



Annex F: Scheme Delivery Plan

Standard Gate two submission for London
Water Recycling SRO

Notice – Position Statement

This document has been produced as the part of the process set out by RAPID for the development of the Strategic Resource Options (SROs). This is a regulatory gated process allowing there to be control and appropriate scrutiny on the activities that are undertaken by the water companies to investigate and develop efficient solutions on behalf of customers to meet future drought resilience challenges.

This report forms part of suite of documents that make up the ‘Gate 2 submission.’ That submission details all the work undertaken by Thames Water in the ongoing development of the proposed SRO. The intention at this stage is to provide RAPID with an update on the concept design, feasibility, cost estimates and programme for the schemes, allowing decisions to be made on their progress.

Should a scheme be selected and confirmed in the Thames Water final Water Resources Management Plan (WRMP), in most cases it would need to enter a separate process to gain permission to build and run the final solution. That could be through either the Town and Country Planning Act 1990 or the Planning Act 2008 development consent order process. Both options require the designs to be fully appraised and, in most cases, an environmental statement to be produced. Where required that statement sets out the likely environmental impacts and what mitigation is required.

Community and stakeholder engagement is crucial to the development of the SROs. Some high-level activity has been undertaken to date. Much more detailed community engagement and formal consultation is required on all the schemes at the appropriate point. Before applying for permission Thames Water will need to demonstrate that they have presented information about the proposals to the community, gathered feedback and considered the views of stakeholders. We will have regard to that feedback and, where possible, make changes to the designs as a result.

The SROs are at a very early stage of development, despite some options having been considered for several years. The details set out in the Gate 2 documents are still at a formative stage.

Disclaimer

This document has been written in line with the requirements of the RAPID Gate 2 Guidance and to comply with the regulatory process pursuant to Thames Water’s statutory duties. The information presented relates to material or data which is still in the course of completion. Should the solutions presented in this document be taken forward, Thames Water will be subject to the statutory duties pursuant to the necessary consenting process, including environmental assessment and consultation as required. This document should be read with those duties in mind.

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1 Overview

1.1 Introduction

1.1.1 This document is a supporting document to the Gate 2 Report, specifically section 7, for the London water recycling schemes. It provides further information on scheme delivery plans beyond Gate 2 and to a Water Available For Use (WAFU) and the associated key delivery risks and proposed mitigation.

1.1.2 The overall structure of this document is as follows:

- Section 2 provides details of the scope of works required to deliver a future scheme, with focus on Gate 3.
- Section 3 sets-out scheme delivery plans including programmes along with key milestones, risks, assumptions and dependencies.
- Section 4 documents the work breakdown structure (WBS) for the next phase of the project, to RAPID Gate 3 for each scheme.
- Section 5 provides the detail of the risk management processes followed and the strategic scheme risks as shared with RAPID.

1.1.3 Four schemes of varying capacity and sizes make up the SRO progressed to Gate 2. The SRO contains Thames Water only schemes with no other water companies involved. Full details of these schemes are provided in the concept design reports for the schemes (annex A1-A4) which include the following:

- Mogden Water Recycling scheme;
- Mogden South Sewer scheme;
- Teddington Direct River Abstraction (DRA) scheme; and,
- Beckton Water Recycling scheme.

2 Scope Breakdown

2.1 Phases of work

2.1.1 This section sets out key activities required beyond Gate 2 for schemes within the SRO. A delivery plan for a water recycling scheme is conceptualised into a series of project stages from Gate 1 through to WAFU with key deliverables and activities shown in table 2.1. Progress through these project stages would be tailored to align with the need of schemes and timing identified through Water Resources South-East (WRSE) regional modelling and the Water Resource Management Plan 2024 (WRMP24) and therefore stages could be deferred or accelerated to suit these plans.

Table 2.1: Key project stages, outcomes and activities as part of a delivery plan for a water recycling scheme¹.

| Project Stage | Outcomes and key activities |
|---|--|
| Gate 1 | RAPID Gate 1 submission |
| Gate 2 | Draft WRSE Best Value Regional Plan Alignment to Draft WRMP24 RAPID Gate 2 submission |
| Gate 3 or mid-G3 checkpoint depending on scheme progression | Alignment of scheme need, timing and scale to the draft WRSE Regional Plan and draft WRMP24 Continued design and environmental development with scale of work dependent on when a scheme is required by the plans Address gaps identified at Gate 2 Complete options engagement / consultation to determine preferred alignment / construction sites Prepare consultation response document Confirm preferred procurement mechanism and approach for scheme <u>Prepare mid-Gate 3 checkpoint statement or schemes selected by draft regional plan commence planning and procurement activities to include:</u> Setup Planning Performance Agreements (PPAs) Obtain EIA Scoping Opinion from each local authority Draft Planning, Construction, Design and Access considerations Prepare parameter plans and environmental masterplan Draft procurement Strategic Outline Case (SOC) and Outline Business Case (OBC) or equivalent Market testing (where required), early contractor engagement and procurement preparation Prepare Direct Procurement for Customers (DPC) documentation for Ofwat Control Points B and C (or equivalent where in-house procurement is followed) Submit RAPID Gate 3 submission |
| Gate 4 | Confirm alignment of scheme need with draft or final WRMP24 and Regional Plan. |

¹ Key project stages assume a Town and Country Planning Act (TCPA) application to local planning authorities.

| Project Stage | Outcomes and key activities |
|------------------------|--|
| | <p>Undertake further public consultation / engagement on final consenting design</p> <p>Finalise design for planning and procurement</p> <p>Finalise Planning, Construction, Design and Access considerations</p> <p>Finalise Environmental Statement</p> <p>Finalise plans and masterplan</p> <p>Prepare consultation response report</p> <p>Submit procurement specifications aligning to scheme delivery model</p> <p>Submit planning application to each local authority</p> <p>Submit RAPID Gate 4 submission</p> |
| Gate / Phase 5 | <p>Support future consultation events held by local authorities through planning determination</p> <p>Prepare and discharge planning conditions</p> <p>Complete legal agreements</p> <p>Commence compulsory purchase order inquiry process (if required)</p> <p>Complete DPC Ofwat Control Points D and E (where DPC model is followed)</p> <p>Obtain planning approval</p> |
| Phase 6 – Procurement | <p>Issue procurement contract tender</p> <p>Contract tender finalisation</p> <p>Scheme tender award</p> <p>Approval of Full Business Case (FBC) (if required based on procurement model)</p> |
| Phase 7 – Construction | <p>Submission and approval of detailed design</p> <p>Enabling works commitments discharged</p> <p>Construction begins</p> |
| Phase 9 – Operation | <p>Scheme commissioning ready for full operation</p> |

2.2 Scope of Gate 3

2.2.1 We envisage a core set of activities through Gate 3 that will advance the design and environmental understanding of the water recycling schemes governed by when or if a scheme is required. Key differences in outputs will be in the level of design development and environmental investigation which will be governed by when a scheme is required. Schemes required within Asset Management Plan (AMP)9 or AMP10 will include more detailed design refinement and environmental investigation as well as the progression of

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a number of planning and procurement activities as outlined in table 2.1. This work will cumulate in a formal Gate 3 submission within AMP7.

