WRMP24
Strategic Environmental Assessment Post-Adoption Statement

1. Background and Context

1.1 Introduction

The Thames Water, Water Resources Management Plan 2024 (WRMP24) sets out how Thames Water intends to achieve a secure supply of water for customers while protecting and enhancing the environment over a minimum 25-year period. It supersedes the previous WRMP published in 2019. The WRMP24 was adopted on 18 October 2024 by Thames Water. The full WRMP24, along with the Strategic Environmental Assessment (SEA) Report, are available at Thames Water's website at: [https://www.thameswater.co.uk/about-us/regulation/water-resources].

In the development of a WRMP, companies in England and Wales must follow the Environment Agency Water Resources Planning Guideline (WRPG) and consider broader government policy objectives. The guideline highlights that where required companies must carry out a SEA for their WRMP. The SEA process was undertaken alongside the development of Thames Water's WRMP24 to inform the decision-making process and integrate environmental considerations.

To support the WRMP24, Environmental Assessments (Water Framework Directive (WFD), Natural Capital and Biodiversity Net Gain (BNG), Invasive Non-Native Species (INNS), and Habitats Regulations Assessment (HRA)) were undertaken to assess the environmental effects of the WRMP. The results of these assessments have fed into the SEA. The individual technical assessment reports are available on the Thames Water website.

This document is the SEA Post-Adoption Statement for the WRMP24 as required under the SEA Regulations. It has been published alongside the final WRMP24 to outline:

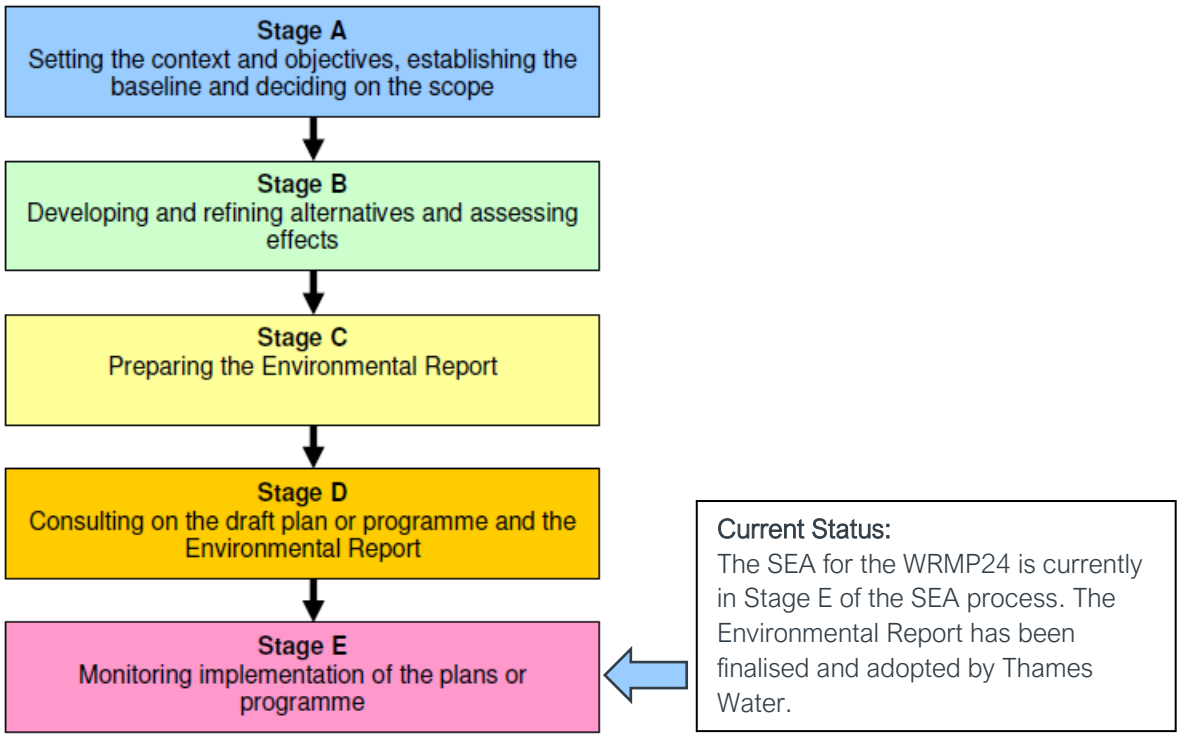
- How environmental considerations have influenced the development of the WRMP24
- How consultee comments were taken into account
- Proposals for monitoring

The SEA Post-Adoption Statement should be read in conjunction with the SEA Environmental Report (Mott MacDonald, 2024).

1.2 SEA Context

SEA works to inform the decision-making process through identification and assessment of significant and cumulative effects a plan or programme may have on the environment. The SEA process is conducted at a strategic level and enables consultation on the potential effects of a plan with a wide range of stakeholders. Figure 1-1 shows the stages in the SEA process and where in the process the SEA for the WRMP24 is.

Figure 1-1: SEA Process



1.3 SEA Post Adoption Statement

The main purpose of the SEA Post-Adoption Statement is to demonstrate how the findings and recommendations of the SEA process were taken into account and how they influenced the development of the WRMP24.

The SEA Regulations, Regulation 16 'Information as to adoption of plan or programme', sets out post-adoption procedures for plans and programmes that responsible authorities are required to follow. Regulation 16(3)(iii) and Regulation 16(4) determine that a statement is to be produced which contains particular information. The information requirements and where they have been covered in this SEA Post-Adoption Statement are presented in Table 1-1.

Table 1-1: Requirements for the SEA Post-Adoption Statement

Regulation 16(4) requirements for the Statement	Where the requirements have been addressed in the Post-Adoption Statement
How environmental considerations have been integrated into the plan or programme.	Chapter 5 – Influence of the SEA on the WRMP24 Development
How the environmental report has been taken into account.	Chapter 5 – Influence of the SEA on the WRMP24 Development
How opinions expressed in response to the public consultation have been taken into account.	Chapter 3 – Consultation Appendix A.1 Thames Water Statement of Response Document
How the results of any trans-boundary consultations have been taken into account.	Chapter 3 - Consultation

Regulation 16(4) requirements for the Statement	Where the requirements have been addressed in the Post-Adoption Statement
The reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with.	Chapter 4 – Findings of the SEA
The measures that are taken to monitor the significant environmental effects of the implementation of the plan or programme.	Chapter 6 – Mitigation and Monitoring Programme

Source: The Environmental Assessment of Plans and Programmes Regulations 2004

2. Description and Context of the WRMP24

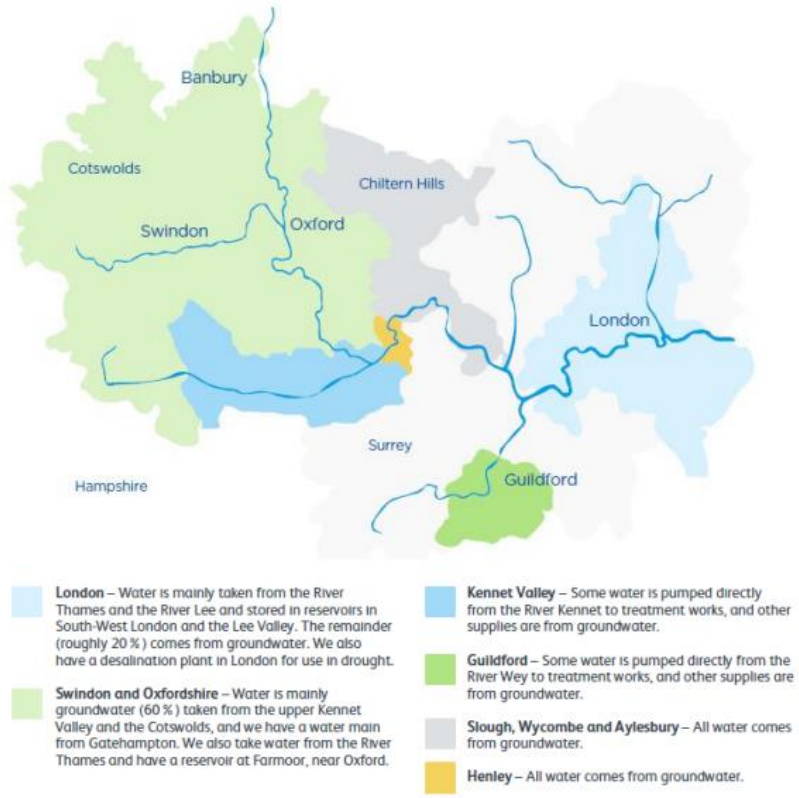
2.1 Background and Purpose

Thames Water is the UK's largest water and wastewater services company, and it supplies 2.6 billion litres of drinking water per day and treats 4.7 billion litres of wastewater per day. It is responsible for the public water supply and wastewater treatment for most of Greater London, the Thames Valley, Surrey, Gloucestershire, north Wiltshire, and far west Kent. The area covered by Thames Water has a population of 16 million; this comprises 23% of the UK population.

For planning purposes Thames Water's supply area is divided into six water resource zones (WRZs) as presented in Figure 2-1. A WRZ describes an area within which the abstraction and distribution of water to meet demand is largely self-contained and all customers experience the same risk of supply failure and the same level of service. Thames Water have defined the WRZs using the Environment Agency's WRZ assessment methods. The WRMP planning process is undertaken for each WRZ to ensure provision of a secure supply of water to Thames Water customers in that zone.

London WRZ is the largest of the six zones and covers much of the Greater London area. The water resources for London are largely based on abstraction from the River Thames (80%), which is stored in reservoirs, and the remainder from underground sources (aquifers) via boreholes[1].

Figure 2-1: Thames Water supply area and Water Resource Zones



[1] Thames Water (2024). Water Resources Management Plan 2024 – Section 1 Introduction and Background. Available at: Introduction and Background

Water companies have a statutory obligation to produce a WRMP. The WRMP sets out how a company intends to achieve a secure supply of water for customers while protecting and enhancing the environment over a minimum 25-year period. The plans must be prepared every five years and reviewed annually. Thames Water's WRMP24 renews the previous WRMP published in 2019. Thames Water's WRMP24 covers the period from 2024 to 2075.

The WRMP is a strategic plan which sets out how the company plans to achieve a secure supply of water for customers and a protected and enhanced environment. It includes:

- Forecasts for the likely demand for water taking account of population growth, climate change, and changes in water use due to new housing standards, improved efficiency of water fixtures and fittings and the impact of smart water meters.
- Forecasts for the amount of water available for public water supply including the impacts of climate change.
- Forecasts for environmental ambition including the location and pace for proposed reduced abstraction.
- A range of feasible options to reduce demand for water, called demand reduction options, and options to increase the amount of water available, called water supply options, as well as catchment and nature-based solutions.
- An assessment of the environmental impacts and opportunities for the plan.
- An adaptive approach to accommodate uncertainties in developing a long-term plan with a preferred, or reported, programme of investment which represents the "most likely" future including both demand and supply options, to deliver resilient, sustainable water resources and provide best value to society and the environment.

2.2 Challenges to supply security within the Thames Water area

The water resources in Thames Water's supply area are under pressure and increased effort is required to manage the growing population, changing climate and increasing drought risk.

Growing Population – London and the Thames Valley is one of the most densely populated parts of the country with over 10 million people living and working in the area. Forecasts indicate that the number of people in this area will grow to over 12.7 million by 2050, and to over 13.1 million by 2075. This prediction is higher than the ONS projections, though these also suggest an increasing population to 11.1 million and 11.5 million by 2050 and 2075, respectively[2].

Changing Climate – The UK is facing hotter, drier summers, which means a reduction of precipitation and a likely increase in extreme weather events, such as flooding. Recent climate change predictions by the Met Office (UKCP 2018) suggest an average middle value loss of 122Ml/d by 2070[2].

Increasing Drought Risk – The changing climate is likely to also present more frequent and more severe droughts. In severe droughts, water usage restrictions may have to be implemented, perhaps for weeks at a time. Thames Water has calculated that this may cost London's economy up to £500 million per day[2]. The Government has requested that water companies

[2] Thames Water (2024). Keeping water flowing for the future – A summary of our Water Resources Management Plan 2024. Available at: https://www.thameswater.co.uk/media-library/home/about-us/regulation/water-resources/wrmp24/overview.pdf

ensure their water supplies are more drought resilient by 2040. Within Thames Water's region, each year there is a 1% chance of needing to introduce water usage restrictions due to a drought. The Thames Water region requires an additional 320Ml/d of water to reinforce water supplies to a one in 500-year drought.

2.3 Opportunities to meet the planning challenge

To meet the supply security challenge, several opportunities are presented as part of the WRMP24:

Demand Reduction – these are solutions to make the best use of the current water supplies including reducing leakage and working with customers to promote water saving actions.

Water Supply Solutions – these solutions work to increase current water supplies and are inclusive of:

- Water recycling – taking treated wastewater and further treating it to return to the environment and increase natural water supply.
- Water transfers – obtaining water from areas with surplus and sources such as rivers, canals and other waterways to move water between regions (transboundary).
- Desalination – treating seawater and brackish water to remove salt. A desalination plant already exists in London and Thames Water have scoped out additional plants for WRMP24.
- Reservoirs – increases water storage facilities. Usually, these stores are used during drier summer months and replenished in wetter winter months.
- Groundwater storage – using Aquifer Storage and Recovery (ASR) to store additional water below ground.

2.4 WRMP24

The primary aim of Thames Water's WRMP24 is '*to ensure that there is sufficient water available to meet anticipated demands, under various weather conditions but in particular in dry and very dry conditions, whilst protecting the environment*'.

The objectives of Thames Water's WRMP24 are the same as the WRSE Best Value Plan (BVP) objectives which are to:

- Deliver a secure and wholesome supply of water to customers and other sectors to 2100
- Deliver environmental improvement and social benefit
- Increase the resilience of the region's water system (public water supply system, environmental system, and the non-public water supply systems used by other sectors)
- Be deliverable at a cost that is acceptable to customers

Thames Water has adopted a planning approach that uses least-cost optimisation as well as broader criteria to develop a BVP (Preferred Plan) which takes account of 'best value' decision-making criteria including:

- Environmental and social impacts of the plan, including net environmental benefit
- Cost to build and operate the plan
- Adaptability and flexibility of the plan to cope with uncertain future needs

- Alignment to the Water Resources South East regional strategy
- Resilience of the plan to severe and extreme drought, other hazards, and their residual risks
- Deliverability of the plan with timescales needed to manage risks
- Alignment to customer preferences

The WRMP24 includes an adaptive strategy to deal with uncertainties and future scenarios. In some cases, there may not be a long lead time in which to implement schemes before they are required and therefore Thames Water has developed a plan which identifies thresholds beyond which it needs to take further action. The potential options identified as part of the adaptive strategy have been assessed as part of the SEA. It should be noted that at this stage these are strategic supply-side options that may be required in the future. They do not form a definitive list of options.

Alongside the BVP (WRMP24), two alternative plans (a Least Cost Plan (LCP) and Best Environment and Societal Plan (BESP)) were developed in line with the WRPG.

Table 2-1 below displays the options included within the BVP for Situations 1, 4 and 8. These represent the preferred pathway (Situation 4) and highest (Situation 1) and lowest (Situation 8) demand pathways.

