Large Scheme Gated
Whitfield Growth

Submission 1

1 October 2025

from Southern Water

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Glossary

Acronym	Definition
AMP	Asset Management Plan
AONB	Area of Outstanding Natural Beauty – now National Landscape
BNG	Biodiversity Net Gain
BOD	Biological Oxygen Demand
Capex	Capital Expenditure
COD	Chemical Oxygen Demand
CTRL	Channel Tunnel Rail Link – High Speed 1
DPC	Direct Procurement for Customers
DD	Ofwat Draft Determination on the five-year Price Review
DWF	Dry Weather Flow
DWMP	Drainage and Wastewater Management Plan
EA	Environment Agency
EIA	Environmental Impact Assessment
FD	Ofwat Final Determination on the five-year Price Review
FE	Final Effluent
FFT	Flow to Full Treatment
KCC	Kent County Council
HRA	Habitats Regulations Assessment
ISAE (UK) 3000	International Standard on Assurance Engagements (UK version)
LPA	Local Planning Authority
LWS	Local Wildlife Site
LSO	Long Sea Outfall
MBR	Membrane Bioreactor
MCZ	Marine Conservation Zone
NPPF	National Planning Policy Framework
Opex	Operational Expenditure
PCD	Price Control Deliverable
PE	Population Equivalent
PG	Phase Gate
PIM	Programme Insights Manager
PR19	Price Review 2019
PR24	Price Review 2024
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
TCPA	Town and Country Planning Act 1990
Totex	Total Expenditure
UWWTR	Urban Waste Water Treatment Regulations
WTW	Wastewater Treatment Works (Ofwat refers to this as a STW)
WUE	Whitfield Urban Expansion
WFD	Water Framework Directive
WWPS	Wastewater Pumping Station

1 Executive Summary

The settlement of Whitfield, approximately 3km north of Dover in Kent, has been identified in the Dover Local Plan to accommodate an additional 6,350 new domestic properties as part of the Whitfield Urban Expansion (WUE).

Whitfield is currently part of the Broomfield Bank Wastewater Treatment Works (WTW) catchment which serves several communities, including the larger settlements of Dover and Folkestone. Current assets in the WTW catchment do not have the capacity to accommodate the full projected increase in flow and load (estimated to be an additional population equivalent of 15,240) without significant upgrades. Without the necessary upgrades, we anticipate adverse impacts on our regulatory performance commitments.

Given the scale of the proposed development and the significant capacity constraints within our existing assets, we believe it is in the best interest of Southern Water Services (SWS) customers, the environment and the communities we serve to pursue a solution, or suite of solutions, that can accommodate the full development of 6,350 homes. This is the Whitfield Growth Scheme.

A preferred solution of developing a new WTW near Whitfield with a coastal discharge was identified at PR19 and PR24. Additional work to inform Submission 1 has included building on historic work to identify potential new options, refreshing both the scope elements and associated costs of existing viable/feasible options, and identifying the actions required to confirm a preferred option.

A summary of the key scheme details is included in Table 1.1:

Category	Whitfield Growth Scheme Details
River Catchment	River Stour
Population Equivalent (PE)	15,240
Scope	Provision of additional wastewater capacity to meet the PE
Excluded Scope	Other growth in the Dover and Folkestone WTW catchment; Wastewater from existing Whitfield settlement
Regulatory Driver	Growth
Programme Timeline	Additional capacity provided by 2035 (AMP 9 and beyond)
Estimated Development Allowance	[redacted]

Table 1.1: Whitfield Growth Scheme Summary

The feasible options considered in this report are:

- Option 1: Pumping flows approximately 10km to the existing Broomfield Bank WTW, with an associated upgrade at the WTW.
- Option 2: Pumping flows approximately 14km to the Dambridge Wingham WTW, with a rebuild of the works to accommodate the increase in flows.
- Option 2a: Pumping flows approximately 14km to Dambridge Wingham WTW, with the development of a new Membrane Bioreactor (MBR) side stream treatment process.
- Option 3: Development of a new WTW with a discharge to groundwater.

- Option 4: Development of a new WTW with a coastal discharge (the PR24 Preferred Option).
- Option 5: Development of a new WTW with an inland river discharge.