- 2.2.2 Conversely schemes selected later in the regional plan or schemes identified as alternatives would continue with activities to investigate and refine the scheme, closing gaps and addressing uncertainties to generate a preferred scheme design. For schemes progressed via this route a 'mid-Gate 3 checkpoint' is proposed instead of a formal Gate 3 submission. This checkpoint would serve to decide on future scheme progression based on the final regional plan, WRMP24 and progress with preferred schemes.
- 2.2.3 There will be two concurrent consultations commencing autumn 2022 which will include water recycling schemes; a Thames Water consultation on the draft WRMP24; and, a Water Resources South East (WRSE) consultation on the draft WRSE regional plan. There will also be opportunities for consultation and engagement on specific water recycling schemes through 2023. Early engagement through Gate 3 would explore and seek feedback on the key choices to be made on the route corridor and intermediate shaft locations. We would provide construction and phasing information and set out how we will minimise impacts and where we can support local communities and enhance the environment.
- 2.2.4 For schemes identified as being needed within AMP9 or AMP10 a number of planning and procurement activities will progress through Gate 3 in accordance with table 2.1. This will involve:
- Setting up of planning performance agreements with local planning authorities which would support our pre-planning activities.
 - Environmental Impact Assessment (EIA) Scoping: A formal report would be submitted to each planning authority that the scheme interacts with to request a Scoping Opinion on the future scope of the Environmental Statement and planning application.
 - Preparation of the design and access considerations. Information would be captured relating to our scheme design vision and principles, construction detail and phasing, our landscaping and environmental plans and our core mitigation.
 - Preparation of parameter plans and a draft environmental masterplan for the scheme to support consultation and planning.
 - Draft procurement specifications to facilitate scheme procurement through subsequent Gates including market testing and contractor engagement.
- 2.2.5 In the event that a scheme is not required or not required until AMP11 or beyond we envisage a period of scheme deferral through Gate 3 and envisage a mid-Gate 3 checkpoint where progress can be reported and decisions on future scheme promotion made based on the final regional modelling and WRMP24. If at this checkpoint a scheme is deferred all project design information, environmental data and engagement logs will be catalogued and archived for a period of time. It is expected a scheme deferral will remain in place until approximately 10 years prior to when, or if, a scheme would be required.

2.3 Programme delivery

- 2.3.1 For schemes within the SRO it will be necessary to establish a team for 'client-side' governance, management and control functions. These will be established by Thames Water to ensure that the project is delivered safely, to time, budget and at the required level of quality and to ensure that it can be operated safely and effectively in the long-term. These systems and teams have started to be implemented through Gate 2 to support schemes being construction ready in AMP8.
- 2.3.2 The functions that have been, and continue to be established include:
- Governance and oversight, with the creation of a new Project Delivery Directorate and Portfolio Management Office (PMO) to ensure tight control and efficient consistency in approach and delivery.
 - Establishment of project control systems, for the monitoring, tracking and reporting of project progress to ensure efficient delivery of all subsequent phases.
 - Creation of new supporting roles, to ensure the right level of engagement with key stakeholders including a new engagement and consents strategy lead, senior legal counsel and regulation lead.
 - Establishment of a commercial oversight team, who will manage and deliver all of the commercial and procurement aspects of the programme, including professional services supply chain and scheme procurement, whether via DPC, SIPR or in-house delivery routes. This function will enable efficiencies through centralised cross-SRO procurement of shared services and consistency in engagement with both the supply chain markets and with Ofwat.
 - Development of a stronger technical leadership team to help deliver some of the longer-term benefits from the SRO portfolio, develop the digital strategy and capability across the projects including Digital Twin capability and drive technical consistency, standardisation and quality assurance.
- 2.3.3 It is envisaged through Gate 3 that the majority of PMO input will be for schemes progressing with planning and procurement activities.

3 Scheme Project Plans

3.1 Introduction

- 3.1.1 This section provides a number of programme scenarios for schemes from Gate 2 onwards. At this stage in the development lifecycle of schemes the schedule remains high-level with a number of dependencies and assumptions that underpin key milestones. Critically, the regional plan provides the milestone for when a resource is required and other milestones are calculated from this.

3.2 Earliest programme dates

- 3.2.1 In all cases, each water recycling scheme could be construction ready within AMP8 if required by the WRSE regional plan. The earliest a scheme could be construction ready

is illustrated in figure 3.1. This assumes the planning route is via a Town and Country Planning Act (TCPA) application, procurement is via the most appropriate route as set out in annex E (Procurement Strategy Report) and all processes progress in parallel. There is no quantified schedule risk allowance in this programme.

3.2.2 We have interpreted the RAPID requirements to be 'construction ready' in AMP8 as meaning that within the period from 2025 to 2030 inclusive that:

- The primary planning consent has been granted and any other primary permissions, regulatory or other requirements that would prevent the construction works proceeding have been discharged ahead of construction contract award.
- A construction contract has been awarded to a Competitively Appointed Provider (CAP) or other contractor for the construction of the works within the specified period. Notwithstanding that the construction contract will include (but not be limited to) a period between award and contract commencement, mobilisation activities, discharge of secondary consents and requirements, detailed design, and enabling works and other incidental works, for the purposes of board statement the SRO will be deemed as 'construction ready' at contract award.