Table 2-1: Best Value Plan – Selected Options Table

Option Name	BVP - Sit 1	BVP Sit 4	BVP Sit 8
Consumption Reduction Guildford High Basket	✓	✓	✓
Guildford Demand: Gov C+2	✓	✓	✓
Leakage Reduction Guildford High Basket	✓	✓	✓
SouthEast Water to Guildford	✓	✓	
Shalford Drought Permit		✓	✓
Media Campaigns - Guildford	✓	✓	✓
NEUB - Guildford	✓	✓	
TUB - Guildford	✓	✓	✓
Consumption Reduction Henley High Basket	✓	✓	✓
Henley Demand: Gov C+2	✓	✓	✓
Leakage Reduction Henley High Basket	✓	✓	✓
Transfer - Kennet Valley to Henley - Conveyance Element	✓	✓	
Sheeplands/Harpsden Drought Permit		✓	✓
Media - Henley	✓	✓	✓
NEUB - Henley	✓	✓	✓
TUB - Henley	✓	✓	✓
Teddington to Kempton Conveyance Element	✓	✓	✓
Consumption Reduction Kennet Valley High Basket	✓	✓	✓
Kennet Valley Demand: Gov C+2	✓	✓	✓
Leakage Reduction Kennet Valley High Basket	✓	✓	✓
Direct River Abstraction - Teddington to Thames Lee Tunnel Shaft 75 MLD	✓	✓	✓

Option Name	BVP - Sit 1	BVP Sit 4	BVP Sit 8
Groundwater Development - Recommission Mortimer Disused Source	✓	✓	
Interzonal transfer (T2ST): Kennet Valley spur to Speen (10Ml/d)	✓	✓	
Playhatch Drought Permit	✓	✓	✓
Media Campaigns - Kennet Valley	✓	✓	✓
NEUB - Kennet Valley	✓	✓	
TUB - Kennet Valley	✓	✓	✓
Catchment Portfolio: Darent and Cray	✓	✓	
Consumption Reduction London High Basket	✓	✓	✓
London Demand: Gov C+2	✓	✓	✓
Leakage Reduction London High Basket	✓	✓	✓
Groundwater Development - Addington	✓	✓	✓
Groundwater Development - Southfleet & Greenhithe	✓	✓	✓
Available Treatment Capacity at Coppermills WTW	✓	✓	✓
Available Treatment Capacity at West London WTWs	✓	✓	✓
New WTW at Kempton - 100Ml/d - Construction	✓	✓	
New shaft on the TWRM at Kempton - Construction	✓	✓	
Replace New River Head Pump - TWRM	✓	✓	
Media Campaign - London	✓	✓	✓
NEUB - London	✓	✓	✓
TUB - London	✓	✓	✓
New Reservoir - SESRO 150Mm3 - Construction	✓	✓	✓
Consumption Reduction Slough, Wycombe and Aylesbury High Basket	✓	✓	✓
Slough, Wycombe and Aylesbury Demand: Gov C+2	✓	✓	✓
Leakage Reduction Slough, Wycombe and Aylesbury High Basket	✓	✓	✓
Groundwater Development - Datchet Existing Source DO Increase	✓	✓	✓
New Medmenham Surface Water WTW Ph1 - Construction	✓	✓	
Thames Water Horspath (SWOX) to Thames Water Ashenden (SWA) Conveyance	✓	✓	
New Medmenham Surface Water Intake - 53 Ml/d	✓	✓	
Media Campaigns - SWA	✓	✓	✓
NEUB - SWA	✓	✓	
TUB - SWA	✓	✓	✓
Consumption Reduction Swindon and Oxfordshire High Basket	✓	✓	✓
Swindon and Oxfordshire Demand: Gov C+2	✓	✓	✓
Leakage Reduction Swindon and Oxfordshire High Basket	✓	✓	✓
Groundwater Development - Moulsford Groundwater Source	✓	✓	✓
Groundwater Development - Woods Farm Existing Source Increase DO	✓	✓	✓
Oxford Canal - Duke's Cut (SWOX) - Construction	✓	✓	
Henley to SWOX Transfer – 5 Ml/d		✓	

Option Name	BVP - Sit 1	BVP Sit 4	BVP Sit 8
Henley to SWOX 2.4 ML/d	✓		
Abingdon Reservoir to Farmoor Reservoir pipeline	✓	✓	
SWA to SWOX Transfer - Conveyance Element	✓	✓	✓
Thames Water Radnage (SWA) to Thames Water Bledlow (SWOX) Conveyance	✓	✓	✓
Thames Water Stokenchurch (SWA) to Thames Water Chinnor (SWOX) Conveyance	✓	✓	✓
Oxford Canal - Transfer from Duke's Cut to Farmoor	✓	✓	
Gatehampton Drought Permit	✓	✓	✓
Media Campaigns - SWOX	✓	✓	✓
NEUB - SWOX	✓	✓	✓
TUB - SWOX	✓	✓	✓
Teddington Direct River Abstraction (Indirect Water Recycling) 75 MLD - Construction	✓	✓	✓
Transfer of Treated Effluent from Mogden to Teddington 75Ml/d	✓	✓	✓
TWRM extension - Coppermills to Honor Oak - Construction	✓		
Deephams Water Recycling – 46.5 Ml/d, to TLT - Construction	✓		
Thames-Lee Tunnel extension from Lockwood PS to King George V Reservoir intake	✓		
Beckton Desalination	✓		
Managed Aquifer Recharge - Addington	✓		
Groundwater Development - Confined Chalk North London	✓		
Groundwater Development - Merton Recommissioning	✓		
Managed Aquifer Recharge - Kidbrooke (SLARS1) Construction	✓		
Managed Aquifer Recharge - Merton (SLARS3) Construction	✓		
Manager Aquifer Recharge - Horton Kirby ASR	✓	✓	✓
Beckton to Coppermills tunnel (treated) - Construction	✓		
Cheam to Merton - London Ring Main	✓		
Didcot Power Station Licence Trading	✓	✓	✓
Dapdune Licence Disaggregation	✓	✓	✓

3. Consultation

3.1 SEA Scoping Report Consultation

Thames Water used the WRSE SEA Scoping Report, which was issued for formal consultation for a six-week period between 18th September and 30th October 2020 to the Statutory Consultees: Natural England, Environment Agency, and Historic England. Prior to the formal consultation, the Scoping Report was issued for informal consultation to stakeholders to gain early feedback and agreement on key elements of the process. During the formal and informal consultation period stakeholders were able to comment on the proposed scope and approach for the SEA.

Comments received on the Scoping Report consultation were used to refine and finalise the SEA objectives and assessment approach. Responses to consultation on the SEA Scoping Report are included in Appendix A.

Following the Scoping Report consultation period, all consultation responses were reviewed and considered, as appropriate. Comments were received and encompassed agreement with aspects of the proposed approach, methodological questions and clarifications, along with suggested modifications and enhancements to the proposed approach and SEA Framework.

Where changes to the approach were suggested, these were considered in detail by the WRMP24 project team. Recommendations were incorporated based on factors such as:

- The extent to which they were already addressed by the SEA Framework
- Their specific applicability and relevance (including level of detail) to the purpose and scope of the WRMP
- The feasibility of carrying out realistic and informative assessments
- Proportionality in the context of the existing SEA Framework for water resources planning
- The significance of the expected effects on assessment results

Where Thames Water has specified within Annex A a change to be made to the WRMP24 as a result of the comments made, this change has been made within the WRMP24.

The plans and programmes review, baseline information and key issues were updated in the Environmental Report to make them more specific to Thames Water's supply area and relevant for the WRMP24.

3.2 SEA Environmental Report Consultation

The SEA for the draft WRMP24 (dWRMP24) was presented in an Environmental Report which was issued for consultation from November 2022 to March 2023. Comments received from the consultation process were reviewed and addressed where appropriate within the Environmental Report. Details of the consultation feedback and how the SEA Report was updated is presented in the Thames Water Statement of Response document[3].

[3] The Thames Water Draft WRMP24 Statement of Response document is available at: https://www.thameswater.co.uk/about-us/regulation/water-resources

Thames Water's WRMP24 is entirely located in the UK and therefore, transboundary consultation was not required. Consultation was undertaken with organisations and bodies outside of the Thames Water region as part of the public consultation process as potential environmental effects could extend beyond Thames Water's supply area, especially for the Strategic Resource Options.

The draft WRMP24 was updated to the revised draft WRMP24 (rdWRMP24) reflecting additional modelling work undertaken to optimise the plan as well as consultation feedback. The WRMP24 has now been finalised and published.

4. Findings of the SEA

4.1 Approach to the SEA

The SEA was undertaken in stages to feed into the development of the WRMP24 and influence the decision-making process:

- Option level SEA – the feasible list of options for the WRMP24 was assessed. These included supply options, demand management options, drought options and catchment management options. For options where the SEA identified potential major adverse effects, such as a pipeline route or tunnel shafts within designated sites or nationally significant heritage assets, the option design was reviewed and amended to mitigate these effects as far as possible for the stage of option design as at WRMP24, noting that WRMP is a strategic plan. The option was then re-assessed to ensure no significant residual effects remain as far as possible for this stage of option design. For options where minor effects were identified, mitigation measures were identified for future option development.
- WRMP Investment modelling – the results of the SEA were translated into numerical values (environmental metrics) using defined scoring criteria developed as part of the WRSE and professional judgement, for the purposes of the investment modelling. The environmental metrics were used as one of the Best Value Plan (BVP) Framework criteria to select the BVP and Best Environmental and Social Plan (BESP).
- Programme Appraisal – a cumulative effects assessment was undertaken for the BVP, Least Cost Plan (LCP) and BESP to consider the potential cumulative effects of each plan as a whole. The cumulative effects assessment was undertaken for Situations 1, 4 and 8 of the BVP, as these represent the preferred pathway and highest and lowest demand pathways, and for Situation 4 (i.e. the preferred pathway) for the LCP and BESP.
- Links with other plans, programmes and projects – the BVP was considered in combination with other plans and projects including neighbouring water company WRMPs, Hybrid Bills, Local Authority Local Development Plans, Development Consent Orders (DCOs) and major planning applications.

Full details of the SEA process and assessment methodology are presented in Section 4 of the SEA Report (Thames Water WRMP24 Appendix B: Strategic Environmental Assessment).

4.2 Summary of effects identified within the WRMP24 SEA

BVP Situation 4

Environmental and social considerations have strongly influenced the development of the WRMP24. The SEA cumulative effects assessment for BVP Situation 4 identified cumulative positive effects for the SEA objectives on biodiversity, water quality and vulnerability to climate risks due to the inclusion in the BVP of a 'High' Environmental Destination, consumption reduction options, changes in levels of service to enhance water available for use (WAFU) (i.e. media campaigns, TUBs, NEUBs) and leakage reduction. The cumulative effects of these options will result in more water being kept within the natural environment. Positive cumulative effects were also identified for the SEA objective on delivering reliable and resilient water supply to customers through delivery of new water supply options, increased capacity and improving transfers across the region.

The SEA cumulative effects assessment for BVP Situation 4 identified cumulative negative effects for SEA objectives on soil due to cumulative loss of agricultural land, carbon due to construction and operational carbon emissions across the plan, and resource use due to the cumulative effects of materials and resource use and waste production across the plan. We will continue work to identify mitigation for these effects as we develop our options through to detailed design and delivery.

The SEA cumulative effects assessment identified several options with the potential for interactions with the same receptors. This was largely due to temporary construction effects such as disturbance from noise, air and light pollution from different options where the construction periods overlapped. These receptors included Local Nature Reserves (LNRs), Sites of Special Scientific Interest (SSSI), heritage assets and community assets. Cumulative construction effects were identified on the following designated sites if the options and developments are constructed at the same time include:
Wytham Woods SSSI, Pixey and Yarnton Meads SSSI, Port Meadow with Wolvercote Common & Green SSSI may be affected by BVP options Oxford Canal - Transfer from Duke's Cut to Farmoor and Oxford Canal - Duke's Cut (SWOX) - Construction, as well as cumulative plans/projects Site Allocation EW1: Oxfordshire Cotswolds Garden Village, Site Allocation EW2: West Eynsham Strategic Development Area and Oxford Station Phase 2 Improvements TWAO.
Bushey Park and Home Park SSSI, Syon Park SSSI, Richmond Park SSSI and NNR, Isleworth Ait LNR, Hams Lands LNR and Ham Common LNR may be affected by BVP options Teddington Direct River Abstraction (Indirect Water Recycling) 75 MLD - Construction, Transfer of Treated Effluent from Mogden to Teddington 75Ml/d Direct River Abstraction - Teddington to Thames Lee Tunnel Shaft 75 MLD; as well as Waste Allocation 342: Twickenham Depot and the River Thames Scheme DCO. It was concluded that with implementation of best practice construction techniques to reduce the effects from noise, dust and light disturbance (described in Thames Water WRMP24 Appendix B: Strategic Environmental Assessment, Section 8.2) and a Construction Transport Management Plan in place for each option significant cumulative effects are not anticipated.

BVP Situation 1 and 8

BVP Situations 1 and 8 were also assessed, as they were considered to be representative of the range of ways in which the eight other pathways for the BVP differ to Situation 4. These Situations encompass all of the options selected across the nine BVP pathways.

The outcomes of the SEA cumulative effects assessment for BVP Situations 1 and 8 were very similar to those for BVP Situation 4. Situation 8 has fewer supply side options and therefore, the magnitude of cumulative effects is smaller. Situation 1 includes more supply side options than BVP Situation 4 and therefore, the magnitude of cumulative effects is larger.

Situation 1 included the following forecast drivers: high growth, high climate change and high environmental destination and as such contains additional options to meet this increased need that have been identified to have cumulative positive effects on the objectives: Biodiversity, Water, Climate Factors and Population and Human Health.

Situation 1 contains 11 additional options to Situation 4 including Beckton Desalination, Deephams reuse, and a number of groundwater and ASR options. Therefore, across the

Situation there is potential for higher carbon emissions, resource use, and disruption effects for biodiversity, heritage and communities.

Situation 8 included the following forecast drivers: Low population growth, medium climate change and medium environmental destination, i.e. a lower overall need than Situation 4. As such, Situation 8 contains fewer supply side options. There will be lower overall potential cumulative positive effects on the objectives for Biodiversity, Water, Climate Factors and Population and Human Health. However, there will also be lower overall cumulative negative effects, due to the reduction in the number of supply side options selected. Situation 8 does not include any options not already selected within Situation 4.

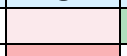
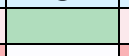
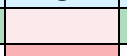
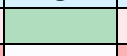
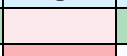
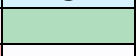
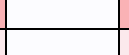
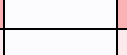
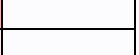
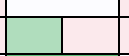
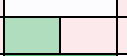
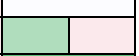
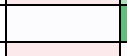
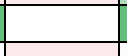
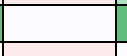
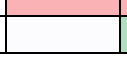
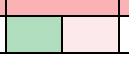
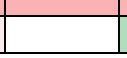
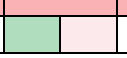
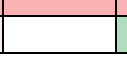
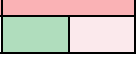
4.3 Comparison of BVP and Alternative Plans

Table 4-1 presents the comparison between the BVP, LCP and BESP (Situation 4) split into construction (C) and operational (O) effects. The effects across the plans for Situation 4 are very similar because the options selected are similar and the environmental destination selected is the same and is a strong driver, therefore, the overall scoring across the plans is the same. However, there are a few nuances within the scoring as outlined below. Note within Table 4-1 the plans may have both positive and negative effects under a SEA objective. Instead of offsetting these effects against each other, both positive and negative impacts were reported separately, as shown by the split cells in Table 4-1. The significance key used to undertake the SEAs is provided in Table 4-2.

Compared to the LCP, the BVP contains two additional Drought Permit options, as well as Henley to SWOX and Didcot raw water purchase, whilst the LCP contains two additional groundwater options, one AR option and Cheam to Merton transfer. Given the nature of these options and minor residual effects associated with them the differences are not likely to affect scores between the two plans significantly.

Compared to the BESP, the BVP contains Kempton 100, New River Head Pump, Abingdon 150 (instead of 75) and Didcot Raw Water Purchase, whilst the BESP contains Abingdon 75 (instead of 150), Beckton Desalination 100, two groundwater options, one AR option and Cheam to Merton transfer. The majority of these options have minor residual effects and the differences are not likely to significantly affect scores between the two plans. The BVP contains Kempton 100 which is a new WTW and the BESP contains Beckton desalination. However, both of these options will require large material and energy use and on their own do not change the scoring across the plans.

Table 4-1: Comparison of BVP and Alternative Plans (post-mitigation)

SEA Objective	BVP		LCP		BESP	
	C	O	C	O	C	O
1. Biodiversity						
2. Soils						
3. Flood risk						
4. Water quality						
5. Water supply						
6. Air quality						
7. Carbon emissions						
8. Climate change						

SEA Objective	BVP		LCP		BESP	
	C	O	C	O	C	O
9. Landscape						
10. Historic environment						
11. Health and wellbeing						
12. Tourism and recreation						
13. Resource use and waste						
14. Built assets and infrastructure						

Table 4-2: SEA Scoring Key and Significance

Qualitative Score	Description	Definition
+++	Major Positive	Substantial measurable beneficial change in the baseline. Effects would be one or more of the following: definite, borough/regional/national/European (high value receptor), long-term, permanent, direct or irreversible.
++	Moderate Positive	Measurable beneficial change in the baseline. Effects would be one or more of the following: definite, local borough, medium-term, semi-permanent or temporary, direct or indirect or reversible.
+	Minor Positive	Slight measurable beneficial change in the baseline. Effects would be one or more of the following: likely community/local, short-term, temporary, direct or indirect.
0	Neutral	No measurable effect on the baseline.
-	Minor Negative	Slight measurable adverse change in the baseline. Effects would be one or more of the following: likely community/local, short-term, temporary, direct or indirect.
- -	Moderate Negative	Measurable adverse change in the baseline. Effects would be one or more of the following: definite, local borough, medium-term, semi-permanent or temporary, direct or indirect or reversible.
- - -	Major Negative	Substantial measurable adverse change in the baseline. Effects would be one or more of the following: definite, borough/regional/national/European (high value receptors), long- term, permanent, direct or irreversible.

