Thames Water
Update to the Revised Draft
Water Resources Management Plan 2019

Technical Appendices

Addendum to Appendix C: Habitats Regulations Assessment – Stage 1 Screening
# Table of contents

1 Addendum to the HRA

1.1 Section 5.2

1.2 Appendix D

1.3 Appendix F

1.4 Appendix H

1.5 Appendix I

1.6 Appendix J

1.7 Appendix K

1.7.1 Section 4 – In-combination Effects
1 Addendum to the HRA

Further to representations made to the further public consultation on our revised draft Water Resources Management Plan 2019 (WRMP19), hereafter referred to as the revised draft plan, the following changes are required to the HRA report.

1.1 Non-Technical Summary

For the update to the revised draft WRMP19, the Max_IGEQ programme has been renamed Min_IGEQ. This is to clarify that lower IGEQ values represent better performance in the modelling outputs. Therefore on Page 4, in the bullet point list of reasonable alternative programmes, “Max_IGEQ” should be replaced with “Min_IGEQ”.

1.2 Section 5.2

Since the publishing of Thames Water’s revised draft plan, Affinity Water have published their revised draft WRMP (1 March 2019) which now includes two options that could impact South West London Waterbodies SPA & Ramsar, therefore the following should be added to Section 5.2 – Potential in-combination effects with other plans and projects - Neighbouring Water Companies’ Draft 2019 WRMPs and Drought Plans (after Paragraph 2).

“The Affinity Water revised draft WRMP19 identified the following two options that have the potential to result in a likely significant effect upon the South West London Waterbodies SPA and Ramsar both individually and in combination:

- AFF-RTR-WRZ1-4010: Abingdon Reservoir to Harefield Transfer (50Ml/d)
- AFF-RTR-WRZ4-4011: Abingdon to Iver 2 (50Ml/d)

These schemes also have the potential to result in Likely Significant Effects in combination with three options included in the Thames Water revised draft WRMP19 (Kempton Park WTW, South West London Pipelines (Chalk Streams) and the Datchet Groundwater scheme).

The Appropriate Assessment of Kempton Park WTW identified a series of construction-period mitigation measures very similar to those identified by the HRA of Affinity Water’s rdWRMP for schemes AFF-RTR-WRZ1-4010 and AFF-RTR-WRZ4-4011. This enabled the HRA to conclude no adverse effects on site integrity. Moreover, the Kempton WTW will be constructed between 2071 and 2075 and therefore long after schemes AFF-RTR-WRZ4-4010 and AFF-RTR-WRZ4-4011 are completed. As such no in combination adverse effects on site integrity will arise.

No likely significant effects are anticipated in relation to the Datchet Groundwater scheme because the scheme does not have a pipeline element and construction consists solely of a minor scale upgrade to existing assets (borehole pump and work inside the existing Water Treatment Works). No in-combination effects are likely between Datchet Groundwater scheme and the Affinity Water schemes. This is due to both distance from the SPA/Ramsar waterbodies (c.800m) and the high level of existing disturbance at closer waterbodies. For example, the Queen Mother reservoir and Datchet gravel pit are of limited value for the qualifying feature species (gadwall and shoveller) due to the heavy disturbance levels from sailing/water-skiing. They are also screened from visual disturbance due to treelines and (for the reservoir) high embankments.

The Walton to Chessington pipeline which forms part of the Affinity Water schemes runs adjacent to the South West London Waterbodies SPA & Ramsar and another reservoir that is not designated but has the potential to be utilised as off-site functional habitat by the qualifying bird species of the designated site. As such the proposals carry a risk of impacting upon the European sites and/or their...
qualifying features, namely over-wintering gadwall and shoveler, without appropriate mitigation. The Appropriate Assessment for South West London pipelines (Chalk Streams) identified a series of construction-period mitigation measures very similar to those identified in the HRA of the Affinity Water dwWRMP for schemes AFF-RTW-WRZ1-4010 and AFF-RTW-WRZ1-4011. This enabled the HRA to conclude no adverse effects on site integrity. As such, since both the South West London pipelines (Chalk Streams) scheme and the two Affinity Water schemes will be implementing appropriate mitigation, even if construction occurs simultaneously, any low level residual effects (not significant alone) from the three schemes cannot act in combination to exceed the threshold for an adverse effect. In a worse-case scenario this mitigation may involve seasonal avoidance of construction"  

1.3 Section 6

In Section 6 of the HRA report on page 49, after the bullet point list the following sentence is to be added: "For the update to the revised draft WRMP19, the Max_IGEQ programme has been renamed Min_IGEQ. This is to clarify that lower IGEQ values represent better performance in the modelling outputs. All instances where Max_IGEQ is named in the HRA report and associated appendices are to be renamed Min_IGEQ."