3.2.3 Utilising the indicative programme in figure 3.1 provides the earliest WAFU dates if planning started immediately and no quantified risk allowance. This results in WAFU dates for schemes of:

- Beckton water recycling scheme – 2031/32
- Mogden water recycling scheme – 2031/32
- Mogden South Sewer – 2031
- Teddington DRA - 2031

3.3 Draft WRSE regional plan and WRMP24 outputs

- 3.3.1 The draft WRSE best value regional plan provides an indication of when a scheme is needed. The draft plan currently shows Teddington DRA scheme at 75 MI/d needs to deliver water into supply from 2031.
- 3.3.2 As part of Thames Water's draft WRMP24 a number of London water recycling schemes are selected as part of an alternative to the regional plan. Beckton water recycling scheme could provide an alternative source to Teddington if this preferred scheme did not progress for any reason. Beckton has also been identified as an alternative source for Affinity Water's Grand Union Canal (GUC) SRO via the Thames to Affinity Transfer SRO. Mogden water recycling scheme also provides a viable alternative to the Teddington or Beckton schemes.
- 3.3.3 The Mogden South Sewer scheme is not selected in the draft WRSE regional model. Investigations through Gate 2 established that the available dry weather flow (DWF) ranged between 33 to 36 MI/d which is substantially below a DWF of 60 MI/d required to support a 50 MI/d Mogden South Sewer scheme. As a result, only a smaller deployable output c.25 MI/d is possible. Thames Water took the decision early in Gate 2 to pause the direct design development of a Mogden South Sewer scheme and rely on development and synergies to Mogden water recycling scheme to support the Mogden South Sewer Gate 2 design development. This pause on direct design development limited unnecessary spend through Gate 2. As a result of the above Thames Water are recommending removing Mogden South Sewer from the RAPID gated process at Gate 2 although it should be noted that the scheme is included in Thames Water's draft Drainage and Wastewater Management Plan (DWMP) 2025-2050 as it provides a wastewater benefit as well as a water resources benefit.

3.4 Teddington DRA scheme programmes and milestones

- 3.4.1 Figure 3.2 provides an indicative delivery programme for Teddington DRA aligned to the requirement to supply Thames Water customers from 2031. To achieve a WAFU from 2031 a number of milestones need to be achieved. These are shown in table 3.1. Table 3.2 lists the key assumptions and dependencies the programme is based on. Figure 3.3 illustrates a construction programme for the scheme.

Table 3.1: Key milestones for Teddington DRA to be operational in 2031

| Milestone | Date |
|----------------------|-------------------|
| Planning application | Q2 2024 |
| Planning consent | Q2 2025 |
| Procurement award* | Q4 2025 – Q2 2026 |
| Construction start | Q1 2027 |

* The procurement milestone is represented by a date range to reflect different procurement models. The earliest date represents in-house procurement and our preferred approach.

Figure 3.2: Indicative delivery programme for Teddington DRA based on outputs from the draft regional plan and assuming planning via a TCPA and in-house procurement.

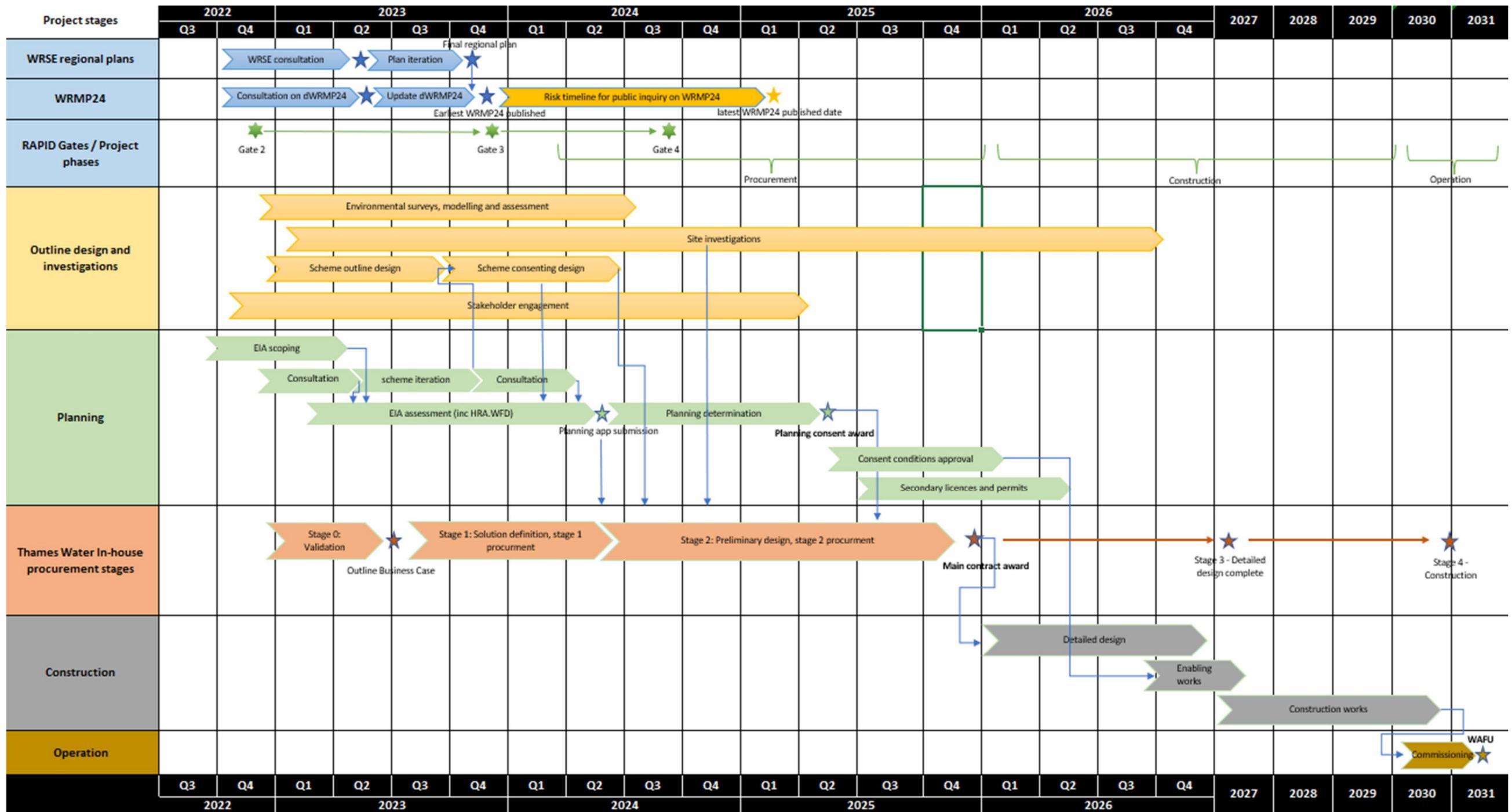
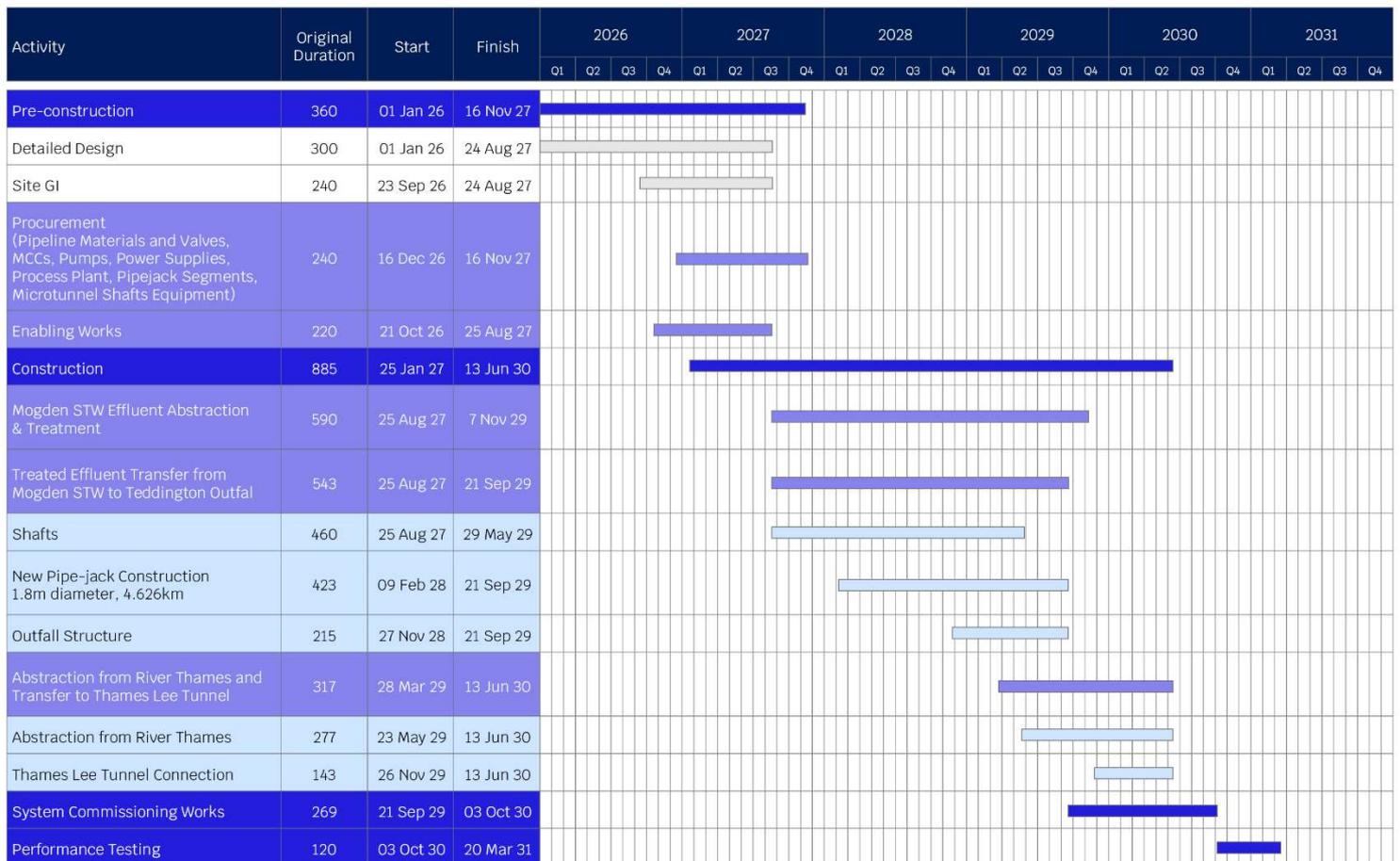