4.4 Benefits of the Preferred Plan

The Preferred Plan (the BVP) provides the best value for customers in the long-term whilst considering environmental and social metrics such as SEA performance, embodied carbon, BNG, and natural capital. The Thames Water WRMP24 Appendix B: Strategic Environmental

Assessment provides further information on how the preferred plan was chosen in light of the reasonable alternatives considered. The preferred plan:

- Prioritises demand management, which aligns with customers' expectations
- Recognises the environmental benefits of demand management, such as offsetting treatment and pumping costs and carbon
- Challenges Thames Water and its customers to push the boundaries of what is achievable with respect to levels of future consumption
- Maximises the use of existing resources before developing new ones
- Provides future flexibility over the location and type of new resource inputs
- Delivers significant additional resilience across the region both to drought and non-drought events (e.g., freeze-thaw)
- Delivers environmental benefits by reducing abstraction from the environment and ensuring no deterioration in the ecological status of water bodies in the region

5. Influence of the SEA on WRMP24 development

The SEA has been undertaken as an iterative process within the development of the WRMP24. It has influenced the WRMP24 option design and decision-making as follows:

- **Influence of feasible options assessments outcomes:** The SEA and other environmental assessments for the feasible options have influenced option rejection and option design iterations. Where feasible options had the potential to lead to unmitigable effects, they were rejected and not included in the investment modelling. The reasons for option rejection, including those on environmental grounds, are presented in the WRMP24 – Appendix Q: Scheme Rejection Register[4]. Where the assessments identified that feasible options would have significant effects that could be mitigated by option design iterations, these were fed back to the option teams. For example, the original Henley to SWOX transfer option cut through an area of ancient woodland. Re-routing of the pipeline to avoid this area was investigated and costed and the option design was updated. The environmental assessments also identified further option-specific and general mitigation, and recommended further investigations and monitoring, to be taken forward at the project level to guide future option development and implementation. The SEA also fed directly into the selection of options through use of the environmental metrics in the investment model. Environmental metrics were included within the best value planning criteria for the selection of options. The Thames Water WRMP24 Appendix B: Strategic Environmental Assessment, Section 5 provides further details.
- **Influence of Alternatives Plans Assessment Outcomes:** The assessment outcomes for the alternative plans were considered alongside the BVP outcomes to compare plan performance to determine if alternatives ways of delivering the plan would have better environmental outcomes. This needed to be balanced with other considerations such as cost and customer benefit when determining the BVP. The BVP Framework was used to ensure a balanced approach to selecting the WRMP. Due to the fact that there was a lot of overlap between the plans in terms of their components, the environmental assessment results were similar. This helped to demonstrate that the BVP was an appropriate choice when considered alongside the alternative plans. The Thames Water WRMP24 Appendix B: Strategic Environmental Assessment, Section 6 provides further details.
- **Influence of BVP Cumulative Effects Assessment Outcomes:** The overall effects of the WRMP24 in isolation and effects of the WRMP24 together with other plans and projects was examined. The aim was to identify whether any component of the WRMP24 would have significant cumulative environmental effects due to their proximity, effects on the same receptors and construction and operational timings. A few potential interactions were identified; however, these were largely associated with disturbance-related construction effects that can be mitigated and monitored. Therefore, it was not necessary to use alternative options or change the timings of option construction or operation. The Thames Water WRMP24 Appendix B: Strategic Environmental Assessment, Section 7 provides further details.

[4] The WRMP24 Appendix Q: Scheme Rejection Register is available at: Q - Scheme rejection register (thameswater.co.uk)

6. Mitigation and Monitoring Programme

6.1 Overview

Mitigation measures have been identified through the SEA process, the HRA process and the other environmental assessments (WFD, INNS, BNG). Each option has specific mitigation and monitoring proposals set out within Section 8.1 of the Environmental Report (Thames Water WRMP24 Appendix B: SEA) and summarised below. Proposed general mitigation measures and enhancement opportunities for the WRMP24 are described in the Environmental Report, Section 8.2 and 8.3.

6.2 Detailed Mitigation and Monitoring for the BVP

A detailed mitigation, further studies and monitoring plan for the options included within the BVP is presented in Table 8-1 of the Environmental Report and is presented below in Table 6-1. The individual SEA matrices, HRA, WFD, INNS and NC/BNG assessments have been reviewed and option specific mitigation measures, further studies and monitoring required for these options have been collated. Thresholds and potential types of remedial action have been included. These will be refined following completion of the identified further studies and during project-level design. Mitigation and further studies for Gate 3 for the SROs are summarised in Section 5.7 of the Environmental Report and detailed in the Gate 2 reports[5]. Table 6-1 also includes mitigation and monitoring for the identified potential cumulative effects of the BVP.

Where possible mitigation measures have been incorporated into the options development process. This has included pipeline re-routing and directional drilling to avoid significant effects on designated sites and heritage assets. Incorporation of these measures at this early strategic stage will help deliver a WRMP that benefits the environment and reduces the risk of significant negative effects and cost-prohibitive mitigation measures further down the line during detailed design of specific options.

The environmental monitoring plan is distinct from the “WRMP monitoring plan” referenced in Section 11 of our WRMP. The environmental monitoring plan includes ecological and environmental monitoring for individual options. In the overall WRMP monitoring, we will track the feasibility of schemes. If ecological or environmental assessments indicate that a scheme is not feasible, we will adapt our plan. Mitigation and monitoring detailed in Table 6-1 will be reviewed and further studies will be undertaken as part of the detailed design and delivery phases for each option.

Thames Water is committed to delivering the mitigation measures identified by the SEA, HRA, WFD, INNS, natural capital and BNG assessments at timepoints appropriate to the timing of option selection within the plan. The proposed mitigation measures and the outcomes of further studies and monitoring set out in Table 6-1 will help inform the project-level assessments required during later design stages (e.g. Environmental Impact Assessment). It is recognised that further detailed mitigation and monitoring at the project level will be required and will be developed as the options are taken forward. Thames Water will closely engage with Regulators

[5] Gate two submissions and final decisions - Ofwat

during project development and provide further details at the project level as the mitigation and monitoring plans are developed.

Table 6-1: Detailed mitigation and monitoring proposals for BVP options

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
South East Water to Guildford Year selected: 2045 Year first utilised: 2050	The option is adjacent to Broadmoor to Bagshot Woods and Heaths SSSI (75% favourable, 23% unfavourable - recovering, 0.5% unfavourable -no change) (designated for its heathland and woodland which support internationally important bird and nationally important dragonfly populations; under low risk pressure due to feature condition) and Basingstoke Canal SSSI (17% favourable, 20% unfavourable – recovering, 35% unfavourable – no change, 28% unfavourable – declining) (designated for its nationally important aquatic plants and invertebrates and under low risk pressure due to feature condition). Mitigation proposed: • Best practice construction to reduce impacts on SSSIs during construction. • Directional drilling under Basingstoke Canal SSSI. • Works outside the bird breeding season if possible.	Monitoring of SSSI condition and qualifying features during construction.	Thames Water project team / project Contractor (potentially in partnership with Natural England)	Monitoring surveys show adverse effects on qualifying features indicating mitigation is not effective.	Ecologist to review construction methods and develop additional mitigation.
	Approximately 50m from Henley Fort Scheduled Monument. Mitigation proposed: • Construction works area and any compounds to be situated away from the scheduled monument (if necessary mark out a buffer around the scheduled monument based on its mapped extents) • Consult with Historic England to confirm buffer is correct. • Review HER data to determine potential for archaeological artefacts outside of the buffer area • Best practice construction to reduce effects on setting of scheduled monument • Archaeological plan setting out procedure should archaeological artefacts be uncovered during excavation works.	Monitoring construction works area in relation to scheduled monument buffer. Archaeological monitoring of excavations. Project level heritage assessment.	Thames Water project team / project Contractor	Archaeological artefacts uncovered during monitoring. Risk identified of damage to scheduled monument (to be refined following heritage assessment).	Consult LPA heritage officer to determine appropriate remedial action (e.g. record, preserve in situ). Work with Historic England on a protection plan, CEMP, adjustment of construction methodology (to be refined following heritage assessment).

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	• Work with Local Planning Authority (LPA) heritage officer to determine requirements for geophysical surveys and trial trenching				
	Option has potential direct impacts on good quality semi-improved grassland, calcareous grassland, and deciduous woodland Priority Habitat associated with construction of the pipeline. Mitigation will include reinstatement of habitat to the current or better condition following pipeline construction.	Where habitat loss and/or damage occurs, despite measures to avoid or minimise this, the reinstatement of habitats, to be enhanced where feasible, must be carried out once the works are concluded. Monitoring condition of reinstated priority habitat.	Thames Water project team / project Contractor	Monitoring of reinstated habitat shows signs of poor habitat growth or degradation	Ecologist to visit site to identify possible reasons for habitat reinstatement failure and develop management plan
	HRA mitigation for Thames Basin Heaths SPA (10m from option) and Thursley, Ash, Pirbright and Chobham SAC (50m from option): • Standard best practice construction mitigation as detailed in the HRA Report • The project-level HRA will be used to inform project design; • Ahead of works, surveys must be undertaken to gather information on specific habitats within the SPA, and functionally linked land in the vicinity, that is used by bird species with the intention to inform the best pipeline route to avoid the areas most used by birds and ensure minimal habitat fragmentation (which is already a pressure on the site); • Micro siting at the project design stage will maximise the distance separating the SPA and project • If the project-level HRA screening identifies significant effects further mitigation measures will be developed through the project-level AA with the aim of concluding no effects on site integrity. • The project's CEMP will detail the mitigation measures necessary to safeguard the SPA in accordance with the Natural England's targets set out in 'Supplementary advice on conserving and restoring site features'. Such safeguards will be secured by a pre-	To refine the mitigation measures at the project stage, further studies are required to better understand how the qualifying species use the functionally linked habitats. Therefore, bird and habitat suitability surveys are required. Surveys will inform the CEMP, which will include all of the proposed mitigation measures and any further measures identified at the project stage, at which point mitigation will be refined. Monitoring surveys for qualifying bird species and supporting habitats will be required during construction to assess the effectiveness of proposed construction mitigation and allow adaptations to construction methodology and refinement of mitigation measures to be made if necessary. The scope of the monitoring surveys will be refined at the project stage and informed by the results of the above-mentioned studies.	Thames Water project team / project Contractor (potentially in partnership with Natural England)	Monitoring of qualifying features identifies condition/population changes (to be refined following project level surveys and studies)	Ecologist to review construction methods and develop additional mitigation (to be refined following project level surveys and studies)

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	commencement planning condition (if not permitted development) and adaptive management measures within the CEMP; • Potentially damaging activities (i.e. operations requiring Natural England consent) will not take place in or near the SPA unless a habitat protection and restoration plan is agreed with Natural England; • Potentially disturbing activities identified in the CEMP will not take place in the relevant SSSI Impact Risk Zone during breeding period (February to September inclusive) (Broadmoor to Bagshot Woods and Heaths SSSI overlaps with the SPA at one end of the pipeline). Early consultation with Natural England will be undertaken to discuss timescales.				
	WFD mitigation measures for Basingstoke Canal: • Dewatering for the construction to be discharged into the canal to help maintain flow/water level in accordance with any Environment Agency permitting requirements. WFD mitigation measures for Farnborough Bagshot Beds: • Use of clay stanks in pipeline route where groundwater potentially encountered. • Dewatering discharge to groundwater or surface water to help maintain flows in accordance with any Environment Agency permitting requirements. • Shafts to be sealed to ensure minimal groundwater ingress after construction. WFD mitigation for Chobham Bagshot Beds: • Use of clay stanks in pipeline route where groundwater potentially encountered • Dewatering discharge to groundwater or surface water to help maintain flows in accordance with any Environment Agency permitting requirements.	Monitoring of waterbodies	Thames Water project team / project Contractor	Monitoring of waterbodies identifies adverse changes in water level and/or water quality	Review of construction methods and dewatering

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	• Shafts to be sealed to ensure minimal groundwater ingress after construction.				
Groundwater Development - Recommission Mortimer Disused Source Year selected: 2040 Year first utilised: 2042	No specific mitigation identified apart from best practice construction methods.	None identified.	N/A	N/A	N/A
Groundwater Development – Addington Year selected: 2026 Year first utilised: 2029	The Grade II Listed Building 'Engine house and boiler house with adjoining chimney at the Addington Well pumping station' is located and associated within the existing water infrastructure site. The construction work involved would be planned so as to minimise potential effects to the heritage asset.	Monitoring construction works area in relation to Listed Building. Project level heritage assessment.	Thames Water project team / project Contractor	Construction activities are not screened appropriately leading to temporary impacts on setting (to be refined following heritage assessment). Risk identified of damage to Listed Building (to be refined following heritage assessment)	Appropriate screening to be implemented (to be refined following heritage assessment) Work with Heritage Specialist, LPA and Historic England on a protection plan, CEMP, adjustment of construction methodology (to be refined following heritage assessment)
	There is the potential for changes in level in a small pond north of the WTW, however the impacts can only be understood during pumping tests on the new borehole. It is proposed that the pond should be monitored and the impacts assessed during test pumping.	Further investigations are required to better understand the risk for the water body and may include: • Hydrogeological assessment of the impacts of increased groundwater abstraction on water balance and flows to surface water courses, taking into account the	Thames Water project team	Monitoring of waterbodies identifies adverse changes in water level and/or water quality (to be refined following project level studies)	Review abstraction, use restrictions (to be refined following project level studies)

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	WFD mitigation for Epsom North Downs Chalk groundwater body may be identified as being needed following the further studies outlined.	abstraction reductions in this waterbody due to the environmental destination. • Monitoring requirements needed at the pre- application stage to address potential water quality concerns. • Further information about option, including details on abstraction conditions.			
Groundwater Development - Southfleet & Greenhithe Year selected: 2025 Year first utilised: 2030	The option has potential direct effects on deciduous woodland and Priority Habitat during construction. Mitigation will include reinstatement of habitat to the current or better condition following pipeline construction.	Monitoring of priority habitats and species reinstatement	Thames Water project team / project Contractor	Monitoring of reinstated habitat shows signs of poor habitat growth or degradation	Ecologist to visit site to identify possible reasons for habitat reinstatement failure and develop management plan
	The option is located approximately 100m from the Springhead Roman Scheduled Monument. Mitigation proposed: • Construction works area and any compounds to be situated away from the scheduled monument (if necessary mark out a buffer around the scheduled monument based on its mapped extents) • Consult with Historic England to confirm buffer is correct. • Review HER data to determine potential for archaeological artefacts outside of the buffer area • Best practice construction to reduce effects on setting of scheduled monument • Archaeological plan setting out procedure should archaeological artefacts be uncovered during excavation works. • Work with Local Planning Authority (LPA) heritage officer to determine requirements for geophysical surveys and trial trenching	Monitoring construction works area in relation to scheduled monument buffer. Archaeological monitoring of excavations. Project level heritage assessment.	Thames Water project team / project Contractor	Archaeological artefacts uncovered during monitoring. Risk identified of damage to scheduled monument (to be refined following heritage assessment).	Consult LPA heritage officer to determine appropriate remedial action (e.g. record, preserve in situ). Work with Historic England on a protection plan, CEMP, adjustment of construction methodology (to be refined following heritage assessment).

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	WFD mitigation measure for North Kent Medway Chalk: • Mitigation measures include scenario modelling, restricting upstream use, augmentation/ compensation flow in surface watercourses and licence capping through use of HOF restrictions, if deemed appropriate after further investigation. WFD mitigation measures for West Kent Darent and Cray Chalk: • Recommended next steps and mitigation measures include scenario modelling, restricting upstream use, augmentation/ compensation flow in surface watercourses and licence capping through use of HOF restrictions, if deemed appropriate after further investigation.	Further investigations are required to confirm the WFD assessment and could include: • Hydrogeological assessment of the impacts of increased groundwater abstraction on water balance and flows to surface water courses, taking into account the likely changes in abstraction at the quarry and any abstraction reductions in these waterbodies due to the environmental destination. • Further details on the option, including details on scheme operation	Thames Water project team / project Contractor	Monitoring of waterbodies identifies adverse changes in water level and/or water quality (to be refined following project level studies)	Review abstraction, use restrictions (to be refined following project level studies)
Available Treatment Capacity at Coppermills WTW	No specific mitigation identified apart from best practice construction methods.	None identified	N/A	N/A	N/A
Available Treatment Capacity at West London WTWs Year selected: 2021 Year first utilised: 2033	No specific mitigation identified apart from best practice construction methods.	None identified	N/A	N/A	N/A
New WTW at Kempton - 100Ml/d – Construction and New shaft on the TWRM at Kempton	The wider option is adjacent to Kempton Park Reservoirs SSSI (100% unfavourable - recovering) and Kempton Nature Reserves LNR, and the South West London Waterbodies SPA / Ramsar, as identified within the HRA ToLS. Kempton Park Reservoir SSSI is designated for its wintering bird populations, particularly wading birds such as shoveler (*Anas clypeata*) and gadwall (*Anas strepera*). There are several potential	It is recommended that further studies should be conducted to identify flight patterns of the wintering birds that use the designated site (and associated functional habitat), and an assessment should be conducted in response to project activities. Noise assessment to be completed during the detailed design and planning/permit	Thames Water project team / project Contractor (potential for partnership with Natural England)	Monitoring of qualifying features identifies condition/population changes (to be refined following project level surveys and studies)	Ecologist to review construction methods and develop additional mitigation (to be refined following project level

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
Year selected: 2045 Year first utilised: 2050	locations for the WTW within the existing site. The 100Ml/d option is proposed be 250m from the designated sites next to the current operational works. Mitigation should ensure the design keeps to this area rather than other areas closer the designated sites. HRA mitigation for South West London Waterbodies SPA and Ramsar site: • timing of construction activities with the greatest risk of noise/visual disturbance should be planned to avoid the most sensitive times of the year for wintering bird species (October to March inclusive).	applications and associated HRA, prior to commencement of works to ensure mitigation measures will be effective (if not, seasonal avoidance to be used).			surveys and studies)
	Depending on the location of the treatment works, there is potential for loss of deciduous woodland Priority Habitat. Mitigation will include reinstatement of habitat to the current or better condition following pipeline construction.	Monitoring of priority habitats and species reinstatement	Thames Water project team / project Contractor	Monitoring of reinstated habitat shows signs of poor habitat growth or degradation	Ecologist to visit site to identify possible reasons for habitat reinstatement failure and develop management plan
	The existing Kempton site includes three Grade II listed buildings and one scheduled monument. The new works do not directly impact these assets and mitigation measures will include best practice construction to reduce effects on the setting of the heritage assets.	Monitoring construction works area in relation to scheduled monument buffer. Archaeological monitoring of excavations. Project level heritage assessment.	Thames Water project team / project Contractor	Archaeological artefacts uncovered during monitoring. Risk identified of damage to scheduled monument (to be refined following heritage assessment).	Consult LPA heritage officer to determine appropriate remedial action (e.g. record, preserve in situ). Work with Historic England on a protection plan, CEMP, adjustment of construction methodology (to be refined following heritage assessment).
Replace New River Head Pump – TWRM	No specific mitigation identified apart from best practice construction methods.	None identified	N/A	N/A	N/A