Key findings for Submission 1 are:

- The PR24 Preferred Option (Option 4) remains the preferred option at this stage, subject to further consideration of the alternative options which will be undertaken during the preparation for Submission 2. This will include an appraisal of best value.
- Option 3 - a new WTW with a discharge to groundwater has been discontinued. The high uncertainty of being able to gain consent to discharge to ground from the Environment Agency (EA) in this sensitive location, and the requirements that would need to be in place for emergency scenarios, mean that this option is not considered viable.
- Option 1 has remaining technical complexities and high cost uncertainties that need further investigation. These complexities include the Broomfield Bank WTW being buried underground as part of the planning conditions to protect the site's designated landscape, a complex hydraulic sewer network and proximity to the Channel Tunnel Rail Link. Construction feasibility studies, hydraulic studies and engagement with local authorities are being planned or in progress.
- Options 1, 2, 2A, 4 and 5, are all deemed viable options at this stage and will be taken forward for further consideration and potentially best value appraisal. This will be carried out during the initial stages of the Submission 2 period and reported on at Submission 2.

A dedicated customer insight exercise was carried out to inform our Submission 1. This helped us understand customers' views and preferences. Customers understood the need to plan for future growth. A potential new WTW was seen as a long-term, environmentally sustainable solution. Some residents expressed support for moving flows elsewhere to be treated, believing it would be less disruptive and make better use of existing infrastructure. However, other customers thought it would be more costly and complicated, requiring major infrastructure upgrades.

Key risks identified at Submission 1 are:

- Risk of not obtaining planning permissions, resulting in cost increase and build delays.
- Risk of not obtaining key consents in time, resulting in programme delay.
- Risk if innovative no-dig technologies are not embraced, resulting in significant cost & time implications.
- Risk that any acceleration in catchment growth cannot be accommodated in a timely manner.
- Risk due to currently unknown locations, future access for environmental purposes may be delayed.
- Risk if there is change to current process guidance resulting in re-work.
- Risk of negative public perception resulting in rework.

Depending on the results of ongoing hydraulic modelling to determine the capacity of the existing network, a phased implementation may be required. Current forecasts indicate that some investment would be required before 2031 due to capacity constraints within the existing wastewater system, prior to the completion of construction and commissioning of the full scheme. The current delivery plan, based on the PR24 Preferred Option (Option 4), identifies a full scheme would be operational by 2035.

Recommendations of Submission 1 are:

1. The Whitfield Growth Scheme should progress to Submission 2.
2. Submission 2 is to be submitted within the 2027 assessment window (March to May). This would enable option selection to be refined, carry out onsite investigations and surveys, finalise and progress option development with sufficient robustness, to achieve the best solution for customers and the environment, with key decisions shared with Ofwat through quarterly reporting. This timescale does not affect any statutory obligations.

2 Background and Objectives

2.1 Introduction

This document examines options for accommodating population growth as part of the WUE. The provision of additional wastewater capacity to meet this demand is known as the Whitfield Growth Scheme. Whitfield in Kent is situated approximately 3km north of Dover, and just north of the A2 - an important international transport route connecting to the Port of Dover and mainland Europe.

Whitfield is currently part of the Broomfield Bank WTW[1] catchment which serves several communities, including Dover, Folkestone, Hawkinge, Densole, Capel-le-Ferne, Lydden, Alkham, Shepherds Well and Guston. It is the largest catchment in the Stour River catchment and includes approximately 870 km of sewer network and has a population equivalent (PE) of 115,003. Treated effluent from this WTW is discharged via a long sea outfall discharging into the English Channel, 3km offshore.

Figure 2.2.1 shows the location of the WUE (in blue) and the current adjacent Broomfield Bank catchment (in purple outline).

Figure 2.2.1: Map of the Whitfield Urban Expansion (blue) and the local catchment (purple)

[1] Also referred to as Dover and Folkestone catchment / WTW

2.2 The Investment Need

Significant residential development at Whitfield was first identified as a strategic allocation in 2010. The "Dover District Local Plan to 2040[2]," adopted in October 2024, allocates land to the WUE, with a total allocation of 6,350 new homes. At the Local Plan's adoption in 2024, 1,483 homes had received planning permission, with 478 already built. A further 678 homes have received detailed reserved matters consent from the Local Planning Authority. An additional 6,350 new domestic properties result in a projected increase in PE of 15,240.

Current assets (including the Broomfield Bank catchment) do not have the capacity to accommodate the projected increase in flow and load without significant upgrades. Without the necessary upgrades, we anticipate adverse impacts on our regulatory performance commitments.

Mitigation measures have already been implemented by installing network storage at a location suitable for a new pumping station**.** This will ensure the service levels experienced by existing customers are not compromised.

Given the scale of the proposed development and the significant capacity constraints within our existing assets, we believe it is in the best interest of our customers to pursue a solution, or suite of solutions, that can accommodate the full development of 6,350 homes.