Table 6-1 is to be replaced with the following:

<table>
<thead>
<tr>
<th>Option</th>
<th>HRA ASSESSMENT</th>
<th>Least cost</th>
<th>Option included in “reasonable alternative” programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquifer Storage and Recovery (ASR) Horton Kirby</td>
<td>No LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>AR SLARS Kidbrooke (SLARS1) 7 Ml/d</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR Streatham (SLARS2) 5 Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>AR Merton (SLARS3) 5 Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ASR South East London (Addington) 1 Ml/d</td>
<td>N/A</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ASR South East London (Addington) 3 Ml/d</td>
<td>N/A</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ASR Thames Valley/Thames Central 3 Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Beckton Desalination 150</td>
<td>LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Beckton Reuse 200 Ml/d (phased 100)</td>
<td>No LSE</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Beckton Reuse 300 Ml/d (phased 150)</td>
<td>No LSE</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Chingford Raw Water Purchase</td>
<td>No LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Coppermills WTW extension 100 Ml/d</td>
<td>LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Culham to Farmoor 180 Ml/d</td>
<td>LSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deephams Reuse</td>
<td>LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Didcot Raw Water Purchase</td>
<td>No LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Groundwater Addington 1 Ml/d</td>
<td>N/A</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Groundwater Datchet 6Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Groundwater London confined Chalk (north) 2 Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Groundwater Moulsoford 1 - 3.5 Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Groundwater Southfleet/Greenhithe (new WTW) 8 Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Honor Oak</td>
<td>No LSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITZ_North SWX to SWA 72</td>
<td>LSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITZ_North SWX to SWA 48</td>
<td>LSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kempton WTW new 100 Ml/d</td>
<td>LSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>River Lee New Gauge pipeline (chalk stream)</td>
<td>LSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Medmenham intake to SWA</td>
<td>No LSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Merton Recommissioning</td>
<td>No LSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>New River Head - Removal of Constraints</td>
<td>No LSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Oxford Canal to Cropredy Resource 15 Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>RC Ashton Keynes borehole pumps 2.5 Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>RC Britwell 1.31 Ml/d</td>
<td>No LSE</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

Ref: Ricardo/ED626109/Issue 2
Option

<table>
<thead>
<tr>
<th>Option Name</th>
<th>Assessment</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITZ_North SWX to SWA 48</td>
<td>Appropriate Assessment required.</td>
<td>LSEs to/from groundwater flows.</td>
</tr>
<tr>
<td>ITZ_North SWX to SWA 72</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.4 Appendix D

On Page 8, under Option name – “Raw Water Systems Oxford Canal – Duke’s Cut to Cropredy Resource 15 Ml/d” and Designated site assessed “Cannock Extension Canal SAC,” the assessment text should be removed and replaced with the following:

“The SIPs of potential relevance to this option element are (1) water pollution and (3) invasive species. The constituent SSSI (Cannock Extension Canal SSSI) is currently 41.1% favourable and 58.9% unfavourable (recovering). Any potential impacts identified could hinder this current recovery and the ability of the site to achieve its conservation objectives.

The option element does not involve any change to the abstraction regime for the sources that supply the canal, and as such no impacts to water quality or potential for INNS transfer are anticipated.

The closest part of this option element requiring construction is the Glascote pumping station, which lies approximately 20km to the east of the SAC (downstream). At this distance construction and operation of this new pumping station on the Oxford Canal is not anticipated to have any significant impact on the qualifying features of the SAC.”

1.5 Appendix F

In Table 3.1, in the row “Over winter birds” under “Mitigation”, the following should be added:

- Detailed noise abatement and visual disturbance mitigation measures to be developed in coordination with Natural England, taking account of local site knowledge from the site managers and following professional mitigation guidance, in particular the Waterbird
Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects produced by the Institute of Estuarine and Coastal Studies (IECS) at Hull University.

- Sensitive lighting design to be developed following professional guidance to address identified risks relating to light pollution that is applicable to birds in flight, such as that developed by the Institute of Lighting Engineers (Guidance Note 8 Bats and Artificial Lighting, 2018) and others, to ensure no adverse effects on site integrity from light spill.
- In combination studies to be conducted to identify the key flight paths of the wintering birds that use the designated site (and associated functional habitat), and an assessment to be made of the impact of the construction activities on these key flight paths.
- Agreed mitigation measures to be included in the project-specific HRA of each scheme to support applications for planning permissions and environmental permits.
- Implementation of planning conditions and/or conditions of relevant environmental permits to be managed through contractual obligations with supervision from an Environmental Clerk of Works appointed by Thames Water.

1.6 Appendix H

In Section 1.3, under point number 4 the following should be added:

“Note that despite this transfer of final effluent from Netheridge STW, some discharge will remain under Dry Weather Flow conditions. The consented Dry Weather Flow at Netheridge is 42.8 Ml/d.”