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
Year selected: 2045 Year first utilised: 2050					
Groundwater Development - Datchet Existing Source DO Increase Year selected: 2025 Year first utilised: 2030	WFD mitigation for Maidenhead Chalk: • Mitigation could include restricting to upstream use, augmentation/ compensation flow in surface watercourses and licence capping through use of HOF restrictions, if deemed appropriate after further investigation.	Further investigations are required to better understand the risks to water body status. This option includes for installation of observation boreholes and the requirement for a low flow study to understand the implications of the abstraction. Further information on how the option will be operated (abstraction conditions) will also be required. This investigation would help in the identification of further mitigation measures, if required.	Thames Water/Thames Water project team	Monitoring of waterbodies identifies adverse changes in water level and/or water quality (to be refined following project level studies)	Use restrictions (to be refined following project level studies)
New Medmenham Surface Water WTW Year selected: 2047 Year first utilised: 2050	Proposed pipeline is adjacent to Widdenton Park Wood SSSI (100% favourable). Widdenton Park Wood SSSI is designated for its unusual example of mature ancient semi-natural oak-beech woodland with interesting and locally uncommon plant species. Mitigation measures during construction will include ensuring the construction corridor avoids the SSSI.	Monitoring of SSSI feature condition	Thames Water project team / project Contractor	Monitoring surveys show adverse effects on SSSI features indicating mitigation is not being effective Work proposed within tree root protection zone with risk of damage to tree roots	Ecologist to review construction methods and develop additional mitigation CEMP which may include establishing tree protection zones with fencing or adjustment of construction methodology
	WFD mitigation for South-West Chilterns Chalk: • Further investigation into impact on groundwater levels of dewatering for construction and consideration of requirement to return water to the ground (through recharge trenches) to help minimise the impact of construction, if required. • Use of clay stanks in pipeline route where groundwater potentially encountered.	Further investigation will be carried out to confirm the WFD assessment, including assessment of the groundwater level changes due to construction dewatering and potential implications on the GWDTE and on local watercourses. This investigation can also help identification of further mitigation measures, such as consideration of requirements to return	Thames Water project team/ project Contractor	Monitoring shows lowering of groundwater levels (to be refined following project level studies)	Recharge trenches to return water (to be refined following project level studies)

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	• Where possible, ensure shafts for horizontal directional drilling (HDD) launch and reception are located outside/further from the SSSI. • Shafts to be sealed to ensure minimal groundwater egress after construction.	water to the ground (through recharge trenches) to help minimise the impact of construction.			
New Medmenham Surface Water Intake - 53 Ml/d Year selected: 2045 Year first utilised: 2050	Option requires abstraction from River Thames. Rodbed Wood SSSI (100% favourable) and Temple Island Meadows SSSI (21% favourable, 79% unfavourable - recovering), which are located approx. 1.5km along the River Thames. Rodbed Wood SSSI is an area of Thames-side willow and alder woodland fed by a ditch draining water from adjacent water meadows. Temple Island Meadows SSSI consists of a series of slightly improved, sheep grazed, wet meadows which have developed on typical argillic brown earths and pelo-calcareous gley soils over alluvium. Their location, adjacent to the River Thames, renders them subject to seasonal flooding and waterlogging. Abstraction levels are unlikely to affect these sites but it is recommended that mitigation includes monitoring river levels and the condition of the sites.	Monitor river levels in the Thames and condition of designated sites downstream.	Potential partnership with Natural England and the Environment Agency for river and designated sites monitoring.	Lowering of river levels Condition of downstream designated sites show deterioration	Review abstraction rates and consult with an ecologist to develop remedial actions
	The pipeline is approximately 75m from a Roman Villa at Mill End Scheduled Monument. Mitigation proposed: • Construction works area and any compounds to be situated away from the scheduled monument (if necessary mark out a buffer around the scheduled monument based on its mapped extents) • Consult with Historic England to confirm buffer is correct. • Review HER data to determine potential for archaeological artefacts outside of the buffer area • Best practice construction to reduce effects on setting of scheduled monument • Archaeological plan setting out procedure should archaeological artefacts be uncovered during excavation works.	Monitoring construction works area in relation to scheduled monument buffer. Archaeological monitoring of excavations. Project level heritage assessment.	Thames Water project team / project Contractor	Archaeological artefacts uncovered during monitoring. Risk identified of damage to scheduled monument (to be refined following heritage assessment).	Consult LPA heritage officer to determine appropriate remedial action (e.g. record, preserve in situ). Work with Historic England on a protection plan, CEMP, adjustment of construction methodology (to be refined following heritage assessment).

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	• Work with Local Planning Authority (LPA) heritage officer to determine requirements for geophysical surveys and trial trenching				
Groundwater Development - Moulsford Groundwater Source Year selected: 2030 Year first utilised: 2033	HRA mitigation for Hartslock Wood SAC (approximately 2.3km from option): • Standard best practice procedures during construction as set out in the HRA Report • The project's CEMP will detail the mitigation measures necessary to safeguard the SAC in accordance with the Natural England's targets set out in 'Supplementary advice on conserving and restoring site features'; • Potentially damaging activities (i.e. operations requiring Natural England consent) will not take place in or near the SAC unless a habitat protection and restoration plan agreed with Natural England; • Surveys will inform the CEMP which will include all of the above proposed mitigation measures and any further measures identified at the project stage.	Monitoring surveys for qualifying habitats will be required during construction to assess the effectiveness of proposed mitigation and allow adaptations to construction methodology and refinement of mitigation measures to be made if necessary. The scope of the monitoring surveys will be refined at the project stage and informed by the results of the studies. Where habitat loss and/or damage occurs, despite measures to avoid or minimise this, the reinstatement of habitats, to be enhanced where feasible, must be carried out once the works are concluded.	Thames Water project team / project Contractor	Monitoring of qualifying features identifies condition/population changes (to be refined following project level surveys and studies)	Ecologist to review construction methods and develop additional mitigation (to be refined following project level surveys and studies)
	WFD mitigation for Thames Wallingford to Caversham: • Industry best practice for pollution prevention. • Add licence condition for upstream use. WFD mitigation for Berkshire Downs Chalk: • Industry best practice for pollution prevention.	Since the rdWRMP24 initial high level groundwater modelling and WFD assessment has been carried out to assess the likely impact of this option on river flow. Following this further investigation, design development and implementation of any resultant targeted mitigation, this option does not lead to a WFD deterioration or an impediment to reaching future objectives and is therefore compliant under WFD. Monitoring of waterbodies during construction	Thames Water project team / project Contractor	Monitoring of waterbodies identifies adverse changes in water quality	Review of construction methods and pollution prevention
Groundwater Development - Woods Farm	Ancient woodland area adjacent to works corridor. Mitigation measures will include ensuring the works do not encroach on the ancient woodland and stay within the road.	Monitoring of construction works area in relation to tree roots.	Thames Water project team / project Contractor	Work proposed within tree root protection zone with risk of damage to tree roots	CEMP which may include tree fencing to be set up around root

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
Existing Source Increase DO Year selected: 2025 Year first utilised: 2030				of trees in the ancient woodland	protection zones or adjustment of construction methodology
	The pipeline overlaps with priority habitats including deciduous woodland and good quality semi-improved grasslands. Mitigation will include reinstatement of habitat to the current or better condition following pipeline construction.	Monitoring of priority habitats and species reinstatement	Thames Water project team / project Contractor	Monitoring of reinstated habitat shows signs of poor habitat growth or degradation	Ecologist to visit site to identify possible reasons for habitat reinstatement failure and develop management plan
	Grim's Ditch scheduled monument is adjacent to the option. Mitigation proposed: • Construction works area and any compounds to be situated away from the scheduled monument (if necessary mark out a buffer around the scheduled monument based on its mapped extents) • Consult with Historic England to confirm buffer is correct. • Review HER data to determine potential for archaeological artefacts outside of the buffer area • Best practice construction to reduce effects on setting of scheduled monument • Archaeological plan setting out procedure should archaeological artefacts be uncovered during excavation works. • Work with Local Planning Authority (LPA) heritage officer to determine requirements for geophysical surveys and trial trenching	Monitoring construction works area in relation to scheduled monument buffer. Archaeological monitoring of excavations. Project level heritage assessment.	Thames Water project team / project Contractor	Archaeological artefacts uncovered during monitoring. Risk identified of damage to scheduled monument (to be refined following heritage assessment).	Consult LPA heritage officer to determine appropriate remedial action (e.g. record, preserve in situ). Work with Historic England on a protection plan, CEMP, adjustment of construction methodology (to be refined following heritage assessment).
	WFD mitigation for Berkshire Downs Chalk: • Alternative mitigation measures could include augmentation/ compensation flow in surface watercourses and licence capping through use of HOF restrictions, if deemed appropriate after AMP8 WINEP	Since the rdWRMP24 initial high level groundwater modelling and WFD assessment has been carried out to assess the likely impact of this option on river flow. Further investigations are required to better understand the risks of this option and could include:	Thames Water / Thames Water project team / project Contractor	Monitoring of waterbodies identifies adverse changes in water level and/or water quality (to be refined following project level studies)	Use restrictions (to be refined following project level studies)

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
		• This option will be included within the Woods Farm AMP8 WINEP No deterioration assessment, where it will likely be further developed through subsequent feasibility investigations. • The potential for upstream use will be investigated to ensure its sustainability. If upstream use is confirmed as feasible, this restriction would be added to the licence. Since this water would then be returned into this watercourse (from the upstream STW), there would be no net reduction in flow, removing the potential for deterioration of the surface water body. For the Berkshire Downs Chalk groundwater body, a review of the network to document the upstream use of the water as part of the AMP8 WINEP investigation is proposed.			
Oxford Canal - Duke's Cut (SWOX) – Construction Year selected: 2037 Year first utilised: 2040	The option is associated with the canal route and passes several SSSIs and heritage assets. Minor works along the canal will be undertaken and best practice mitigation will be implemented to reduce construction related disturbance effects.	Project level ecological assessment and heritage assessment Monitoring of ecological and heritage asset condition	Thames Water project team / project Contractor	To be confirmed following ecological and heritage assessments	To be confirmed following ecological and heritage assessments
	HRA mitigation for Oxford Meadows SAC (300m from option) and Cannock Extension Canal SAC (adjacent to option): • CIRIA C741 Environmental good practice on site guide • Environment Agency's PPGs (PPG1: General Guide to Prevention of Pollution; PPG6: Pollution prevention guidance for working at construction and demolition sites).	Monitoring of pollutants immediately downstream of the restoration and improvement areas, to adapt mitigation measures as needed, is required to ensure that significant levels of contaminants are not being transferred into the Oxford Canal. Specific monitoring of qualifying features within the Habitats Sites to inform mitigation measures during the construction phase is also required, due to the proximity between	Potential partnership with Natural England and the Environment Agency for canal and Habitats sites monitoring.	Monitoring of pollutants level downstream identifies higher concentrations Monitoring of qualifying features identifies condition/population changes	Review construction practices and put additional mitigation in place to contain pollutants Ecologist to review construction

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	• Biosecurity measures to ensure appropriate removal and/or management control of INNS at source. • Specific mitigation to reduce increased sedimentation and silt deposition downstream include: o Planning site layout so that machinery and dust causing activities are located away from the site, as far as is possible. o Planning silt screening around the area of works to limit the movement and redeposition of material. o Ensure vehicles entering and leaving sites are securely covered to prevent escape of materials during transport.	the sites and the option, as well as the presence of functionally linked habitats (waterbodies such as streams and ponds).			methods and develop additional mitigation
	Although there is limited water quality data, more is being collected as part of this project, as appropriate to the timing of option selection within the plan. It is therefore currently considered that there is a low risk of deterioration of the water quality in the canal water bodies, although this is subject to the provision of further option information and a more in-depth water quality review. In addition, river water bodies were also assessed. Based on the above, it is assumed that any connected river water bodies would also be at low risk of deterioration in status following the implementation of this option, although this is subject to further analysis.	WFD proposed further studies are recommended: • Water quality monitoring • Water quality analysis • Hydrological studies • Hydroecology investigations	Thames Water project team	To be confirmed following outcomes of further studies	To be confirmed following outcomes of further studies
Henley to SWOX transfer– 5 Ml/d Year selected: 2035 Year first utilised: 2040	The pipeline will run along road immediately adjacent to Ancient Woodland. Mitigation measures will include ensuring the construction works to do not encroach on the ancient woodland area.	Monitoring of construction works area in relation to tree roots.	Thames Water project team / project Contractor	Work proposed within tree root protection zone with risk of damage to tree roots	CEMP which may include tree fencing to be set up around root protection zones or adjustment of construction methodology
	The pipeline route runs along a road through Greys Court Registered Park and Garden. Mitigation	Monitoring construction works area in relation to Registered Park and Garden.	Thames Water project team /	Proposed construction works	Move construction works area away

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	measures will include ensuring the construction works stay within the road and do not encroach on the Registered Park and Garden.	Project level heritage assessment.	project Contractor	area encroaching on Registered Park and Garden Risk identified of damage to Registered Park and Garden (to be refined following heritage assessment)	from Registered Park and Garden. Work with Heritage Specialist, LPA and HE on a protection plan, CEMP, adjustment of construction methodology (to be refined following heritage assessment)
	WFD mitigation for Maidenhead Chalk and South-West Chilterns Chalk: • Dewatering discharge to surface water or groundwater to minimise impact of dewatering during construction.	Further investigation will be carried out to confirm the WFD assessment, including assessment of the groundwater level changes due to construction dewatering. This investigation can also help identification of further mitigation measures, such as consideration of requirements to return water to the ground (through recharge trenches) to help minimise the impact of construction.	Thames Water project team / project Contractor	Lowering of groundwater levels (to be refined following project level studies)	Recharge trenches to return water (to be refined following project level studies)
Abingdon Reservoir to Farmoor Reservoir pipeline Year selected: 2035 Year first utilised: 2040	The option is approximately 80m from Frilford Heath, Ponds and Fens (100.00% unfavourable - recovering), 100m from Cothill Fen SSSI (65.22% favourable, 34.78% unfavourable - recovering), and 600m from Barrow Farm Fen SSSI. Frilford Heath, Ponds and Fens SSSI is designated for its vast flora diversity and the national and regional rarities in its insect communities. Cothill Fen SSSI supports outstanding examples of nationally rare calcareous fen and moss-rich mire communities together with associated wetland habitats. Mitigation measures will include best practice construction to reduce effects associated with noise, light and dust pollution.	Habitat surveys are to be conducted ahead of construction to inform the pipeline route in areas where protected habitats may be affected. Surveys will inform the CEMP which will include all the proposed mitigation measures and any further measures identified at the project stage. Once the construction is complete habitats will be reinstated.	Thames Water project team / project Contractor	Monitoring of qualifying features identifies condition/population changes (to be refined following project level surveys and studies)	Ecologist to review construction methods and develop additional mitigation (to be refined following project level surveys and studies)
	The pipeline overlaps with priority habitats including deciduous woodland. Mitigation will include	Monitoring of priority habitats and species reinstatement	Thames Water project team /	Monitoring of reinstated habitat	Ecologist to visit site to identify

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	reinstatement of habitat to the current or better condition following pipeline construction.		project Contractor	shows signs of poor habitat growth or degradation	possible reasons for habitat reinstatement failure and develop management plan
	HRA mitigation for Cothill Fen SAC (approximately 100m from the option): • CIRIA C741 Environmental good practice on site guide • Environment Agency's PPGs (PPG1: General Guide to Prevention of Pollution; PPG6: Pollution prevention guidance for working at construction and demolition sites), 'Guidance Notes for the Reduction of Obtrusive Light'. • Biosecurity measures to ensure appropriate removal and/or management control of INNS (terrestrial) at source. • At this stage it is not clear how close vehicle movements or supporting area for the construction work will be undertaken. Such activity should be as far from the site as possible given the recognised risk of soil/roots compaction and dust. • Specific mitigation for night works and artificial lighting will incorporate lighting hoods to minimise the light spill. • Development of a CEMP which will include all the above proposed mitigation measures and any further measures identified as required at the project stage, at which point the mitigation will be refined.	Monitoring surveys for qualifying habitats will be required during construction to assess the effectiveness of proposed mitigation and allow adaptations to construction methodology and refinement of mitigation measures to be made if necessary. The scope of the monitoring surveys will be refined at the project stage and informed by the results of the above-mentioned surveys.	Thames Water project team / project Contractor	Monitoring of qualifying features identifies condition/population changes (to be refined following project level surveys and studies)	Ecologist to review construction methods and develop additional mitigation (to be refined following project level surveys and studies)
	Three scheduled monuments within 500m of the option: Sutton Wick settlement site (300m), Settlement site north of Cow Lane (200m), Dovecote at Culham Manor (400m). Mitigation measures will include best practice construction to reduce effects of the setting of these assets.	Monitoring construction works area and screening in relation to scheduled monument. Project level heritage assessment.	Thames Water project team / project Contractor	Construction activities are not screened appropriately leading to temporary impacts on setting (to be refined following heritage assessment).	Appropriate screening to be implemented (to be refined following heritage assessment)