Figure 3.3: Indicative construction programme for Teddington DRA



3.5 Other water recycling scheme programmes

3.5.1 Figure 3.4 illustrates the typical construction programme for other water recycling schemes following planning consent and scheme procurement award.

Figure 3.4: Indicative delivery programme for a London water recycling scheme



3.6 Programme dependencies and assumptions

3.6.1 The key assumptions and dependencies that apply to scheme programmes are detailed in table 3.2.

Table 3.2: Summary of key programme dependencies and assumptions for schemes progressing through planning and procurement.

| Assumption or Dependency | Source / Rationale | Programme impact |
|--|---|---|
| Schemes will be an EIA development | EIA regulations (2017) | Period of time required for baseline data collection and impact assessment supported by modelling where required. |
| At least 2 years of baseline survey data collection will be required to inform the EIA for the scheme for critical receptors | To establish a robust baseline for detailed environmental impact assessment | Planning application unlikely to be possible before Q4 2023. Data collected under Gate 1 and Gate 2 would contribute to providing one year of data. A further core baseline year would be 2023. |
| Baseline data collected via RAPID Gate 1 and Gate 2 will support the EIA baseline | To establish a multi-year baseline for detailed environmental impact assessment | To support a planning application in 2024 for schemes selected in AMP9 or AMP10. |
| A core environmental baseline year will be required. For schemes progressing with planning activities in Gate 3 this environmental baseline year will be 2023. | To establish a multi-year environmental baseline for detailed environmental impact assessment | To support a planning application in 2024 for schemes selected in AMP9 or AMP10. |
| Two consultation / engagement periods are assumed pre-application to support scheme design development | To ensure local communities and stakeholders have opportunity to comment on and influence the development of the scheme | Feedback from engagement / consultation will shape the design and mitigation of the schemes and appropriate time is required post event to consider this feedback |
| Considerable GI data is expected to support consenting design and to support discharging of planning conditions. Pre-procurement GI will minimise risk and work is assumed to begin in 2023 for Teddington DRA. | Programme management Risk mitigation Support scheme procurement | GI works to commence in 2023 to inform design of selected schemes and continue through determination period. Information will be fed into scheme procurement at key data drop points |
| The scope of the Teddington DRA is as set-out in the Concept Design Report (annex A4) and at this stage the assumption is the Thames-Lee-Tunnel (TLT) extension (Lockwood to King George V reservoir) is not part of the planning application and is not included in the enclosed programme. | The requirement for the TLT extension is to be established through Gate 3. While it provides additional resilience its selection in the WRSE regional plan still requires investigation | The TLT extension will increase the number of local authorities determining the planning application and potentially take longer to consent. It will also increase the construction programme although there are opportunities to construct in parallel. The need for the TLT extension associated with |