Funding to support new wastewater development is managed through the Price Control mechanism, most recently under Price Review 2024 (PR24). Under this mechanism:

- Growth at WTWs is funded by customers through an Enhancement Case.
- Upgrades to the sewer network are funded by developers via Infrastructure Charge income.

2.3 Drainage and Wastewater Management Plan

Long-term planning for new development was incorporated into Southern Water's (SWS) Drainage and Wastewater Management Plan (DWMP)[3] Cycle 1. The final plan was published in May 2023.

The DWMP Broomfield Bank Wastewater System Plan[4] identified: "The risk of non-compliance with our wastewater quality permit has been assessed as very significant

[2] Dover District Council. Dover District Local Plan to 2040 – Adopted October 2024. Available at: https://www.doverdistrictlocalplan.co.uk/uploads/Adopted-Local-Plan-Documents/V2-Dover-District-Local-Plan-to-2040-High-Resolution-for-download-RGB-87.44-MB.pdf
[3] Southern Water. Drainage and Wastewater Management Plan: Level 1 Regional DWMP (2023). Methodology adapted from Figure 4: ODA. Available at: https://www.southernwater.co.uk/media/z10afjzj/a0003_dwmp_regional_plan_final.pdf
[4] Southern Water. Drainage and Wastewater Management Plan: Broomfield Bank Wastewater System Plan. Available at: https://www.southernwater.co.uk/media/fyplgfx5/l3_brom.pdf

for both 2020 and 2050". This is attributed to operational activity and insufficient capacity to accommodate projected growth.

As part of our PR19 submission in September 2018, we included a Cost Adjustment Claim[5] to support the assets required to accommodate the development. The housing forecast at the time projected 5,750 homes by 2040, based on the Dover Core Strategy 2010[6].

The preferred solution at PR19 was the construction of a new WTW with a long sea outfall discharging into the English Channel 3km offshore during Asset Management Plan 7 (AMP7). The DWMP focused on existing WTW's systems and, as the preferred solution for Whitfield was a new WTW which would create its own wastewater system, it was not included in the scope of the Southern Water DWMP Cycle 1.

In tracking the build rates at Whitfield during AMP7, development was not progressing at the pace that had been anticipated at PR19. Therefore, the cost adjustment was withdrawn, and investment deferred to AMP8. The build-out rate was accommodated with existing assets, including a new attenuation tank [redacted]

2.4 PR24 Business Plan

Southern Water's draft PR24 plan was submitted in October 2023 with a dedicated Enhancement Case for Growth at WTWs[7]. Development at Whitfield was included with £55m (2022/23 cost base) of expenditure in AMP8 to construct a new treatment works.

Ofwat responded accepting the need for additional capacity to treat the proposed flow from the development site.

Between October 2023 and August 2024, the options have been further enhanced specifically focussing on cost and deliverability. From this activity, the cost of a new WTW substantially increased (to £103.74m in 2022/23 cost base). As per the Draft Determination Response[8] the three main reasons for the cost increase were:

- Increase in cost of the long sea outfall, based on learning from other recent projects (including Swalecliffe WTW SSO scheme).
- Rerouting the final effluent discharge pipeline from the new WTW to the long sea outfall.

[5] Southern Water: TA14.3 Cost Adjustment Claim 3 – Growth – Whitfield Technical Annex September 2018. Available at: https://www.southernwater.co.uk/media/h4heh2g5/ta-143-growth-whitfield.pdf
[6] Dover District Council. Local Development Framework: Adopted Core Strategy 2010. Available at: https://dover.opus3.co.uk/ldf/documents/adopted_core_strategy/chapter_409
[7] Southern Water: SRN44 Growth at Wastewater Treatment Works 2 October 2023. Available at: https://www.southernwater.co.uk/media/dgbkg4ww/srn44-wastewater-growth_redacted.pdf
[8] Southern Water: SRN-DDR-048: Wastewater Treatment Growth – Enhancement Cost Evidence Case. Available at: https://dv.southernwater.co.uk/media/mgql0yhs/srn-ddr-048-wastewater-treatment-growth-enhancement-cost-evidence-case.pdf

- Revised assumptions on the location of the new WTW, requiring additional pumping.

Additionally, the complexity and cost uncertainty for the Broomfield Bank WTW upgrade has increased, resulting in a low confidence in the upgrade being deliverable. This is due to the complex nature of upgrading an underground WTW and associated planning constraints.

Finally, with the "Dover District Local Plan to 2040[9]," approved in October 2024, 2,200 homes have been accelerated into the plan period (i.e. up to 2040) when compared to the 2010 Dover Core Strategy. Therefore, the Whitfield WTW Growth scheme needs to be implemented in line with the accelerated plan.