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	INNS mitigation may include a WTW at Abingdon Reservoir. Additional space and capacity could be found within the planned site to contain any process required for mitigation.	This will be explored further through SESRO Gate 3.	SESRO SRO team	To be confirmed at Gate 3	To be confirmed at Gate 3
	WFD mitigation for Thames (Evenlode to Thame) • Provision for de-chlorination of pipeline water when draining down pipeline before discharge to watercourse. • Fish and eel screening at new intake. • This option will be used in conjunction with other SRO (SESRO) and additional abstraction is likely to only occur during wetter periods or when river flow support is provided by the SESRO SRO.	Further investigation will be undertaken to confirm the WFD assessment and could include modelling of the impact of flow changes on habitats, sedimentation and biology as a result of new abstraction when considered in combination with SESRO. This investigation can also help identification of further mitigation measures through hydrological and other studies.	Thames Water project team	To be confirmed following project level studies	To be confirmed following project level studies
Oxford Canal - Transfer from Duke's Cut to Farmoor Year selected: 2035 Year first utilised: 2040	The pipeline overlaps with priority habitats including coastal and floodplain grazing marsh and lowland meadows. Mitigation will include reinstatement of habitat to the current or better condition following pipeline construction.	Monitoring of priority habitats and species reinstatement	Thames Water project team / project Contractor	Monitoring of reinstated habitat shows signs of poor habitat growth or degradation	Ecologist to visit site to identify possible reasons for habitat reinstatement failure and develop management plan
	In proximity to the following SSSIs (which are all GWDTE): Wytham Woods (500m), Pixey and Yarnton Meads (900m), Wytham Ditches and Flushes (1km), Hook Meadow and The Traps Grounds (1km), Cassington Meadows SSSI (1.2km), Wolvercote Meadows (1.5km), Port Meadow with Wolvercote Common and Green (1.6km). Mitigation measures will include best practice construction to reduce effects associated with noise, light and dust pollution.	Monitoring of SSSI condition and qualifying features during construction.	Thames Water project team / project Contractor (potential partnership with Natural England)	Monitoring surveys show adverse effects on qualifying features indicating mitigation is not being effective	Ecologist to review construction methods and develop additional mitigation
	HRA mitigation for Oxford Meadows SAC (approximately 900m from option): • CIRIA C741 Environmental good practice on site guide • Environment Agency's PPGs (PPG1: General Guide to Prevention of Pollution; PPG6: Pollution prevention guidance for working at construction and demolition sites).	Monitoring of pollutants immediately downstream of the proposed works, to adapt mitigation measures as needed, is required to ensure that significant levels of contaminants are not being transferred into the Habitats Site. Specific monitoring of qualifying features within the Habitats Site to inform mitigation measures during the construction phase is	Potential partnership with Natural England and the Environment Agency for river/canal and Habitats sites monitoring.	Monitoring of pollutants level downstream identifies higher concentrations than expected with mitigation applied Monitoring of qualifying features	Review construction practices and put additional mitigation in place to contain pollutants

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	• Best practice such as BS 5228-1:2009+A1:2014 (The British Standards Institute, 2008) to avoid significant effects due to noise. • Best practice such as 'Guidance Notes for the Reduction of Obtrusive Light' (Institute of Lighting Professionals, 2011) to avoid significant effects due to increased light (if works are programmed at night). • Biosecurity measures to ensure appropriate removal and/or management control of INNS at source. Development of a CEMP which will include all the above proposed mitigation measures and any further measures identified at the project stage, at which point the mitigation measures will be refined.	also required, due to the proximity between the sites and the option, as well as the presence of functionally linked habitats (waterbodies such as streams and ponds).		identifies condition/population changes	Ecologist to review construction methods and develop additional mitigation
	WFD mitigation measures for Thames (Leach to Evenlode) water body: • Adjustment of discharge conditions to minimise impact on biology, hydromorphology and water quality. WFD mitigation measures for Oxford Canal Thrupp to Thames: • Adjustment of abstraction conditions to minimise impact on biology and water quality. • Fish/eel screens on intake structure	Further investigations are required to better understand the risks to water body status and these assessments could include: • Water quality review. This could potentially lead to requirement for additional water quality monitoring to understand water quality baseline and how the option could affect it. This will allow appropriate mitigation to be included where possible. • Review of baseline ecological WFD data. This could potentially to requirement for additional ecology monitoring to understand ecology baseline and how it could be affected by the option. This will allow appropriate mitigation to be included where possible. • Further information on the construction and operation of the option.	Thames Water project team / Potential partnership with the Environment Agency for river/canal monitoring.	Monitoring of waterbodies identifies adverse changes in water level and/or water quality (to be refined following project level studies)	Adjustment of discharge conditions Adjustment of abstraction conditions (to be refined following project level studies)

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
		• Hydroecology study to understand changes in water level from new abstraction, including impacts on biology and water quality. This investigation could also help identification of further mitigation measures. • Further information about how the option will be operated.			
Manager Aquifer Recharge - Horton Kirby ASR Year selected: 2026 Year first utilised: 2030	The pipeline overlaps with priority habitats including coastal and floodplain grazing marsh and lowland meadows. Mitigation will include reinstatement of habitat to the current or better condition following pipeline construction.	Monitoring of priority habitats and species reinstatement.	Thames Water project team / project Contractor	Monitoring of reinstated habitat shows signs of poor habitat growth or degradation	Ecologist to visit site to identify possible reasons for habitat reinstatement failure and develop management plan
	The pipeline runs along the road adjacent to Franks Hall Registered Park and Garden. Mitigation measures will include ensuring the works corridors stay within the road and does not encroach on the Registered Park and Garden. Three Scheduled Monuments are 250m from the option. Mitigation measures will include best practice construction to reduce effects of the setting of these assets.	Monitoring construction works area in relation to the heritage assets. Project level heritage assessment.	Thames Water project team / project Contractor	Proposed construction works area encroaching on heritage assets Risk identified of damage to heritage assets (to be refined following heritage assessment)	Move construction works area away from heritage assets. Work with Heritage Specialist, LPA and HE on a protection plan, CEMP, adjustment of construction methodology (to be refined following heritage assessment)
	WFD mitigation measures for West Kent Darent and Cray Chalk: • Suggested mitigation include restricting upstream use, augmentation/ compensation flow in surface watercourses and licence capping through use of HOF restrictions for	Further investigation is required to better understand the risks to water body status taking into account the quarry activities and environmental destination changes. These investigations may include a hydrogeological study to establish if this		Monitoring of groundwater and surface water identifies adverse changes in flows or levels which could	Restrictions to licence abstractions.

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	abstraction from Chalk to recharge ASR, if deemed appropriate after further investigation	option will negatively impact groundwater flow and levels, as well as associated surface water flow. This investigation can also help identification of further mitigation measures, such as licence restrictions on abstraction.		have negative impact to waterbody status	
Didcot Power Station Licence Trading Year selected: 2026 Year first utilised: 2026	None identified	None identified	N/A	N/A	N/A
SWA to SWOX conveyance options	None identified – existing transfer.	None identified	N/A	N/A	N/A
Dapdune Licence Disaggregation	None identified. No WFD mitigation as operation is to the current licenced limits.	Test pumping to understand the potential impact of the change in peak abstraction rate on the River Wey is included as part of this option. Monitor river levels and flows.	Thames Water project teams / project Contractor	Monitoring of River identified adverse changes in flows or levels which could have negative impact to waterbody status	Restrictions to licence abstractions.
Cumulative Effects	Potential for cumulative construction disturbance effects on the following SSSIs (which are also GWDTE): Wytham Woods, Pixey and Yarnton Meads, Wytham Ditches and Flushes, Hook Meadow and The Traps Grounds, Cassington Meadows SSSI, Wolvercote Meadows, Port Meadow with Wolvercote Common and Green (from Oxford Canal Duke's Cut and Duke's Cut to Farmoor options). Implementation of best practice construction techniques and a CTMP.	Monitor the SSSIs during construction activities.	Thames Water project teams / project Contractor	Deterioration in SSSI condition during construction	Ecologist to review construction plan and methods and advise further mitigation.
	Potential for indirect construction effects on Frilford Heath, Ponds & Fens (SSSI) (GWDTE) and Barrow Farm Fen (SSSI) (GWDTE) from Abingdon to Farmoor pipe and Abingdon Reservoir options. Implementation of best practice construction techniques and a CTMP.	Monitor the SSSIs during construction activities.	Thames Water project teams / project Contractor	Deterioration in SSSI condition during construction	Ecologist to review construction plan and methods and advise further mitigation.

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
	One waterbody was assessed to have the potential for an increased risk of WFD deterioration due to the multiple options (Moulsford and Woods Farm Groundwater options). This is water body GB40601G600900 Berkshire Downs Chalk. This water body already has a poor status for quantitative dependent surface water body status so the increased abstraction could further exacerbate the issue. The environmental destination scenarios include closure of Bradfield and licence reduction at Pangbourne (reducing abstraction by 1.64Ml/d by 2030 and 5Ml/d by 2035 respectively) in this waterbody. These environmental destination reductions will help to reduce the cumulative impact of these options, and it is anticipated that with appropriate mitigation there would be no increased risk of deterioration. Further investigation is needed (such as scenario modelling, hydroecology assessment) to confirm this	Further investigations to confirm risk to Berkshire Down Chalk including scenario modelling and hydroecology assessment.	Thames Water project teams in partnership with Environment Agency	Monitoring of the groundwater body identifies deterioration (to be refined following further studies)	Restriction of licence abstractions (to be refined following further studies)
	The Beckton Desalination option is selected in the BVP Situation 1. Other water company desalination options are selected in the BVP along the Kent Coast. Of particular note is the Southern Water Thames Estuary Desalination option. The modelling undertaken for Beckton Desalination looked at salinity and temperature effects on water quality from the desalination option in-combination with Deephams Reuse and Beckton Reuse. The Thames Estuary desalination option is relatively small in terms of abstraction and discharge compared to these options and therefore, in-combination effects on water quality and the Thames Estuary Habitats Sites are unlikely.	As the desalination options progress through design, further studies will be undertaken to consider in-combination effects from abstraction and brine discharge.	Thames Water project teams	To be confirmed following outcomes of further studies	To be confirmed following outcomes of further studies
	Potential cumulative effects to the setting of Sutton Wick settlement site Scheduled Monument from Abingdon Reservoir and Abingdon to Farmoor pipeline options). Mitigation will include: best practice construction methods such as site screening, no excessive vibrations close to the site, pollution prevention measures, dust suppression.	Monitoring construction works areas in relation to the scheduled monument. Project level heritage assessments to include cumulative effects assessment with other options (Abingdon Reservoir and	Thames Water project team / project Contractor	Proposed construction works areas encroaching on scheduled monument	Move construction works area away from scheduled monument Work with Heritage

Option and Timescale	Mitigation measures	Further Studies and Monitoring	Responsibility	Thresholds / Triggers	Potential types of Remedial Action
		Abingdon Reservoir to Farmoor Reservoir pipeline).		Risk identified of damage to scheduled monument (to be refined following heritage assessment)	Specialist, LPA and HE on a protection plan, CEMP, adjustment of construction methodology (to be refined following heritage assessment)
	Cumulative effects associated with resource use (materials, energy, carbon emissions). Mitigation measures may include: use of A-rated materials, adherence to the carbon mitigation hierarchy, use of materials with recycled content or reclaimed materials, use of pre-fabrication to reduce waste, use of renewable energy.	As the options are taken forward at the project level for design, carbon footprint assessments will be undertaken to identify carbon intensive areas and options to reduce carbon through use of different materials and use of renewable energy.	Thames Water project teams	To be set at the project level and benchmarked against similar project and net zero commitments	To be confirmed at the project level

6.3 Monitoring Proposals

Monitoring the impacts of implementing the WRMP24 is an essential ongoing element of the SEA process. Monitoring helps ensure that the identified SEA objectives are being achieved and allows for early identification of unforeseen adverse effects and thus appropriate remedial action can be taken. Monitoring will be an important requirement to measure performance and ensure the WRMP24 is being successfully implemented. Further details on option specific monitoring is provided in Table 6-1 above and Section 8.1 in the Thames Water WRMP24 Appendix B: Strategic Environmental Assessment. Further details on general monitoring is provided in Section 8.4 in the Thames Water WRMP24 Appendix B: Strategic Environmental Assessment.

The SEA Regulations expect that monitoring should focus on the significant negative effects identified through the assessment. The UK Water Industry Research (UKWIR) guidance recommends that existing arrangements for monitoring should be used where possible to avoid duplication of effort.

Negative effects or uncertainty identified during the SEA process focused on effects on ecology, quality of air/soils/water, carbon emissions, landscape, and the historic environment. Option specific monitoring is presented in Table 6-1. Table 6-2 below presents the general SEA monitoring proposals for the WRMP24 structured by the SEA objectives. The monitoring proposals put forward as part of WRMP19 have been reviewed and carried through into WRMP24 where relevant for continuity. Additional indicators have been included where new risks have been identified as part of WRMP24 and the indicators have been adapted to those developed as part of the SEA Framework. Indicators have also been chosen to record the potential benefits that the WRMP24 achieves, for example recreational assets created or waste recycled/reused.

Table 6-2: General Monitoring proposals

SEA Objective	Indicator	Timescale	Reporting Mechanism	Responsibility
Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible).	Condition of statutory and non-statutory ecological sites. Sites of Special Scientific Interest (SSSI) monitoring.	Every five years	WRMP	Thames Water (for Thames owned sites). Thames Water to obtain data from Natural England on non-Thames owned sites
	Area of blue and green infrastructure created % of habitat creation or existing habitat enhancement.	Every five years	WRMP	Thames Water
	% of Invasive and Non-Native Species (INNS) risks mitigated.	Annually	WRMP Annual Review	Thames Water
	Ecological status of water bodies.	Every five years	WRMP	Thames Water in partnership with Environment Agency
	Condition of priority species and habitats surrounding option locations	Every five years	WRMP	Thames Water
To protect and enhance the functionality and quality of soils, including the protection of high-grade agricultural land, and geodiversity.	Area of agricultural land (by grade) lost to and restored by WRMP options.	Every five years	WRMP	Thames Water
Increase resilience and reduce flood risk.	% of Flood Risk Assessments passed.	During construction	Reported as schemes progress through internal gates and planning processes as applicable	Thames Water

SEA Objective	Indicator	Timescale	Reporting Mechanism	Responsibility
Protect and enhance the quality of the water environment and water resources.	Chemical status of water bodies. Changes in WFD condition status (both positive and negative) of surface and groundwater bodies.	Every five years	WRMP	Thames Water in partnership with Environment Agency
	Number of Geological Conservation Review sites (GCRs) (these are also designated as SSSIs) affected.	Every five years	WRMP	Thames Water
	Groundwater quality testing to inform feasibility and design, commissioning of options as relevant	As required by each project	Reported as schemes progress through internal gates and planning processes as applicable	Thames Water
	Achievements against WFD objectives as feasible given influence and potential for influence of option (positive or negative) on each WFD objective.	Annually	WRMP Annual Review	Thames Water
Deliver reliable and resilient water supplies.	Supply interruptions	Annually	Annual Performance Report	Thames Water
	% of people with supply demand deficits	Annually	WRMP Annual Review	Thames Water
To reduce and minimise air emissions during construction and operation.	Local air quality monitoring.	As required by each project	As projects progress	Project Contractor
	Reduction of greenhouse gas emissions per scheme. Energy use from new operations and change in energy use per Ml/d from WRMP schemes. Reduction of operational and capital carbon emissions per scheme.	Annually	WRMP Annual Review	Thames Water

SEA Objective	Indicator	Timescale	Reporting Mechanism	Responsibility
	Number of options that utilise existing infrastructure.			
	% Energy supplied by renewable sources.	Annually	Annual Report	Thames Water
	Volume of waste generated. Waste disposal method by %.	Every five years	WRMP	Thames Water
Reduce vulnerability to climate change risks and hazards.	% of climate risks identified as potentially caused by options within WRMP24 SEA with mitigation delivered	Every five years	WRMP	Thames Water
To conserve, protect and enhance landscape and townscape character and visual amenity.	Number of WRMP options including additional landscaping. Changes to baseline, construction and operational landscape conditions of sensitive landscapes (and townscapes where applicable), where impacts are anticipated.	Every five years	WRMP	Thames Water
Conserve, protect and enhance the historic environment and heritage assets, including archaeological remains	Condition of heritage assets identified in Section 8.1, including any at risk. Condition of buried archaeology monitored through Watching Briefs, where required, during the construction phase.	Annually	WRMP Annual Review	Thames Water

SEA Objective	Indicator	Timescale	Reporting Mechanism	Responsibility
	% heritage assets fully protected while delivering schemes	Every five years	WRMP	Thames Water
To maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing.	Level of disruption due to construction and operational works (where relevant) as measured by number of complaints, reported through Thames Water's annual performance processes.	Annually	Annual Report	Thames Water
	Number of Public Rights of Way (ProW) closures or diversions.	During construction phases	Reported as schemes progress through internal gates and planning processes as applicable	Thames Water / Project Contractor
	Number, type, and area of community assets created. Km of new footpath/cycleway created.	Every five years	WRMP	Thames Water
Maintain and enhance tourism and recreation.	Number of tourism assets created.	Every five years	WRMP	Thames Water
	Surveys of recreational and other amenities likely to be affected (both positive and negatively), including assessment of the success of agreed mitigation measures.	During construction and operational phases	Reported as schemes progress through internal gates and planning processes as applicable	Thames Water
Minimise resource use and waste production.	% of A-Rated, recycled, reused material used in infrastructure options, where gathered as part of standard reporting.	Every five years	WRMP	Thames Water
	Number of options that utilise existing infrastructure.	Annually	WRMP Annual Review	Thames Water
	Volume of waste generated. Waste disposal method by %.	Every five years	WRMP	Thames Water

SEA Objective	Indicator	Timescale	Reporting Mechanism	Responsibility
Avoid negative effects on built assets and infrastructure.	Number of road closures or diversions.	During construction	Reported as schemes progress through internal gates and planning processes as applicable	Project Contractor

A. Consultation Responses

As discussed in section 3.1, Thames Water utilised the WRSE Regional Plan SEA Scoping Report. The comments received in relation to the scoping consultation are provided below. The plans and programme review, baseline information and key issues were updated in the Environmental Report to make them more Thames specific and relevant for the WRMP24. The comments received on the draft WRMP24 and Environmental Report including how these were addressed are presented in the Statement of Response document, available at: https://www.thameswater.co.uk/about-us/regulation/water-resources. All actions committed to in the response column in Table A.1 below have been completed.