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| Assumption or Dependency | Source / Rationale | Programme impact |
|--|---|---|
| The TLT extension remains linked to a Beckton scheme. | | Teddington DRA is still to be established but may add a further year to the overall programme. |
| Planning application will be to each local authority that interacts with the scheme via a TCPA route | TCPA (1990) | All local authorities need to approve the scheme for planning consent to be obtained. This is assumed to be within one year of an application |
| All planning conditions for discharge submitted upon receipt of planning permission and determined within 3 months | TCPA (1990) Programme management Support scheme procurement | To support scheme contract award which is critical path. Any delays will directly impact WAFU date |
| All legal obligations pre-commencement of works are submitted and approved within 3 months post grant of permission | TCPA (1990) Programme management Support scheme procurement | Allows procurement to be concluded latest Q2 2026 for schemes selected Any delays will directly impact WAFU date |
| Teddington DRA scheme would be delivered in-house and procurement would commence 2023 following exit of the DPC process at Gate 2. Contract award by end of 2025. Other schemes would use DPC | Annex E of our Gate 2 submission Ofwat / RAPID guidance on DPC | Supports early delivery of Teddington DRA |
| Abstraction and discharge licences would require separate subsequent application – but all pertinent issues addressed within Environmental Statement prepared for the planning application | Environmental Permits require separate application. Abstraction / discharge licences | Required to be in place prior to scheme commissioning to avoid scheme delay |
| Detailed design and further GI works completed within 12 months of contract award. Enabling works overlaps | Based on programme developed for Gate 2 | Fixed period assumption. All required GI works completed by 2027 (12 months after contract award) |
| Construction of schemes takes up to 3.5 years with opportunities to accelerate. | Based on programme developed for Gate 2 | Fixed period of main works |
| Construction of Teddington DRA is not impacted by drought or storm conditions and connection to existing infrastructure occurs when pre-planned | Based on programme developed for Gate 2 | The use of Mogden storm tanks or TLT transfer during planned outages for connection could delay the construction programme by up to one year |
| Commissioning takes up to one year prior to WAFU. Commissioning overlaps with construction | Based on programme developed for Gate 2 | Fixed period of commissioning based on projects elsewhere |

3.7 Delivery programme risks

3.7.1 Programme risks to WAFU have been semi-quantified for each key phase of work.

Planning phase risks

3.7.2 Our planning programme base-case assumes some challenge to planning applications for schemes but that these can be overcome within the timeframes set-out in table 3.1. A number of these challenges are set-out in our risk register presented in table 5.1. Some planning float up to c.6 months is contained within the overall scheme delivery schedule as a result of the critical path being procurement phase activities and not planning phase activities.

3.7.3 The following planning risks exist that would result in the following worst-case scenario.

- A requirement by regulators or stakeholders to collect more baseline data (through 2024) or undertake more detailed assessment of effects which could extend the pre-application programme by up to 6 months.
- Different timeframes for each LPA to approve the planning application, owing to differences in governance processes within each LPA may extend programme by up to 3 months.
- A planning committee refusal of the application which triggers a challenge by Thames Water for approval via appeal which, if successful, could impact programme by 12 months although it should be noted there is no statutory time limit to this process.
- A Judicial Review (JR) of the LPA decision to grant planning permission could delay a scheme significantly (12-36 months). The scale of delay would be governed by the nature of the JR and if Thames Water decided to undertake any work at risk in parallel to the JR process concluding.

3.7.4 In each case one or all risks may materialise although this would not necessarily result in sequential delays as some activity can be progressed at risk ready for final decisions.

3.7.5 Key mitigation to the planning risks posed will be an open and transparent approach to engagement with regulators and planning authorities and engaging with the public early through the pre-planning process.

Procurement phase risks

3.7.6 The procurement phase currently represents the critical path leading to a contract award and being construction ready.

3.7.7 Key procurement risks include:

- For DPC, delays at Ofwat Control Points which are dependent on engagement with Ofwat and providing a suitable level of information to progress.
- Delays in obtaining external support from legal and commercial advisors in drafting contractual agreements.
- Commercial challenges around specific scheme risks, for instance construction challenges highlighted in the Teddington DRA discreetness assessment (see

annex E), for example the construction of the tertiary treatment plant on top of existing operational storm tanks and the ability to transfer risk to the supply chain.

- Delays or extension to engagement with potential construction contractors in order to establish how best to design the procurement process, while maximising value for money.

3.7.8 In each case one or all risks may materialise resulting in delays to scheme procurement award of between 3 -12 months.

3.7.9 Key mitigation to the procurement phase is agreeing early with Ofwat the procurement approach and avoiding abortive work. Commencing the required procurement activities early in 2023, market testing and early contractor engagement will be key to achieving contract award on time for a scheme progressing within AMP9 or AMP10.

Construction stage risks

3.7.10 For the construction stage the recommended allowance based on the Treasury Green Book for non-standard civil engineering activities is in the range of 3-25% which would cover elements such as supply chain issues, delays on site, unexpended ground conditions and issues around commissioning a scheme. Overall, the delay risk through the construction and commissioning is expected to be at a worst-case up to 12 months.

3.7.11 Specific scheme risks also exist, in particular for Teddington DRA the construction programme will need to be phased with existing operations and avoid any emergency situations for example drought or storm conditions. As a result construction of key elements will need to be managed carefully and with flexibility. It is likely specific outages will be required to integrate into existing infrastructure and as result subsequent very wet winters followed by dry summers could delay this integration by up to 12 months.

3.7.12 Realistic procurement periods have been assumed within our delivery programme based on experience within the construction industry. Potential programme savings could be made by:

- Utilising standard products and equipment could result in shorter procurement durations.
- Work elements were assumed to be sequential with minor overlap (e.g. civil work followed by MEICA work in treatment plant construction, no concurrent shaft construction, etc.). This also represents the most robust schedule for project delivery. A contractor may decide to undertake works concurrently potentially leading to a shorter overall construction duration for these elements.
- There is 3 - 6 months of commissioning at the end of each main construction component (e.g., conveyance, treatment plant, river abstraction, etc.). Commissioning could happen concurrently as parts of the construction stage.
- The working calendar was assumed to be a 5-day work week with no allowance for night working. If planning consent can be granted for 24-hour or weekend working, construction duration could be reduced.
- Conservative production rates for construction schedules were used.

4 Detailed Work Breakdown and Programme to Gate 3

4.1 Introduction

- 4.1.1 In section 2 we outlined the key scope of Gate 3. This section provides further details on the indicative activities and programme per scheme based on the RAPID WBS.
- 4.1.2 Thames Water recommend at Gate 2 that ongoing scheme promotion through the RAPID gated process is done on a scheme-by-scheme basis owing to the SRO currently containing a scheme selected for 2031 and a number of schemes that are currently alternatives or may still be selected in further iterations of the modelling.
- 4.1.3 Thames Water is therefore proposing at Gate 2 to split the SRO along with scope and funding into the following:
- Teddington DRA SRO
 - Beckton water recycling SRO
 - Mogden water recycling SRO
- 4.1.4 This split then allows the development and progress of work through project stages to be based on the draft WRSE regional plan and the specific Gate 3 planning and procurement requirements relating to schemes. It will also ensure efficient spend with scheme progression aligning to the need allowing any changes to be incorporated and reflected in the wider programme.

