Stage 3 assessment

Option Verification and Conclusion

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

Validation

54 Following the Stage 3 assessment some of the groundwater options were combined or rejected for the reasons described below.

55 Those options which have passed the Stage 3 assessment will be carried to further screening assessment except where they are mutually exclusive, in which case only a single option can be taken forward.

56 GW South Stoke 1 and Moulsford 1 both comprise transfer of the abstraction licence from Childrey Warren. The licence can only be transferred to one source; hence a choice must be made between the two options. GW - South Stoke 1 was rejected at WRMP19 validation. The rejection reasoning has been reviewed at WRMP24 and has been found to remain valid. Moulsford 1 is included on the Feasible List.

57 Britwell Removal of Constraints is rejected at validation. This option has been rejected on the basis that we have been asked to carry out a WFD no deterioration investigation and as a result have planned for there to be a reduction in licence at this source to meet the No Deterioration requirement, making this option unfeasible. If the investigation shows no risk of deterioration from increase to licence then the scheme could be considered to be reintroduced.

58 A new environmental policy has been introduced by the Environment Agency in the WRMP24 round of planning, resulting in a new Supplementary Guidance note entitled, “Water resources planning guideline supplementary guidance – actions required to prevent deterioration”. This supplementary guidance highlighted the potential deterioration risk of increasing water abstraction from groundwater sources above historic levels, even where this increase is within the abstraction licence. To mitigate the deterioration, risk the Environment Agency guidance sets out that some abstraction licenses may have been capped at volumes that have been abstracted in recent years. The groundwater options were reviewed against these environmental scenarios and as a result Epsom Removal of Constraints was rejected at WRMP24.

59 Kidbrooke Aquifer Recharge and Kidbrooke Aquifer Storage and Recovery (SLARS1) were assessed as two separate options in the WRMP19 Groundwater Feasibility report and have been retained as separate options in the Stage 1 to 3 assessments above. However, at WRMP19 concept design stage, it was decided to combine the two options into a single option. The combined option is included in the WRMP24 Feasibility List.

60 Twenty three groundwater options are therefore included in the WRMP24 Feasible List.

61 Information on option development and investment modelling can be found in WRMP24 Section 7 - Appraisal of Resource Options.

Confirmation of feasible list of options:

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

- London:
  - Kidbrooke Aquifer Recharge/Aquifer Storage and Recovery (SLARS1)
  - Merton Aquifer Recharge (SLARS3)
  - Streatham Aquifer Recharge (SLARS2)
  - South East London (Addington) Aquifer Storage and Recovery
  - Thames Valley Central Aquifer Storage and Recovery
  - Horton Kirby Aquifer Storage and Recovery
  - Groundwater Addington
  - Southfleet/Greenhithe (new WTW)
  - London Confined Chalk (north)
  - GW – Honor Oak
  - Honor Oak Increase DO
  - Merton Recommissioning
  - New River Head Removal of Constraints
- SWOX:
  - Woods Farm Increase DO
  - Moulsford 1
  - Ashton Keynes borehole pumps - Removal of Constraints to DO
- SWA:
  - Datchet Increase DO
  - Dorney Increase DO
  - Taplow Increase DO
- Guildford:
  - Dapdune Licence Disaggregation
  - Dapdune RoC
- Kennet Valley:
  - Mortimer Disused Source (Recommission)
  - East Woodhay borehole pumps Removal of Constraints to DO

Reference information

TheWRMP24 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 for access to WRMP19 reports


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