A.1 SEA Scoping Report Consultation Responses

Ref	Organisation	Topic / Report section	Feedback	Response
1	Natural England	Overarching advice	There is much in the Strategic Environmental Assessment (SEA) scoping report that is good and Natural England welcomes WRSE commitment to environmental assessment	Noted. No action required.
2	Natural England	Overarching advice	The Habitats Regulations Assessment (HRA) methodology in Appendix F does not appear to have fully had regards to advice contained within Natural England's response to the draft Environmental Assessment Methodology Guidance sent on the 20th July 2020. In particular the reference and language used with regards to assessment of plans and programme impacts sites protected under Conservation of Habitats and Species Regulations 2017 (as amended) is not consistent with the HRA tests or relevant Government guidance and therefore should be amended (see Annex IA for further details).	Noted. The HRA methodology will be amended to comply up with Natural England's response to the draft Environmental Assessment Methodology Guidance sent on the 20th July 2020.
3	Natural England	Overarching advice	As we previously set out there is a lack of precision in, not only the language used, but also the methodology proposed in terms of assessment of ecological impacts (as opposed to other environmental impacts) that at best renders some of the guidance unhelpful at worst could potentially lack compliance with legislation and drivers.	We feel that the inclusion of a proposal to sift options using a RAG scoring, dependent on distance to N2K sites alongside and in addition to the HRA process probably confused issues here. The RAG scoring has been removed from the assessment process, at least partly to remove this ambiguity. Beyond this, hopefully the refreshed methodology in line with the above comment will include the require precision and ensure compliance with legislation.
4	Natural England	Overarching advice	Natural England has made recommendations for amendments to the methodology (See Annex 1A and 1B for further details)	Noted. See above.

Ref	Organisation	Topic / Report section	Feedback	Response
5	Natural England	Appendix F HRA - Section F1 Guidance	This section should begin by reference to Regulation 9 of the Conservation of Habitats and Species Regulations 2017 (S.I. 2017/1012) as amended (Habitats Regulations) as this requires every competent authority, in the exercise of any of its functions, to have regard to the requirements of the Habitats Directive. This requirement includes restoring favourable conservation status. Regulation 10 places a duty on a competent authority, in exercising any function, to use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds. In addition, regulation 63 places obligations on competent authorities in respect of plans or projects likely to have a significant effect on a protected site. Note that for marine protected area that are European and Ramsar sites the legal tests are the same as terrestrial European sites. In England, as a matter of policy, sites listed or proposed under the "Ramsar Convention on Wetlands of International Importance" receive the same level of protection as European sites.	We will include reference to the described Regulations. We are aware of, and agree with, the rest of this content of this comment.
6	Natural England	Appendix F HRA - Section F1 Guidance	Reference to draft guidance is welcome but it would be more helpful to the companies for their HRAs to refer to the legislation and legislative tests (set out above) that require the Habitats Regulations Assessments to be undertaken and to refer to the relevant Government guidance. Outside of the draft the remaining guidance referred to in Appendix F is largely out-of-date and much case law has occurred since the guidance referred to in section F.1 was written. Case law has significantly influenced the applications of the Habitats Regulations to plans and projects especially with regards to the likely significant effect and appropriate assessment stages. The UK Water Industry is updating its guidance on SEA and HRA assessments to take account of the changes in legislative interpretation and the legislation itself (i.e. Updates in 2017 and 2019).	We will update the methodology and documents to align with the UK Water Industry guidance on HRA as necessary.
7	Natural England	Appendix F HRA - Section F1 Guidance	The stages of the Habitats Regulations set out in the methodology are muddled and not strictly in compliance with the guidance. The Government guidance now refers to sites covered by the provisions of the Habitats Regulations as 'habitats sites' in line with the wording in the National Planning Policy Framework. This nomenclature may be useful for WRSE going forwards as it will be necessary to replace reference to European sites after December 2020	Noted. We will refer to sites as 'habitat sites' rather than Designated Sites. All stages of the HRA will be clear and distinct, to comply with all relevant legislation.

Ref	Organisation	Topic / Report section	Feedback	Response
8	Natural England	Appendix F HRA - Stage 1 Likely Significant effect test	Under this section the text states "HRA screening determines whether there will be any LSE on any European site as a result of an options implementation (either on their own or 'in combination' with other plans or projects) and, if so, whether these effects will result in any potential adverse effects on the site's integrity." Pg116 This statement combines the LSE test with the stage 2integrity test which can only be undertaken within an appropriate assessment. This is an inaccurate statement and should be replaced.	Agree - assessing for adverse effects on integrity will not be undertaken at Stage 1.
9	Natural England	Appendix F HRA - Stage 1 Likely Significant effect test	The methodology goes on to state 'Likely' Significant Effect means one that cannot be ruled out on the basis of objective information. A likely effect would be considered significant if it could undermine a site's integrity and/or the conservation objectives and/or qualifying features of that European site. Pg. 116 This is incorrect in terms of the definition of likely and significance. Tests of the site's integrity do not occur at the likely significant effect stage. Government guidance on appropriate assessments states "A significant effect should be considered likely if it cannot be excluded on the basis of objective information and it might undermine a site's conservation objectives. A risk or a possibility of such an effect is enough to warrant the need for an appropriate assessment". Natural England recommend you replace the text on Pg116 with the above information.	As above, agree. We can use the provided wording to better explain our methodology.
10	Natural England	Appendix F HRA - Stage 1 Likely Significant effect test	The methodology goes on to state that "If a conclusion of no LSE cannot be reached on the basis of high-level scheme specific information, there will be the opportunity and requirement for more detailed investigation at the appropriate assessment (Stage 2) if the option is taken forward by WRSE" pg117. This suggests that a plan level appropriate assessment will not be undertaken of the programmes. It would be helpful if clarification that appropriate assessments will be undertaken of the WRSE options for which a likely significant effect cannot be excluded on objective evidence as appears to be the case later in the methodology	Appropriate Assessment will be undertaken at a plan level, if necessary. It is important to note that many other assessments and factors will contribute to the optioneering process that moves us from the long list of options to the short list. The short list may or may not therefore include options for which a likely significant effect cannot be excluded on objective evidence. Individual options will then be grouped into viable combinations called Programmes that, in their totality, may be a solution for providing

Ref	Organisation	Topic / Report section	Feedback	Response
				adequate water resources across the WRSE administrative area. At Appropriate Assessment stage, these Programmes will be considered as a whole, so effectively at this stage the (potential) Regional Plan is being assessed.
11	Natural England	Appendix F HRA - Zone of Influence	Whilst Natural England welcomes the concept of zones of influence, the distance criteria in Table F.1: for the zones of influence do not appear precautionary and it is unclear what evidence was used to select these distances. Since a second screening stage happens after this stage 1 screening the distances used here should be as precautionary as possible. For example, raising a large reservoir could impact a designated site kilometres downstream if it reduces the freshwater flows, for example, and yet only a 500m screening area is chosen. It is unclear how issues such as habitat severance and reduced connectivity would be screened at this initial stage. For example, a large reservoir could interrupt flight pathways of certain bat species many kilometres away from the SAC and though severance issue is covered in step 2 of the proposed WRSE methodology such impacts would already have been screened out by the stage 1-step 1 screening.	This is a confusion between the HRA process the separate sifting that was proposed, which included RAG assessment based on proximity. This was distinct from, and unrelated to, the HRA process, but because of the ambiguity it has created, has been removed from the assessment proposals.

Ref	Organisation	Topic / Report section	Feedback	Response
12	Natural England	Appendix F HRA - Zone of Influence	The guidance goes on to state it should be noted that for alterations to current abstractions, only effects on European sites downstream of new abstractions are considered as potential LSE. For increases to current abstraction volume it is assumed that the increased abstraction is still within the current licence limits and therefore unlikely to result in impacts on designated sites, as they are protected by the Environment Agency's Review of Consents process. Pg. 118.Natural England has previously advised in consultation webinars that groundwater abstractions can act upstream and downstream as can abstractions on freshwater but tidal sections of rivers. In addition we have advised it is no longer safe for long term planning to rely on the Environment Agency's review of consents (RoC) for likely significant effect. RoC is a good place to begin for assessment of impact pathways to existing assets but much of the information on which it was based is 15 to 20 years old and the legislation, the caselaw, the evidence base and the climate have all changed since this assessment was undertaken	Noted. Assessment of abstraction sites will not confine themselves to downstream effects. The EA's Review of Consents will not solely be relied on. Alterations to current abstractions will be subject to full assessment and will not assume that the RoCs are sufficient to rule out LSE.
13	Natural England	Appendix F HRA - Zone of Influence	Assessment of plans or projects must use the best available evidence, relying on a historic assessment when features continue to decline is not consistent with the precautionary principle and will make no contribution to government aspirations in the 25 Year Environment Plan (25YEP) which are the stated environmental "destination" of WRSE. Government guidance on appropriate assessments states: The conservation objectives relate to each of the habitats and species for which the site was designated and will be provided in more detail by Natural England. A competent authority must consult Natural England for the purposes of the assessment and must have regard to any representations that Natural England may wish to make within a reasonable time (as specified by the competent authority). Natural England's formal advice on conservation objectives is publicly available for both European terrestrial sites and European marine sites	Agree
14	Natural England	Appendix F HRA - Zone of Influence	The methodology states "With strategy-level HRAs, uncertainty is sometimes addressed by including caveats or mitigation as an assumption to the plan (and therefore all the plan components) to ensure that significant or adverse effects will not occur. "This approach was never an acceptable approach to HRA of a plan and since you later go on to explain that mitigation cannot be taken into account at LSE stage due to recent caselaw, Natural England recommends you remove this statement.	Agree - we will remove this statement.

Ref	Organisation	Topic / Report section	Feedback	Response
15	Natural England	Appendix F HRA - Zone of Influence	Stage 1.5 and the section above on uncertainty are really the early parts of the appropriate assessment and it might be more logical to put 1.5 into section 2	We will review and amend if appropriate
16	Natural England	Appendix F HRA - Stage 2 Appropriate Assessment	Stage 1.5 and 2 involve liaison with Natural England. It is essential that the timetable for this is agreed with Natural England in advance with reasonable consultation timescales. This will ensure Natural England is able to adequately resource this consultation. As set out in the Government Guidance referred to above conservation objectives are available for most 'habitats sites 'apart from the newly classified Solent and Dorset Coast SPA. As set out in the Government guidance quoted above most habitats sites also have supplementary advice to the conservation objectives which can help with the appropriate assessment.	We will keep Natural England updated in terms of our programme, and will agree suitable times and durations for consultation.
17	Natural England	Appendix F HRA - In Combination assessment	This assessment should not only consider in combination effects with other water resources options as set out, but also other options that could combine to have a likely significant effect. For example discharges affect water quality which can be exacerbated by abstraction impacts. At a high level impacts with local plans could be considered.	Agree - the in-combination effects will consider all options that could combine to have LSE, both within the water industry and wider study area.
18	Natural England	Appendix F HRA - Dealing with Uncertainty	This section states no adverse effects, then the option will not go ahead (subject to provision of over-riding public interest) pg124. This should read "no adverse effects, then the option will not go ahead unless the project can prove no alternatives and imperative reasons of over-riding public interest (IROPI) and secure necessary compensation". The test of no alternatives comes before the IROPI test in the regulations as set out in the subsequent sections of the SEA methodology text. Government guidance states "Where an adverse effect on the site's integrity cannot be ruled out, and where there are no alternative solutions, the plan or project can only proceed if there are imperative reasons of over-riding public interest and if the necessary compensatory measures can be secured"	Agree - Alternatives will be considered prior to IROPI, which itself will only be considered if the necessary compensatory measures can be secured.
19	Natural England	Appendix F HRA - Need for compensatory habitat	The final stage after IROPI consideration is compensatory habitat since the 'no alternatives 'and IROPI stages are covered in this guidance the need for compensatory habitat should be included at the end of the document	Agree - we will add this section to the description of the process.

Ref	Organisation	Topic / Report section	Feedback	Response
20	Natural England	SEA - Plans & Programmes	Since many of the strategic resource options in the WRSE are likely to be National Strategic Infrastructure Projects (NSIPs) you should reference to the Planning Act 2008. You may wish to include National Parks and Access to the Countryside Act 1949 for completion. You may wish to consider referring to the relevant case law to assessment of plans and projects under both Habitats Regulations and Strategic Environmental Assessment. You may wish to include the WISER guidance.	The suggested plans and legislation will be reviewed and included in the plans and programmes review
21	Natural England	SEA - Plans & Programmes - Local plans for improvements	There are a number of plans for improvements of biodiversity that may be of use to refer to as the WRSE plans evolves. River restoration plans for a number of SSSI rivers exist and have relevance to in combination abstraction impacts and their mitigation. There are other biodiversity restoration plans including the Natural Capital improvement plans by local Nature Partnership (e.g. Sussex Nature Partnership). Having regards to the relevant local plans may be of more relevant as the SEA and WRSE plans emerge and in plan comparisons than in the SEA per se.	Agreed that these plans will be relevant. At this stage for the regional plan they are considered too detailed but they will be referenced and should be used as options are taken forward in WRMP24.
22	Natural England	Baseline	Generally the baseline summary is good however in Natural England's view the scoping document underplays information on the state and declining trends of some of the environmental baseline and the part which abstractions and public water supply play in the baseline condition. In our letter to WRSE of the 4thSeptember Natural England stated: The existing amount of water taken from the environment for abstraction in the South East is too high and the impacts this is having on our wildlife, including some of our most iconic and legally protected habitats and species is unacceptable. The situation is worse in drought with permits and orders in company's drought plans that impact some of our most precious wildlife throughout the South East including orders that cannot conclude no adverse effects on integrity of European site features. This represents a failing of the most stringent legal protection for any ecologically protected sites in England. Many aquifers are not at good ecological status for their quantity of water. Climate change is predicted to make this situation more difficult, with hotter drier summers increasing wildlife's need for water as well as impacting supply and increasing demand. This is not reflected adequately in either the baseline section nor the future climate section.	The environmental destination work will address the issues raised in this scoping response. The more detailed baseline can be incorporated into the assessment process and the modelling of impacts on flow deficits will be reviewed. The catchment mapping and environmental resilience systems modelling will also be incorporated into the overall assessment. Climate change scenarios will be developed for land use changes and the EA's environmental destination scenarios will be run through the simulator model. All this will contribute to the SEA.

Ref	Organisation	Topic / Report section	Feedback	Response
23	Natural England	Baseline Maps	Though it is difficult to be certain, as the information on these baseline maps is very high level, some of the information appears incomplete. South Downs and the New Forest National Parks are missing from the protected landscapes map key which only shows the Areas of Outstanding Natural Beauty, the Parks are on the maps but difficult to see. Some of the MCZs may be missing and some of the SPAs in maps C.4 and C.1 for example Solent and Dorset Coast SPA is missing. It might be worth including the national trails on these maps such as the south downs way, the Thames Path and the England Coast Path which is due to be completed in 2021.	Noted, the environmental database was updated following feedback to ensure that all relevant layers are up to date and the Dorset SPA is included
24	Natural England	SSSI Condition Baseline	It would be useful to compile the condition of the SSSIs in the region from the baseline data you have obtained especially since this pertains to a WRSE environmental destination and 25 YEP objective	As part of the HRA any linked SSSIs (sites that are also SSSIs) that could be affected by an option will be identified and the conditions assessment reported. This will then be used in the environmental assessment process and for the environmental destination.
25	Natural England	Table 4.1	Ecological sites in the WRSE Region lists one marine protected area but lists the SAC, SPA, Ramsar, Marine conservation Zones and SSSIs separately. Marine Protected Areas (MPA) is the catchall name used in the OSPAR convention for areas protected by legislation below mean high water. In the UK this includes Ramsar sites, SACs, SPAs (including those offshore), SSSIs and MCZs. Please can you clarify this list and what the MPA is that is not also one of the other designations	Table 4.1 will be reviewed and clarified.
26	Natural England	Table 4.7 WFD classifications	The updated classifications are now available and this baseline information should be updated. Priority habitats lists –you may wish to include a summary of the regions chalk streams in the tables given their prominence in the environmental destination for WRSE and in the current abstraction profiles of WRSE companies	Noted, baseline information to be updated.