4.2 Key Gate 3 activities and programme

- 4.2.1 Table 4.1 provides the target date for Gate 3 submission for Teddington DRA and dates for a mid-Gate 3 checkpoint for Mogden and Beckton schemes. This later date assumes WRMP24 and WRSE regional plan are finalised and published.

Table 4.1: Provisional Gate 3 and Gate 4 submission dates for each SRO.

| Scheme | Gate 3 target date | Gate 4 target date |
|-----------------------------|--------------------|--------------------|
| Teddington DRA SRO | November 2023 | September 2024 |
| Beckton water recycling SRO | May 2024* | N/A |
| Mogden water recycling SRO | May 2024* | N/A |

* Proposed date for a mid-Gate 3 checkpoint

- 4.2.2 For Teddington DRA the duration between Gate 2 and a planning application in Q2 2024 represents a period of approximately 18 months. Therefore, Thames Water propose that Gate 3 occurs midway through the pre-planning process, c. November 2023. At this point the outputs identified in section 2 can be provided as evidence of progress and efficiency of spend.
- 4.2.3 Beckton and Mogden water recycling schemes would continue to be developed as SROs through further investigations but without planning or procurement activities being undertaken. The critical factor governing the duration of Gate 3 for these schemes is related to ensuring a degree of certainty over the final WRMP24 and regional plan. It is envisaged a mid-G3 checkpoint in May 2024 is introduced where Thames Water can

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decide on future scheme promotion and any further studies based on outputs from the final WRMP24, regional plan and also progress with planning for preferred schemes. At this point if the scheme is not selected or selected from AMP11 or beyond then the scheme will be deferred for a period of time.

- 4.2.4 Table 4.2 and 4.3 lists the tasks anticipated through Gate 3 for each scheme. All tasks have been aligned to a WBS and include an indicative programme.
- 4.2.5 The level of design development and environmental investigations through Gate 3 will be governed by if and when a scheme is selected in the draft WRSE regional plan and is part of WRMP24.

Table 4.2: WBS and key indicative activities and timings planned for Gate 3 for Teddington DRA SRO.

| WBS | Key tasks through Gate 3 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 |
|--|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Programme and Project Mgmt | Project level management, coordination and reporting. Tasks include day-to-day management and coordination support, cost, programme and risk management | | | | | | | | | | | | | |
| | PMO strategic support function across SROs covering delivery programme, risk, cost control, regulation and consents strategy functions | | | | | | | | | | | | | |
| | Level 2 technical assurance of outputs for Gate 3 | | | | | | | | | | | | | |
| | Level 3 independent process assurance for Gate 3 | | | | | | | | | | | | | |
| Feasibility assessment and concept design | Lead engineering design consultant and coordinator | | | | | | | | | | | | | |
| | Scheme Principal Designer | | | | | | | | | | | | | |
| | Technical engagement support | | | | | | | | | | | | | |
| | Development, update and validation of consenting design for scheme at key milestones (includes prep of material for consultation / engagement) | | | | | | | | | | | | | |
| | Process design development to include STW capability to accept waste streams, development of discharge parameters, supply chain deliverability. | | | | | | | | | | | | | |
| | Investigation into the need for Reg31 compliant infrastructure including assessment of alternative reuse technology | | | | | | | | | | | | | |
| | Hydrogeology and geotechnical assessments | | | | | | | | | | | | | |
| | Structural assessments / safety calculations - (Mogden storm tanks, TLT connection, vulnerability assessment at Lockwood Res) | | | | | | | | | | | | | |
| | Development of construction and commissioning phasing | | | | | | | | | | | | | |

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| WBS | Key tasks through Gate 3 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 |
|--|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Operational phase scenario modelling, including utilisation rates | ■ | ■ | ■ | ■ | ■ | | | | | | | | ■ |
| | Transport strategy and assessment, to include modal assessment (rail, boat, road) for spoil, HGV movements, bills of quantity, cost, carbon assessments, modelling activities | ■ | ■ | ■ | ■ | | | | ■ | ■ | ■ | ■ | ■ | ■ |
| | Development of design principles (RIBA stage 3), access statements and environmental master planning | ■ | ■ | | | ■ | ■ | ■ | | | ■ | ■ | ■ | ■ |
| | Engagement with utility providers etc on conveyance route and support Head of Terms agreements. | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Development of CoCP, control plans, remediation plans etc to support early discharge of consent conditions | | | ■ | ■ | | | ■ | ■ | | ■ | ■ | ■ | ■ |
| | Flood and drainage risk assessment | | | ■ | ■ | | | ■ | ■ | | ■ | ■ | ■ | ■ |
| | Update drinking water safety plans | | | | | | | ■ | ■ | | | | | |
| Options benefit development and appraisal | WRSE input for further regional modelling outputs post consultation, including alignment with regional plans | | | | ■ | ■ | ■ | ■ | | | ■ | ■ | ■ | ■ |
| | Examine solution impacts on supply-demand balance / water resource benefit | | | | | | ■ | ■ | ■ | | | | | |
| Environmental assessment | Lead environmental consultant and coordinator | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Development of EIA scoping | ■ | ■ | ■ | ■ | ■ | | | | | | | | |
| | Environmental consultation material | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Technical engagement, including supporting consultation events | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Development of environmental masterplan, environmental controls and remediation plans. Task includes developing species relocation plans where required. | | | | | | | | | ■ | ■ | ■ | ■ | ■ |
| | Develop secondary permits and licences agreements | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Aquatic based modelling activities | | | ■ | ■ | ■ | ■ | ■ | | | | | | |

Annex F: Scheme Delivery Plan

| WBS | Key tasks through Gate 3 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 |
|---|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Land based modelling activities | | | | | | | | | | | | | |
| | Environmental assessment – EIA including carbon and sustainability assessments | | | | | | | | | | | | | |
| | Health and equality assessment | | | | | | | | | | | | | |
| | Water framework Directive assessment | | | | | | | | | | | | | |
| | HRA Stage 1 and Stage 2 including evidence reporting | | | | | | | | | | | | | |
| | Development of BNG, NCA and scheme benefits | | | | | | | | | | | | | |
| | Development of scheme mitigation plans, letter of no impediments, compensation plans and reporting via mitigation route map or commitments register | | | | | | | | | | | | | |
| | Regulator input and support (NAU, EA, NE) | | | | | | | | | | | | | |
| Data collection, sampling and pilot trials | Aquatic surveys | | | | | | | | | | | | | |
| | Terrestrial ecology surveys | | | | | | | | | | | | | |
| | Noise and Air quality surveys | | | | | | | | | | | | | |
| | Other environmental surveys, including landscape, geology, groundwater | | | | | | | | | | | | | |
| | Development of digital services (digital twin, BIM etc) | | | | | | | | | | | | | |
| | Water quality bench testing & pilot trials | | | | | | | | | | | | | |
| | Site investigations to include geotechnical studies, UXO surveys, topographic and utility surveys and GI works | | | | | | | | | | | | | |
| Procurement strategy | Development of procurement vehicle /strategy / procedure | | | | | | | | | | | | | |
| | Stage 0: Develop Value for Money case and draft OBC | | | | | | | | | | | | | |