1.7 Appendix I

In Table 3.1, in the row “Over winter birds” under “Mitigation”, the following should be added:

- Detailed noise abatement and visual disturbance mitigation measures to be developed in coordination with Natural England, taking account of local site knowledge from the site managers and following professional mitigation guidance, in particular the Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects produced by the Institute of Estuarine and Coastal Studies (IECS) at Hull University.
- Sensitive lighting design to be developed following professional guidance to address identified risks relating to light pollution that is applicable to birds in flight, such as that developed by the Institute of Lighting Engineers (Guidance Note 8 Bats and Artificial Lighting, 2018) and others, to ensure no adverse effects on site integrity from light spill.
- In combination studies to be conducted to identify the key flight paths of the wintering birds that use the designated site (and associated functional habitat), and an assessment to be made of the impact of the construction activities on these key flight paths.
- Agreed mitigation measures to be included in the project-specific HRA of each scheme to support applications for planning permissions and environmental permits.
- Implementation of planning conditions and/or conditions of relevant environmental permits to be managed through contractual obligations with supervision from an Environmental Clerk of Works appointed by Thames Water.

1.8 Appendix J

In Table 3.1, in the row “Over winter birds” under “Mitigation”, the following should be added:

---

- Detailed noise abatement and visual disturbance mitigation measures to be developed in coordination with Natural England, taking account of local site knowledge from the site managers and following professional mitigation guidance, in particular the *Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects*[^3] produced by the Institute of Estuarine and Coastal Studies (IECS) at Hull University.

- Sensitive lighting design to be developed following professional guidance to address identified risks relating to light pollution that is applicable to birds in flight, such as that developed by the Institute of Lighting Engineers (Guidance Note 8 Bats and Artificial Lighting, 2018) and others, to ensure no adverse effects on site integrity from light spill.

- In combination studies to be conducted to identify the key flight paths of the wintering birds that use the designated site (and associated functional habitat), and an assessment to be made of the impact of the construction activities on these key flight paths.

- Agreed mitigation measures to be included in the project-specific HRA of each scheme to support applications for planning permissions and environmental permits.

- Implementation of planning conditions and/or conditions of relevant environmental permits to be managed through contractual obligations with supervision from an Environmental Clerk of Works appointed by Thames Water.

1.9 Appendix K

In Table 3.1, in the row “Over winter birds” under “Mitigation”, the following should be added:

- Detailed noise abatement and visual disturbance mitigation measures to be developed in coordination with Natural England, taking account of local site knowledge from the site managers and following professional mitigation guidance, in particular the Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects produced by the Institute of Estuarine and Coastal Studies (IECS) at Hull University.

- Sensitive lighting design to be developed following professional guidance to address identified risks relating to light pollution that is applicable to birds in flight, such as that developed by the Institute of Lighting Engineers (Guidance Note 8 Bats and Artificial Lighting, 2018) and others, to ensure no adverse effects on site integrity from light spill.

- In combination studies to be conducted to identify the key flight paths of the wintering birds that use the designated site (and associated functional habitat), and an assessment to be made of the impact of the construction activities on these key flight paths.

- Agreed mitigation measures to be included in the project-specific HRA of each scheme to support applications for planning permissions and environmental permits.

- Implementation of planning conditions and/or conditions of relevant environmental permits to be managed through contractual obligations with supervision from an Environmental Clerk of Works appointed by Thames Water.

1.9.1 Section 4 – In-combination Effects

The text under Section 4 – In-combination Effects in Appendix K should be removed and replaced with the following:

“The South West London Pipelines (Chalk Streams) scheme has the potential to result in adverse effects on site integrity of the South West London Waterbodies SPA & Ramsar in combination with the following two Options from the Affinity Water revised draft WRMP:

- AFF-RTR-WRZ1-4010: Abingdon Reservoir to Harefield Transfer (50Ml)
- AFF-RTR-WRZ4-4011: Abingdon to Iver 2 (50Ml/d)

The Walton to Chessington pipeline which forms part of the Affinity Water schemes runs adjacent to the South West London Waterbodies SPA & Ramsar and another reservoir that is not designated but has the potential to be utilised as off-site functional habitat by the qualifying bird species of the designated site. As such the proposals carry a risk of causing an adverse effect on the integrity of the European site and its qualifying features, namely over-wintering gadwall and shoveler, without appropriate mitigation. Table 3.1 identifies a series of construction-period mitigation measures very similar to those identified in the HRA of the Affinity Water dWRMP for schemes AFF-RTR-WRZ1-4010 and AFF-RTR-WRZ1-4011. This enabled the HRA to conclude no adverse effects on site integrity. As such, since both the South West London pipelines (Chalk Streams) scheme and the two Affinity Water schemes will be implementing appropriate mitigation, even if construction occurs simultaneously, any low level residual effects (not significant alone) from the three schemes cannot act in combination to exceed the threshold for an adverse effect. In a worse-case scenario this mitigation may involve seasonal avoidance of construction”