Ref	Organisation	Topic / Report section	Feedback	Response
27	Natural England	Natural Capital Baseline - urban	it is unusual to classify urban as a natural capital. In the text you refer to wildlife and habitats that occur in urban environments particularly in parks and gardens –It is arguable if the urban environment is the natural capital or it is the parks and gardens and their wildlife that is natural capital.	Noted, Urban was used as an overarching term for the different Natural Capital Stocks within the urban environment in line with the national natural capital atlas such as: Blue space Green space - not semi-natural Open mosaic habitats Woodland, scrub and hedge Semi-natural habitats Further detailed will be provided within the environmental assessment report.
28	Natural England	Natural Capital Baseline - coastal and marine	if the WRSE region goes out to 1 nautical mile (as the WFD does) it is surprising that the WRSE region only has 1% coverage of marine and coastal habitats. Clarification of this point would be helpful. The importance of the near shore marine and coastal habitats for recreation, health and migratory fish is not fully recognised and information on this should be expanded.	The agreed the percentage covers will be updated and Marine capital considered within the assessment
29	Natural England	Key issues and opportunities	Natural England welcomes the reference to net gain as an opportunity. The state of the natural environment included that most impacted should be referenced more fully in the issues section. Please refer to Natural England's letter dated 4thSeptember on WRSE's Policy consultation. In that Natural England recommended that the policies of WRSE should be more clearly the 25 YEP policies and there should be clearly stated commitments to how your policies are going to contribute to the 25 YEP goals. The baseline, issues and opportunities list should set out more clearly the potential of WRSE to contribute to Governments 25 YEP goals including: An aim to restore "75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term "The Defra 25 Year Environment Plan states "We will achieve a growing and resilient network of land, water and sea that is richer in plants and wildlife this includes[...] creating or restoring 500,000 hectares of wildlife-rich habitat	The key issues and opportunities will be updated to make it clearer how the WRSE regional plan could support and contribute to the 25 Year Environment Plan goals.

Ref	Organisation	Topic / Report section	Feedback	Response
			outside the protected site network, focusing on priority habitats as part of a wider set of land management changes providing extensive benefits."	
30	Natural England	Key issues and opportunities - nature based solutions and synergistic impacts	The issues and opportunities section is very light on the need for and benefits of nature-based solutions. Reference should be made to opportunities to use nature based solution to deliver multiple benefits such as carbon sequestration, biodiversity, nutrient capture, urban cooling, flood risk mitigation in addition to improved infiltration and storage of water for resources.	The key issues and opportunities table will be updated to include more reference to the need for and benefits of nature-based solutions. This will be a combination of the natural capital assessment and the outcomes from the catchment workshops, this will support the development of NBS options.
31	Natural England	Key issues and opportunities - nature based solutions and synergistic impacts	One issue common to all SEAs is that separating the impacts into separate topics makes it more difficult to identify the synergistic impacts of schemes but also the multiple benefits from nature-based solutions	Noted, it is aimed that by using the SEA and Natural capital assessment that benefits across different areas will all be captured. In addition, as the SEA benefit score will be the combination of all the SEA positive impacts it will capture benefits that span multiple topic areas.

Ref	Organisation	Topic / Report section	Feedback	Response
32	Natural England	Key issues and opportunities - making water available for wildlife to adapt to climate change	Inherent in the Defra objective above is the need to make wildlife more resilient to climate change. In the climate section, the opportunity to make more space and in particular water available for wildlife is not adequately covered. There are two opportunities linked to climate change for wildlife for the WRSE: i)The to reduce impacts of abstraction and water supply infrastructure from current levels and leave more water to enable wildlife to be more resilience to climate change in its current location ii)To reduce impacts of abstraction and water supply infrastructure from current levels and leave more water to enable wildlife to adapt to climate change and more, in particular for those freshwater species to avoid saline intrusion by migrating upstream. Currently there is insufficient water left in the environment to create new water dependant habitats to help even our most rare and protected wildlife adapt to climate change. The issue of "freshwater squeeze" is particularly acute in the South East where we have a sinking coastline due to isostatic readjustment from the last ice age and where our highly modified coast is forcing saline wedges higher up estuaries than would naturally be the case.	The suggested opportunities will be added into the key issues and opportunities section.
33	Natural England	Proposed SEA objectives and assessment - Biodiversity Objectives	Table 6.1 is more closely aligned to the objectives in the 25 YEP and statutory requirements than the issues and options table which is welcome.	Noted. As per the comment above the key issues and opportunities will be updated to include clearer alignment and reference to the 25 YEP.
34	Natural England	Proposed SEA objectives and assessment - Biodiversity Objectives	The first objective which currently states "Is the option likely to affect the conservation status of any SPA, SACs, Ramsar sites, SSSI or locally designated sites"? Needs to be reworded as Is the option likely to affect the conservation status of any SPA, SACs, Ramsar sites and MCZ, undermine or prevent restoration of SSSI condition or affect the condition of locally designated sites?	The first assessment question under the biodiversity SEA objective will be updated as suggested.
35	Natural England	Proposed SEA objectives and assessment - Biodiversity Objectives	The reference to BAP habitats is more strictly referred to as Section 41 of the NERC act habitats and species of principal importance for the purpose of conserving biodiversity.	The wording referring to BAP habitats will be updated in line with the NERC Act

Ref	Organisation	Topic / Report section	Feedback	Response
36	Natural England	Proposed SEA objectives and assessment - Biodiversity Objectives	In line with the advice above (question 3) – an additional biodiversity objective could be including regarding the needs of wildlife to adapt to climate change. For example, an objective could be framed along the lines of: "Does the option enable or reduce the potential of water dependent wildlife to adapt to climate change". Inclusion of climate change adaptation for wildlife in assessment is supported by Government and water sector policy: The Defra 25 Year Environment Plan aspires to "take all possible action to mitigate climate change, while adapting to reduce its impact". WISER (page 54) states "a priority for all should be to work together to build an evidence-based understanding of the likely effects of climate change and identifying and implementing low carbon solutions that address any negative environmental impacts that may arise".	An additional assessment question/sub-theme under the biodiversity objective will be added to cover this issue.
37	Natural England	High-Level screening RAG criteria and definitions/ SEA objectives scoring criteria - Table 7.1	The table is not completely consistent with legislative tests and information and has not fully had regards to Natural England's comments in our letter of the 30th July 2020 to Nick Price acting on behalf of WRSE.	The RAG screening is not part of the HRA legislative process and is not the Stage 1 Test of Likely Significance. It was included to ensure the water companies unconstrained to constrained list screening was consistent and picked up 'show stoppers'. Due to delays getting option information the RAG screening is now less prominent in our approach. The HRA process starts with the Stage 1 Test of Likely Significance following the proposed method set out in HRA Method Statement in Appendix F of the Scoping Report.

Ref	Organisation	Topic / Report section	Feedback	Response
38	Natural England	High-Level screening RAG criteria and definitions/ SEA objectives scoring criteria - Assessment of SPAs, Sacs and European sites	The first line with regards to impacts on SPAs, SACs and Ramsar sites needs to be rewritten with regards to the tests of the Habitats Regulations. Both still refer to criteria related to these sites that are not related to their conservation objectives and refer to adverse effects which have a specific meaning in the legislation with respect to sites covered by the Conservation of Habitats and Species Regulations 2017 (as amended). The 400 m distance selected is explicitly related to bird disturbance and in particular to the Thames Basin Heaths SPA. Other impacts from further away will be adverse for other features and impacts. In addition, adverse effects can only be assessed as part of an appropriate assessment in light of the sites conservation objectives. The statements in table 7.1 do not refer to the legislative tests nor the conservation objectives and therefore are not compliant with the legal assessment of plans or projects. In addition, this table (7.1) is not consistent with the HRA methodology in Appendix F – and the SEA of a plan cannot assess the impacts of plan options on SACs, SPAs and Ramsar sites differently to the HRA. Natural England recommends that the first line simply refers to the HRA and the SEA matrices compile the data from the HRA screening set out in appendix F but subject to the amendments listed in Annex 1 A above.	Please see response to comment 37. The SEA will use the results of the HRA to inform the SEA objective on biodiversity in relation to effects on Natura 2000 sites.
39	Natural England	High-Level screening RAG criteria and definitions/ SEA objectives scoring criteria - Assessment of SPAs, Sacs and European sites	SEA objectives Assessment Scoring criteria Appendix E - This table does not appear to be related to the legislative tests for biodiversity or landscapes. Links to National Planning Policy Framework polices are unclear. This should be rectified.	SEA scoring for Natura 2000 sites will be in line with the HRA and the HRA results will be used as evidence for the assessment under the biodiversity objective. Links to the NPPF policies will be made clearer.

Ref	Organisation	Topic / Report section	Feedback	Response
40	Natural England	High-Level screening RAG criteria and definitions/ SEA objectives scoring criteria - Other designated sites wider biodiversity and landscape	Marine conservation zones are not referred to in Table 7.1. Natural England welcomes reference to the SSSI IRZs but we do not agree with the wording of assessment for the red category. Our IRZs are the filter we recommend for more detailed assessment.	Due to options information delays the RAG assessment will not be used to screen options. MCZs and SSSIs will be covered as part of the SEA assessment and effects on these sites from options will be considered.
41	Natural England	High-Level screening RAG criteria and definitions/ SEA objectives scoring criteria - Other designated sites wider biodiversity and landscape	Impacts on protected landscapes of options use single distance criteria – these distance criteria are not related to the likely impact of the options. A new large reservoir may have landscape impacts several kilometres away and small pipelines may not affect a designated landscape unless inside the landscape or in a very obvious location in the context or setting. The concept of "context and setting" of protected landscapes are not referred to and should be in landscape assessment criteria. The concept of major development in a protected landscapes which should be avoided based on policies in the NPPF is not referred to. Natural England recommend the landscape criteria are amended to better reflect the legislative tests and policy tests for impacts on landscape.	Due to options information delays the RAG assessment will not be used to screen options. Effects of options on landscape will be considered as part of the SEA which will include looking at landscape designations and effects on the setting and character of the landscape. It is agreed that distances do not provide an effective assessment which is why the SEA looks at wider effects on setting and character.
42	Natural England	High-Level screening RAG criteria and definitions/ SEA objectives scoring criteria - Other designated sites wider biodiversity and landscape	In the more detailed options assessment describes how the final assessment will provide an assessment of the residual effects with embedded mitigation. Natural England strongly recommends that the impact matrices include a version without mitigation and then the final residual impacts matrix. In Natural England's experience there is a tendency in SEAs to overestimate the efficacy of mitigation especially with regards to protected habitats and landscapes. This can lead SEAs to provide false "positives" where options are seen as low risk but at the project scale cannot be delivered as the mitigation is shown to be ineffective. In Natural England's experience this has proven very costly to companies in the WRSE region and lead to significant delays in implementing schemes.	The SEA assessment will look at the effects of options both pre and post mitigation. The pre-mitigation will include anything that is inherently part of the project and is costed for, so essential it is the option not mitigation. Anything additional will be considered as mitigation and will be included in the residual effects assessment.

Ref	Organisation	Topic / Report section	Feedback	Response
43	Natural England	Any other comment	Pg. 12 states "Supply options may include transfers, desalination, water reuse, conjunctive use, aquifer storage and recovery, reservoirs and trading". Natural England recommends adding in nature based solutions, to improve aquifer recharge and water retention in this list.	Nature-based solutions will be added to the list as potential option types.
44	Environment Agency	Additional plans or programmes relevant to the WRSE regional plan SEA	There is a comprehensive coverage of relevant international, national or regional plans to inform the scoping report. Specific points for consideration: • The Environment Agency's National Framework and supporting Guiding Principles for Environmental Destination • The draft Water Resources Planning Guidelines and supporting technical notes that are out for consultation • Any documents relating to OxCam development • Consider EA Strategic and Local Outcome Plans. These are currently being developed but may be worth noting. • Consideration of other regional groups' publications – Water resources East, water west, • Our catchment management strategies have been renamed as abstraction licensing strategies. These documents set out the policy framework under which abstraction decisions including water company proposals will be considered. These constraints and availability of new volumes of water will be outlined in these documents. There is often a tendency to use or develop new conceptual tools and models to consider potential implications, and water availability. These tools cannot automatically replace existing and trusted applications. The outcome of these new tools will need to be compared with these existing tools to understand any differences. It is these existing tools that have been used to format the policies position under which these proposals will be considered.	The suggested plans, programmes and guidance documents will be included where appropriate and available.

Ref	Organisation	Topic / Report section	Feedback	Response
45	Environment Agency	Baseline information	• With regards to the climatic factors, how will sunshine, snowfall and wind climatic data be used in the SEA assessment? • It is good to see use of GIS to help evaluate the number of options being considered by WRSE, but this should not replace local assessment which may provide more detailed information to enable well-informed and integrated assessment of effects of options. • Flood risk, page 27- What are the impacts of flood risk to the security of water supply security (i.e. water quality problem) and are there any measures to reduce the flood risk on natural environmental and water supplies? • Future baseline, page 37 – this section could be expanded more, and justification provided on how these key trends are identified and whether there are other elements that are missing from the assessment. • Each individual main river should have been set an Ecological Flow objective. This data will be critical when comparing if a new water company proposal is indeed compatible with the SEA objections. • Existing ALF/AMP/Sustainability Reductions changes will all need to be understood. These licensing changes will help to identify existing sensitivities and/or where resources have already been changed for environmental reasons.	Climate change scenarios will be incorporated into the assessment process. A proportionate approach will be undertaken but recommendations for more detailed assessments will be proposed for the WRMP24 SEAs. Other work streams are looking at water supplies with regard to flood risk and resilience this will be incorporated into the SEA. Future climate change scenarios and trends will be modelled these will use the latest NE and EA guidance and the results will inform the SEA. EFI and EF objectives will be used to inform the environmental ambition, a review of potential licence changes will be undertaken.

Ref	Organisation	Topic / Report section	Feedback	Response
46	Environment Agency	Key issues and opportunities identified	Table 5.1: • The impacts of climate change on habitats and ecosystem should be covered too. • Also monitor sustainability and reduce impacts on Chalk groundwater or Chalk streams should be included. • Stakeholders' participation in catchment management schemes could be mentioned. • Will there be any links between SE SEA and new ELM (Environmental Land Management) scheme in regard to land/ soil management? • The report recognises the area is already water–stressed with a growing population base that equally has a disproportionately high demand for water. The statistics provided show how climatic factors could have a significant influence both on future water availability and will need to be incorporated when deciding on environmental safeguards. The environmental needs to today might be considerably different in 50-75 years-time. These themes will be central in deciding if and where new resources might be available. This availability is not just about now but in the future with the lowest environmental implications. • The report does set some high aspirations with regard no adverse environmental implications by stating no effect on surface water and/or groundwater quality or quantity. It will be interesting to see how going through SEA methodology within a water stressed area that these principles can be adhered to. Surface water and groundwater sources already have limited capacity to supply additional sources of water with the need to safeguard (or improve) environmental standards. • Table 6.3 highlights the potential conflict between protecting biodiversity and meet all resource requirements. The issue will be how the process can deal with many negative outcomes. • Environmental gain versus environmental cost – likelihood is that at least a proportion of new water supplies will need to be imported. These imports will need not just to supply additional water but may have to replace existing damaging sources of water. These imports will have an environmental cost which also needs to be considered and compared against the environmental gain. This trade-off to meet the aspirations mentioned will need to neutralise (wherever possible) the imported environmental costs (e.g. carbon costs	Agreed - this will be addressed by incorporating the results from other workstreams, such as resilience, catchment mapping and environment destination into the assessment process. Trade offs and the wider importation issues will be considered as part of the assessment process.

Ref	Organisation	Topic / Report section	Feedback	Response
			and new infrastructure). It would be useful to make these comparison as there will need to be trade-off somewhere.	

Ref	Organisation	Topic / Report section	Feedback	Response
47	Environment Agency	Proposed SEA objectives and assessment questions/ sub-themes	The report has not highlighted strong linkages between SEA and Natural Capital element. Would there be any implication and opportunities that NC can provide within the WRSE SEA objectives?	Acknowledged that a great link could be highlighted in the report. As stated in section 6.1 "The SEA assessment will also consider the impacts on natural capital stocks that cannot be incorporated within the Natural Capital metric".
48	Environment Agency	Proposed SEA objectives and assessment questions/ sub-themes	• Table 6.2 Page 50 does not reflect the synergies between different objectives but only shows comparisons of compatibility and non-relevancy. • "The WRSE environmental assessments including the SEA will support the environmental destination by assessing and informing the long-term resilience of the regional plan and aiming to achieve a plan that provides environmental net gain against the four environmental metrics." The text in yellow is taken from Page 3 Section 2.3 and indicates potentially that the selected options might not be able to achieve the aspirations indicated by the SEA methodology.	Noted. Potential synergies between objectives will discussed. Wording on 'aiming to achieve' will be amended as the regional plan should be developed to achieve environmental net gain.
49	Environment Agency	Proposed SEA objectives and assessment questions/ sub-themes	• Future direction with regard to legislation. The robustness of a proposal would be subject to modelling and assessment linked to changing climatic factors but environmental legislation is also likely to further development. There could be scope to consider how selected proposals would fair if additional environmental objectives were established to safeguard flora and fauna.	The ongoing guidance and legislation development is being closely monitored. The catchment mapping work will look at additional options to support environmental improvements such as river restoration projects. The overarching objectives for the regional plan or the WRMP24 SEA should reflect this.