Annex F: Scheme Delivery Plan

| WBS | Key tasks through Gate 3 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 |
|-------------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Stage 1: Solution definition and market testing | | | | | | | | | | | | | |
| | Stage 1: Procurement preparation | | | | | | | | | | | | | |
| | Draft and finalise SOC (if required) | | | | | | | | | | | | | |
| | Finalise OBC | | | | | | | | | | | | | |
| Planning strategy | Lead planning consultant and coordinator | | | | | | | | | | | | | |
| | Land referencing, including noticing, land negotiations and agreements | | | | | | | | | | | | | |
| | Utility / services engagement and agreements | | | | | | | | | | | | | |
| | Planning application leadership, including preparation of application forms, planning statement, statement of agreements | | | | | | | | | | | | | |
| | Implementation of planning strategy including planning lead approach to EIA and engineering development. | | | | | | | | | | | | | |
| | Support consultation and engagement activities and lead planning authority engagement activities, including S106 agreements | | | | | | | | | | | | | |
| | LPA support to pre planning engagement | | | | | | | | | | | | | |
| Stakeholder engagement | Stakeholder engagement lead | | | | | | | | | | | | | |
| | Stakeholder activities including database setup and recording / minuting of sessions. | | | | | | | | | | | | | |
| | Consultation events (including staffing, expenses) | | | | | | | | | | | | | |
| | Customer research and engagement activities including undertaking further research on customer preferences of drinking water source | | | | | | | | | | | | | |

Annex F: Scheme Delivery Plan

| WBS | Key tasks through Gate 3 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 |
|--------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Development of consultation material for planning application - consultation reports, statement of community involvement | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Legal | Legal advice and oversight to planning application and Heads of Terms agreements | | | ■ | | | | ■ | | | | ■ | | |
| Other | Preparation of Gate 4 activities | | | | | | | | | | | | | ■ |

Table 4.3: WBS and key indicative activities and timings planned for Mogden and Beckton Water Recycling SROs through to a mid-Gate 3 checkpoint

| WBS | Key tasks through Gate 3 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 | |
|---|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| | | | | | | | | | | | | | | | | | | | | | |
| Programme and Project Mgmt | Project level management, coordination and reporting. Tasks include day-to-day management and coordination support, cost, programme and risk management Respond to Gate 2 feedback, queries and actions | | | | | | | | | | | | | | | | | | | | |
| | PMO strategic support function across SROs covering delivery programme, risk, cost control, regulation and consents strategy functions | | | | | | | | | | | | | | | | | | | | |
| | Level 2 technical assurance of outputs | | | | | | | | | | | | | | | | | | | | |
| | Level 3 independent process assurance | | | | | | | | | | | | | | | | | | | | |
| Feasibility assessment and concept design | Lead engineering design consultant | | | | | | | | | | | | | | | | | | | | |
| | Review and appraise conveyance corridor, identify constraints, pinch points etc and seek to resolve | | | | | | | | | | | | | | | | | | | | |
| | Close design gaps and develop preferred scheme design with justification around design decisions | | | | | | | | | | | | | | | | | | | | |
| | Develop operational phase scenario modelling, including utilisation rates | | | | | | | | | | | | | | | | | | | | |
| | Develop design principles for the scheme | | | | | | | | | | | | | | | | | | | | |
| | Prepare engineering-based consultation material for option selection | | | | | | | | | | | | | | | | | | | | |
| | Prepare delivery programmes including construction strategy and a temporary works plan | | | | | | | | | | | | | | | | | | | | |
| | Update drinking water safety plan using latest baseline | | | | | | | | | | | | | | | | | | | | |
| Options benefit development and appraisal | WRSE input for further regional modelling outputs post consultation | | | | | | | | | | | | | | | | | | | | |
| | Examine solution impacts on supply-demand balance water resource benefits | | | | | | | | | | | | | | | | | | | | |

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| WBS | Key tasks through Gate 3 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 |
|--|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Environmental assessment | Lead environmental consultant | | | | | | | | | | | | | | | | | | | |
| | Development of environmental based consultation / engagement material | | | | | | | | | | | | | | | | | | | |
| | Support stakeholder engagement | | | | | | | | | | | | | | | | | | | |
| | Evaluate latest carbon figures and net zero plan | | | | | | | | | | | | | | | | | | | |
| | Interface with linked projects, i.e. T2AT SRO | | | | | | | | | | | | | | | | | | | |
| | Close environmental gaps through additional modelling and assessment | | | | | | | | | | | | | | | | | | | |
| | Regulator support (NAU, EA, NE) | | | | | | | | | | | | | | | | | | | |
| Data collection, sampling and pilot trials | Desk top site investigations work to inform design refinement | | | | | | | | | | | | | | | | | | | |
| | Critical environmental investigation work to address gaps in data | | | | | | | | | | | | | | | | | | | |
| Procurement strategy | Confirm procurement mechanism | | | | | | | | | | | | | | | | | | | |
| Planning strategy | Support consultation and engagement activities | | | | | | | | | | | | | | | | | | | |
| Stakeholder engagement | Consultation events | | | | | | | | | | | | | | | | | | | |
| | Customer engagement | | | | | | | | | | | | | | | | | | | |
| | Support stakeholder engagement | | | | | | | | | | | | | | | | | | | |
| Legal | Provide ongoing legal advice | | | | | | | | | | | | | | | | | | | |

5 Risk Management

5.1 Introduction

5.1.1 This section of the report outlines the risk management process applied to the programme. Risk is managed across the SRO programme using two specific elements.

- The overarching programme risk register, as reported to RAPID through the quarterly reporting process. This provides a register of programme level risks to the overall delivery of the scheme or to the achievement of the strategic outcomes required by the programme.
- The detailed costed risk register, which is produced by the engineering workstream (working in collaboration with the environmental workstream) and provides the detailed breakdown of construction phase risks and mitigation measures that are likely to have a material impact on the costs of the scheme. This element forms a key component of the overall scheme costs, as reported in Annex A5 (Cost and Carbon Report) and as provided into the WRSE regional modelling process.