Ref	Organisation	Topic / Report section	Feedback	Response
50	Environment Agency	High-level screening RAG Criteria and Definitions and/or the SEA objectives scoring criteria	• There is a general risk of simplification of qualitative information and actual negative or positive effects in SEA scoring mechanisms. However, we recognise that this is a high level screening, but screening decisions should be sense-checked with stakeholders and regulators. • Any screening approach which involves a level of professional judgment is open to an element of interpretation. The RAG criteria only deals with a small aspect of the potential environmental implications. The Water criteria solely highlights SPZ, NVZ and flood risk. These criteria do not deal with the traditional water resource considerations which will need to be covered by other assessment methodology to assess the implications of individual resource options. • The outcome from this exercise should be explained through further consultation highlighting where professional judgement has been used.	The RAG assessment is not part of any of the statutory assessment and was meant to be used a validation of the water companies own unconstrained to constrained list screening and potentially identify any 'show-stoppers' that had come through. However, due to options information delays the RAG assessment will not be used to screen options.
51	Environment Agency	Other comments on the scoping report	Further details on how the numerical valuation of effects will be incorporated into the decision making modelling?	Details on how numerical values will be included in the investment model are provided in the WRSE method guidance document. The environmental assessment results will be translated into four metrics: SEA positive, SEA negative, BNG and natural capital, which will then go into the investment model. These SEA values are purely for comparison of options within the investment model and are not part of the formal SEA process. Further information on how the metrics will be developed from the environmental assessment results can be provided and/or discussed with the EA for clarification.

Ref	Organisation	Topic / Report section	Feedback	Response
52	Environment Agency	Other comments on the scoping report	We recognise that producing an assessment covering the whole of the South East presents challenges in ensuring an appropriate level of detail. Will there be any consideration through SEA of the geological differences across WRSE Area that lead to the WR pressures/ benefits? For example, an emphasis on protecting chalk groundwater resources where aquifer is present for riverine baseflow (whilst acknowledging the need to prevent unsustainable abstraction) and looking to assess winter storage/ NFM capacity in those areas with more spatey river flow that do not have the baseflow buffer element. Solutions and risks need to be mapped and assessed according to the nature of the environment, not just to the efficacy of the built infrastructure of the "water grid".	There will be additional work undertaken with regard to vulnerable catchment and chalk rivers. streams and groundwater this will form part of the environmental ambition which will contribute to the SEA. The combination of the various other workstreams such as: options appraisal, catchment mapping, catchment resilience and environmental destination will support the SEA
53	Environment Agency	Uncertainties	The scope does not seem to consider uncertainty much (beside the appendix on the Habitats Regulations Assessment Method) – how will the uncertainty in assessments be dealt with?	Noted - we will review the potential for quantification of uncertainty within the SEA, Natural Capital and BNG. Uncertainty is considered within the WFD assessments and INNS.
54	Environment Agency	Consideration of multi-purpose schemes	How has multi-purpose of options including social and environmental benefits to wider communities/stakeholders been considered? Active inclusion of stakeholders in development and monitoring development and implementation on larger water schemes will be good.	There is considerable consultation being undertaken with regard to catchment management and the development of options that include NBS and those that are socially beneficial. This work will support the environmental assessments and catchment portfolio options development.
55	Environment Agency	Natural Capital	• In previous documents it was stated that the ecosystem services metrics may be limited to 5 services. We would suggest that further services should be considered. • In regard to the habitats to be assessed would recommend that due to the local significance that chalk streams to be included as a specific habitat	The Five ecosystem services were suggested in line with the WRMP24 supplementary guidance on environment and society in decision making. Following scoping we will be assessing 3 additional services - food production, recreation & amenity and air pollutant removal. Additionally impacts of natural capital stocks that

Ref	Organisation	Topic / Report section	Feedback	Response
				are not captured here will be assessed in the SEA assessment. Agreed that chalk streams should be mapped and considered as a unique habitat. This was raised during consultation
56	Environment Agency	Baseline Maps	• Mapping with multiple layers could be used to highlight potential areas with multi-purpose environmental benefits for future investments? Will this be considered as well as using mapping to assess impacts?	This will not be considered within the environmental assessment as this focuses on developed options however this has been addressed within the WRSE catchment workshops and subsequent Blue green option development.
57	Environment Agency	Drinking Water Protections zones	Expected impacts of drinking water protected areas would need to be considered	Assume this is referring to Drinking water safeguard zones. If so these are designated areas in which use of certain substances such as fertilisers, pesticides and other chemicals must be carefully managed to prevent pollution of water that is abstracted for use as drinking water. It is not considered that the options will affect use of fertiliser and pesticides, apart from potentially catchment management options. Chemicals may be used to treat water but discharges would be within licence and water quality requirements.
58	Environment Agency	Section 1.3	Pg. 11. Amendment to bullet four: • Decide on the scope for the SEA, ensuring that it covers all the likely significant environmental effects and identification of designated and environmentally sensitive sites of the WRSE regional plan	Wording to the bullet point will be amended

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59	Environment Agency	Section 1.3	Pg. 11. Amendment to bullet five: • Provide sufficient opportunity to engage and collaborate with the Consultation Bodies and wider stakeholders. Would also recommend that you would need to include specific regard to local government – councils / planning authorities particularly around population impacts / housing developments / demand measures / water efficient technologies.	Wording to the bullet point will be amended
60	Environment Agency	Section 2.2	Pg. 12. Amendment to bullet four (replace): • Mitigate the impacts of climate change through demand and supply interventions to ensure water is available for society and the environment	The wording in the bullet points is taken from the WRSE aims on its website. This comment will be fed back to WRSE for discussion and update if agreed.
61	Environment Agency	Section 2.2	Pg. 12/13 Paragraph under bullets: • Supply options may include transfers, desalination, water reuse, conjunctive use, aquifer storage and recovery, rainwater harvesting, catchment management schemes, reservoirs and trading. Demand management options may include leakage reduction, water metering, seasonal water rates, targeted restrictions, behavioural measures and water efficiency measures.	The wording will be amended
62	Environment Agency	Section 2.3	Pg. 13. Paragraph 1: • The terms refers to the consideration of actions to enhance the environment and build resilience to future challenges	The wording will be amended
63	Environment Agency	Section 2.3	Pg. 13. Paragraph 2: • Water quality and availability requirements for the environment. The forecast will be based on current adverse environmental impacts, previous investigations, river basin management plans, regional policies and a range of flow-based targets where no other evidence exists.	The wording will be amended
64	Environment Agency	Section 2.3	•Last paragraph on page 13 talks about plan aiming to provide environmental net gain against the four environmental metrics. What are those?	The environmental metrics are those proposed to translate the environmental assessment results into metrics for the investment model: SEA positive, SEA negative, BNG

Ref	Organisation	Topic / Report section	Feedback	Response
				and Natural capital as set out in the WRSE methodology guidance document
65	Environment Agency	Section 3.2	Pg. 16. Bullet Point List: Points to be added… • Carbon sequestration with the aim of net zero carbon emissions by 2050 as per Paris Climate Agreement (and legislation passed by UK govt. in 2018) • Habitat creation and safeguarding ecosystem services (Woodland Carbon Guarantee scheme in line with the Woodland Carbon Fund) • Catchment management / nature based solutions working to enhance natural processes (existing work through CaBA) • Reduce water waste and leakage (Ofwat targets and penalties) • Improve resilience to extreme droughts ensuring consistency with WRMP24 (1/500 year resilience)	The suggested bullet points will be included in themes and messages from the plans and programme review listed in Section 3.2.
66	Environment Agency	Table 4.1	• Ecological sites in the WRSE – taking account of the current interest in chalk streams, it would be useful to specifically mention chalk streams; not all of them are protected areas. Those outside SPA/ SAC/SSSI designation are simply NERC priority habitats included in UK BAP (like those in Herts and North London Area). If not specifically chalk streams (as some of those will be accounted under other protected areas, UK BAP priority sites should be added to the list.	Noted - all chalk streams will be considered where appropriate.
67	Environment Agency	Section 4.2.2	• Since this is an SEA for WR plans it would be useful to recognise role of abstraction in limiting flows to reach GES/P and causing poor status of groundwater bodies. Physical modifications and pollution might be top three but it is the water resources situation driving strategic resource options because of significant deficits in the region at present and into the future.	Section 4.2.2 will be updated to reference the role of abstraction in limiting flows to reach GES/P and causing poor status of groundwater bodies along the with the other sources identified.
68	Environment Agency	Table 4.10	• This does not seem to recognise the significance of drought/ prolonged dry weather – their consequences, recent frequency and duration of dry periods that led to increased public interest and concerns of the state of chalk rivers especially but also raised questions over resilience of public water supplies.	Table 4.10 will be updated to include more reference to drought and prolonged dry weather

Ref	Organisation	Topic / Report section	Feedback	Response
69	Environment Agency	Table 4.14	• Some more details on water environment would be welcomed, like chalk streams, wetlands featuring in the AONB.	Table 4.14 will be updated to include additional details on features within the identified AONB such as chalk streams
70	Environment Agency	Section 4.22	• 2015 classifications used – 2019 classifications now available	The baseline will be updated with the 2019 classifications
71	Environment Agency	Section 4.2.10	• Natural capital section doesn't provide information on services provided by the environment in the WRSE region. • What is the state of these natural capital assets? Is it overall good/ poor/ at risk? It seems also that groundwater is missing from the list and would assume that's a critical natural capital asset for the SEA?	The current state of groundwater stocks and the likely impacts of the proposed regional plan on these stocks will be captured in the Environmental ambition assessment. A Natural Capital baseline will be provided in the environmental report, a baseline could not be established before the zone of influence for the plan has been finalised.
72	Environment Agency	Section 4.3	• Again future considerations for groundwater are missing. It would be useful to include maybe separate consideration for groundwater and surface water as the response to climatic conditions/ human activity/ pollution and remediation has different timeframe and potentially consequences. Risks also will vary.	The future baseline section will be updated to include groundwater and surface water.
73	Environment Agency	Section 5.1	Table 5.1: • Biodiversity, Flora and Fauna – should clearly state no adverse impacts to internationally designated sites.	The key issues and opportunities will be updated to include the suggestions
74	Environment Agency	Section 5.1	Table 5.1: • How do we understand cost-effective in this context? o (Biodiversity section) Wetland and marsh habitat rely on water, the WRSE regional plan should ensure that it does not affect these areas through over abstraction and should look for opportunities to reduce abstraction pressure where cost effective and possible.	The key issues and opportunities will be updated to include the suggestions proposed by the catchment mapping workstream this will combine NDS with abstraction reduction scenarios to determine best value outcomes.

Ref	Organisation	Topic / Report section	Feedback	Response
75	Environment Agency	Section 5.1	• Water – should clearly state protection of flow regimes and compliance with EFI and CSMG where applicable. CSMG targets for Water Quality also of relevance, alongside WFD improvements. • As opposed to saying the 'The WRSE regional plan has the opportunity to improve the environment by leaving more water in the region's rivers, streams and underground sources. • It should state: 'The WRSE regional plan will take account of compliance with EFI and CSMG flow targets for designated sites, and non-designated sites where applicable. The WRSE regional plan will leave ensure more water is available in the environment to mitigate impacts from climate change and help achieve biodiversity net gains.' • Important to recognise here another significant pressure: abstraction. Many of the waterbodies are failing GES/P due to abstraction having detrimental impact (among other pressures of course) on flows. There are also groundwater bodies (like chalk aquifers) at risk or already at poor WFD quantitative status. Drought and prolonged dry weather detrimental impact on water environment exacerbated further by abstraction is also omitted here.	Noted
76	Environment Agency	Section 5.1	• Soil – promote regenerative agricultural practices and implement catchment management schemes to reduce water quality impacts, and enhance ecosystem services for the benefit of the environment and society. To be included / amended: o Promote regenerative agricultural practices o Prioritise the implementation of catchment management solutions to help manage soils and reduce impacts of waterbodies o Ensure measures are taken to prevent soil erosion o Ensure the sustainable use of land o Reduce nutrient loads within surface water and groundwater bodies	The key issues and opportunities will be updated to include the suggestions
77	Environment Agency	Section 5.1	• Air – Opportunity isn't entirely clear? Needs more detail – planting of trees, reduced emissions from Water Treatment Works?	The key issues and opportunities will be updated to include the suggestions

Ref	Organisation	Topic / Report section	Feedback	Response
78	Environment Agency	Section 5.1	• Climatic Factors – To also include alongside hotter and drier summers and warmer and wetter winters, short duration 'extreme weather events' such as thunderstorms and heatwaves. • To be added to implications – increased demand due to extreme events (i.e. heatwaves). Greater risks to rapid responding catchments (i.e. North Sussex clay catchments). • To add the following bullets: - Ensure zero net emissions - Promote nature based solutions and restore habitats to offset and sequester carbon within the WRSE region, while also achieving biodiversity net gains	The key issues and opportunities will be updated to include the suggestions
79	Environment Agency	Section 5.1	• Population, Communities and Human Health – Ensure an economically sustainable water supply for customers. This may see the economic value of water increase and require a greater value to be assigned to water through increased charges and / or seasonal water rates.	The key issues and opportunities will be updated to include the suggestions
80	Environment Agency	Section 5.1	• Landscape - Amend bullets - Ensure the protection of landscape character - Enhance landscapes by working with stakeholders through habitat creation, implementation of catchment based solutions and safeguarding existing habitats.	The key issues and opportunities will be updated to include the suggestions
81	Environment Agency	Section 5.1	• Material Assets – Nothing on leakage? - Achieve required leakage reduction targets - Reduce unplanned outages	The key issues and opportunities will be updated to include the suggestions
82	Environment Agency	Section 6.1, Table 6.1	• Soil - Will the option promote the sustainable use of land? - Will the option prevent nutrient loading in water bodies?	The suggested assessment questions will be added

Ref	Organisation	Topic / Report section	Feedback	Response
83	Environment Agency	Section 6.1, Table 6.1	• Water: • Flood: - Will the option mitigate flood risk? (I.e. attenuation of flows through NFM, catchment storage etc.) Protect and enhance: - Will the option comply with flow targets (i.e. EFI, CSMG)? Deliver reliable and resilient water supplies: - Does the option reduce the presence of containments in waterbodies, and make more water available to the environment?	The suggested assessment questions will be added
84	Environment Agency	Section 7.1, Table 7.1	Water: Rag criteria should also include: - Drinking water protected areas – integration of surface water safeguard zones - WFD waterbody status (flagging system for no impacts (green), potential impacts (medium), expected impacts (red))	The RAG assessment is not part of any of the statutory assessment and was meant to be used a validation of the water companies own unconstrained to constrained list screening and potentially identify any 'show-stoppers' that had come through. However, due to options information delays the RAG assessment will not be used to screen options. The SEA and WFD will cover the criteria suggested.

Ref	Organisation	Topic / Report section	Feedback	Response
85	Environment Agency	Proposed RAG criteria and definitions	• Whilst it includes SSSI impact zones, it also just looks at distance as a criteria for assessment purposes for priority habitat. Distance doesn't of course determine whether an action or plan/project will necessarily impact on it. So this doesn't seem an appropriate method to use. In the Appendix, the assessment scoring criteria uses the level of impact to determine the scale of the effect, which is better. However it doesn't really provide a clear basis for assessing what a 'major' or 'moderate' impact would be. As this will vary depending on what is impacted on. • It isn't clear how impacts on species would be determined for example, as this would be reliant on having sufficient population data to determine impacts, which is unlikely. • A lot of the assessment criteria actually would not assess watercourses either, as most are not a priority habitat, or locally or nationally designated. WFD only looks at a waterbody scale and so does not consider smaller impacts. • It would be useful to understand the definition of the criteria and the level of detail that will be provided to inform these judgements. • Also need some further explanation on how detailed considerations for biodiversity will fit into a plan covering the whole of the south east. • 'Green corridors' and migration routes have been included, so to some extent river corridors might be covered, but need further confirmation. • We don't have any guidance on how to specifically include streams and rivers other than as a generic habitat type, Only chalk streams, SSSI rivers and a handful of less modified rivers meet the criteria of priority river habitat.	The RAG assessment is not part of any of the statutory assessment and was meant to be used a validation of the water companies own unconstrained to constrained list screening and potentially identify any 'show-stoppers' that had come through. However, due to options information delays the RAG assessment will not be used to screen options. The SEA will look at more than just distances when considering effects of an option. Further clarity will be provided on the SEA scoring definitions for major and moderate and how these will be assessed. The regional plan is a high-level assessment therefore, local level data won't be included and this should be covered as part of WRMP24. The level of detail of the assessment will also be proportionate to a regional plan level strategic assessment. The HRA and WFD assessments will provide more specific information which will also feed into the SEA assessment under the relevant objectives.
86	Environment Agency	Figure 7.1	Figure should be updated to demonstrate how potentially mitigated options go back into the options mix for detailed assessment?	Noted, figure will be updated.

Ref	Organisation	Topic / Report section	Feedback	Response
87	Environment Agency	Section 7.3	Multi-criteria analysis uses some subjectivity. Who and how will be deciding what constitutes major positive/ negative effects? Will there be weighting applied to different types of habitats if trade-offs occur?	Major effects are defined in the SEA scoring definitions in Appendix E. The SEA will just report the findings of the assessment. It is up to WRSE decision-makers to agree on decisions regarding trade-offs. For SEA results will be simplified into a metric for each options but the metric should reflect the degree of effects, although there will be trade-off within this. Therefore, the SEA results themselves should be used alongside the metrics to provide a full picture of effects of an option.
88	Environment Agency	Section 7, resilience to climate change	The assessment will also look into resilience to climate change of options. It is not clear whether this includes habitats/ecosystems. Clarification on this would be helpful.	Noted - this will include habitats and ecosystems and included in the catchment
89	Environment Agency	Appendix E Page 108	Shouldn't there be added an objective: water environment more resilient to drought/ prolonged dry weather?	This will be included as an assessment question under the water environment objective


Thames
Water