5.1.2 This section and table 5.1 present the key strategic programme risks as reported to RAPID.

Table 5.1: Summary of the key strategic risks as shared with RAPID through quarterly reporting. (Amber rating indicates there is a risk that could impede progress but there is a plan to manage. Green rating indicates progress is going to plan and within the delivery plan programme).

| Short description/name | Pre-mitigation Impact rating | Detailed description including plan to manage | Post mitigation rating |
|---|------------------------------|---|------------------------|
| Change to costs/ scope due to lack of customer acceptability and recent focus on water quality. | Amber | There may not be customer acceptability for effluent reuse. The risk can be mitigated via continued stakeholder and customer engagement. Further work is planned with Thames Water customers and jointly across the WRSE region. Thames Water will also use lessons learnt from previous cases of changing water supplies to engage with customers. | Amber |
| Delays or objections from community and wider stakeholder challenge to a scheme | Amber | We are developing engagement and consultation plans to ensure local community members and wider stakeholders are listened to as we progress schemes based on the latest WRSE regional plan. We will address concerns as best as possible and provide feedback at appropriate stages. It is expected that public engagement on selected schemes will progress following consultation of the draft regional plan and WRMP24. | Green |
| Teddington scheme size - scale of environmental effects for schemes over >100Ml/d | Amber | NAU raised concerns at Gate 1 that scheme sizes over 75 ml/d could have significant environmental impacts on the River Thames and breach WFD guidance. These impacts include reduced flow, a depleted reach, and temperature and salinity effects. | Green |

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| Short description/name | Pre-mitigation impact rating | Detailed description including plan to manage | Post mitigation rating |
|---|------------------------------|---|------------------------|
| | | Through Gate 2 Thames Water has undertaken detailed modelling to provide evidence on the effect on different sized schemes and the results shared with the NAU. The conclusions are presented at Gate 2 and conclude that schemes at 100MI/d or less do not pose a significant environmental risk. Options over 100 MI/d are recommended to be rejected. | |
| Upper Tideway navigation risks | Amber | <p>Port of London Authority (PLA) raised concerns in relation to potential for schemes to reduce water level change in the upper Tideway, exacerbating navigation issues around Kew Shoals under low tide/low flow conditions.</p> <p>To manage this risk estuarine modelling has been completed for individual schemes and east / west combinations on Tideway hydrodynamics and results shared with PLA. Changes predicted in water levels are minimal.</p> | Green |
| DWI request for emerging contaminants monitoring | Amber | <p>Drinking Water Inspectorate (DWI) requested that a water quality (WQ) monitoring programme include analysis for emerging contaminants. This is not planned to be part of the monitoring programme and instead it is planned to rely on existing ongoing monitoring programmes for data.</p> <p>Consultation has been undertaken with the DWI on this and a 'watching brief' is currently agreed but there is flexibility to amend the programme through 2023 if required to avoid delays to either the planning application or scheme permits.</p> | Amber |
| Limited opportunities for Biodiversity Net Gain (BNG) | Amber | <p>Opportunities for delivering BNG and enhancement are likely to be limited due to the urban setting and lack of land availability. Where areas are identified there are unknowns about land ownership, site status and the scale of enhancement required. This has the potential to delay planning.</p> <p>Thames Water will develop a strategy to explore local opportunities to partner on BNG with relevant local authorities, nature conservation organisations and regulators. Once a short list of sites has been developed investigations would begin through 2023</p> | Green |
| Conveyance route and shaft locations | Amber | <p>Conveyance routes are at concept stage only and there remains a risk of 3rd party asset conflict or environmental constraints which may delay planning.</p> <p>Future work will define and analyse route corridors in greater detail and involve wider engagement to select a preferred conveyance route. Flexibility exists in the location of shafts.</p> | Amber |
| Sweetening flow | Amber | The operational philosophy for schemes has identified the requirement for a sweetening flow. This scenario is being assessed through Gate 2 but work will need to continue into Gate 3 to understand any potential environmental impacts and any ongoing stakeholder concerns. Any issues raised has the potential to delay planning. | Green |

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| Short description/name | Pre-mitigation Impact rating | Detailed description including plan to manage | Post mitigation rating |
|---|------------------------------|--|------------------------|
| | | Work will continue to develop the operational requirements and information will be shared with stakeholders as work progresses and the design matures. Flexibility exists in the operational regime if required. | |
| Scheme delivery for 2031 | Amber | <p>The draft WRSE regional plan indicates Teddington DRA is required for 2031. A number of programme risks and challenges exist to deliver a scheme from concept design through planning, procurement, construction and commissioning in 9 years. Through planning stakeholders may require more baseline data or detailed impact assessment which may result in a delay to the planning application submission. There will also be procurement and construction challenges to overcome as highlighted in the Teddington DPC discreteness assessment which could delay a scheme by up to 2 years (1 year procurement and 1 year construction).</p> <p>A suite of mitigation measures will need development at each key milestone to minimise programme delay. Through Gate 3 detailed scheme programme will be created and managed. Early mitigation measures implemented include Thames Water setting out a Gate 2+ scope to RAPID to commence early planning activities through autumn 2022. Further management and mitigation will need to be applied to minimise significant programme delays over the next 9 years.</p> | Amber |
| Teddington scheme procurement | Amber | <p>Thames Water recommend the Teddington scheme exits the DPC process for 'in-house' delivery at Gate 2. This allows sufficient time to progress a contract award by the end of 2025 or earlier. However, should the scheme not be allowed to exit until Gate 3 or beyond, scheme procurement is unlikely to be achieved within the timescales allowing for WAFU in 2031.</p> <p>Thames Water are in discussions with Ofwat about the merits and process to exit DPC at Gate 2.</p> | Amber |
| Integration of Teddington with existing Thames Water assets | Amber | <p>Programme risk exists around the integration and construction of Teddington to existing Thames Water operations. Through Gate 2 we have developed a greater understanding of the construction challenges of building a tertiary treatment plant in Mogden STW, either by decommissioning existing storm tanks or building over the top of them and connecting into the TLT. Both existing assets have critical operational importance.</p> <p>Mitigation measures will need to be developed through Gate 3 and Gate 4. Further design development will mitigate some aspects. The scope of Gate 3 should allow further investigations in the TLT during planned outages to quantify the level of risk posed with connecting into a 1960s structure. Construction contracts will need to specifically allow flexibility while ensuring value for money. Delivering the schemes in-house will partly mitigate and allow flexibility.</p> | Amber |