The Whitfield Growth Scheme is now being progressed using the Large Scheme Gated Process[10].

[9] Dover District Council. Dover District Local Plan to 2040 – Adopted October 2024. Available at: https://www.doverdistrictlocalplan.co.uk/uploads/Adopted-Local-Plan-Documents/V2-Dover-District-Local-Plan-to-2040-High-Resolution-for-download-RGB-87.44-MB.pdf

[10] Ofwat: PR24 final determinations – Expenditure allowances. February 2025. Available at: https://www.ofwat.gov.uk/wp-content/uploads/2024/12/9.-PR24-final-determinations-Expenditure-allowances.pdf

3 Optioneering and Solution Design

3.1 Introduction

Optioneering has informed the selection of the PR24 Preferred Option (Option 4). In addition, we have enhanced the PR24 Preferred Option (Option 4) analysis to identify potential options and refreshing both the scope elements and associated costs to inform this submission. This is in-line with SWS' PR24 Methodology entitled "SRN15 Cost and Option Methodology".[11]

3.2 Options appraisal

3.2.1 Option appraisal to inform PR19 and PR24

Optioneering to accommodate growth at Whitfield was initially carried out to inform the PR19 submission and presented as part of evidence to support the Cost Adjustment Claim on Growth – Whitfield[12], setting out six options for providing wastewater treatment services to the Whitfield development:

- Option 1: Pumping flows approximately 10km to the existing Broomfield Bank WTW, with an associated upgrade at the WTW.
- Option 2: Pumping flows approximately 14km to the Dambridge Wingham WTW, with a rebuild of the works to accommodate the increase in flows.
- Option 2a: Pumping flows approximately 14km to our Dambridge Wingham WTW, with the development of a new Membrane Bioreactor (MBR) side stream treatment.
- Option 3: Development of a new WTW with a discharge to groundwater.
- Option 4: Development of a new WTW with a coastal discharge.
- Option 5: Development of a new WTW with an inland river discharge.

At PR19, Option 4 was preferred. The option was considered to have a similar cost to other options; have the best whole life cost; carried a greater chance of permitting success and offered strong levels of long-term resilience.

At PR24, solutions and costs for two options were developed from SWS proposals at PR19 and re-costed for PR24. These two options were:

- Option 1: Pumping flows approximately 10 km to SWS existing Broomfield Bank WTW, with an associated upgrade at the WTW; and
- Option 4: Development of a new WTW with a coastal discharge.

In the Draft Determination (DD), Ofwat accepted the need for additional capacity to treat flows for the WUE. Since submission of the original business plan in October 2023 the options were further developed to better understand cost and deliverability with benchmarking of direct costs. Due to the complexities of both options and the uncertainty around viability of the Broomfield Bank WTW option, there is still significant

[11] Southern Water. SRN15 Cost and Option Methodology: Technical Annex (October, 2023). Available at: https://www.southernwater.co.uk/media/mjyp0of4/srn15-cost-and-option-methodology_redacted.pdf
[12] Southern Water. TA14.3 Cost Adjustment Claim 3 – Growth – Whitfield: Technical Annex (September 2018) https://www.southernwater.co.uk/media/h4heh2g5/ta-143-growth-whitfield.pdf

uncertainty in scope, complexity, and therefore, cost. This matter is addressed under Risk No. 13 in Table 5.2.

3.2.2 Options appraisal to inform large scheme gated approach

As the optioneering work to inform PR19 was undertaken in 2018, it was considered essential to incorporate additional factors in order to update the optioneering to improve the robustness of the approach. This work does not seek to replicate PR19 activities, but does seek to:

- Provide supplementary information for an unconstrained long list of options that should be considered in meeting the need for additional wastewater capacity.
- Ensure that an appropriate range of approaches and factors have been considered, for example nature-based solutions and carbon performance.
- Demonstrate alignment with Options Development Appraisal (ODA) approach adopted in Southern Waters' Drainage and Wastewater Management Plan (DWMP)[13]
- Identify key risks and opportunities to be carried forward into future appraisals and studies.

To achieve this, the methodology set out in Figure 3.2.1 below has been used. A review of potential unconstrained options is set out in Annex A1: Solution Optioneering Review.

[13] Southern Water. Drainage and Wastewater Management Plan: Level 1 Regional DWMP (2023). Methodology adapted from Figure 4: ODA. Available at: https://www.southernwater.co.uk/media/z10afjzj/a0003_dwmp_regional_plan_final.pdf

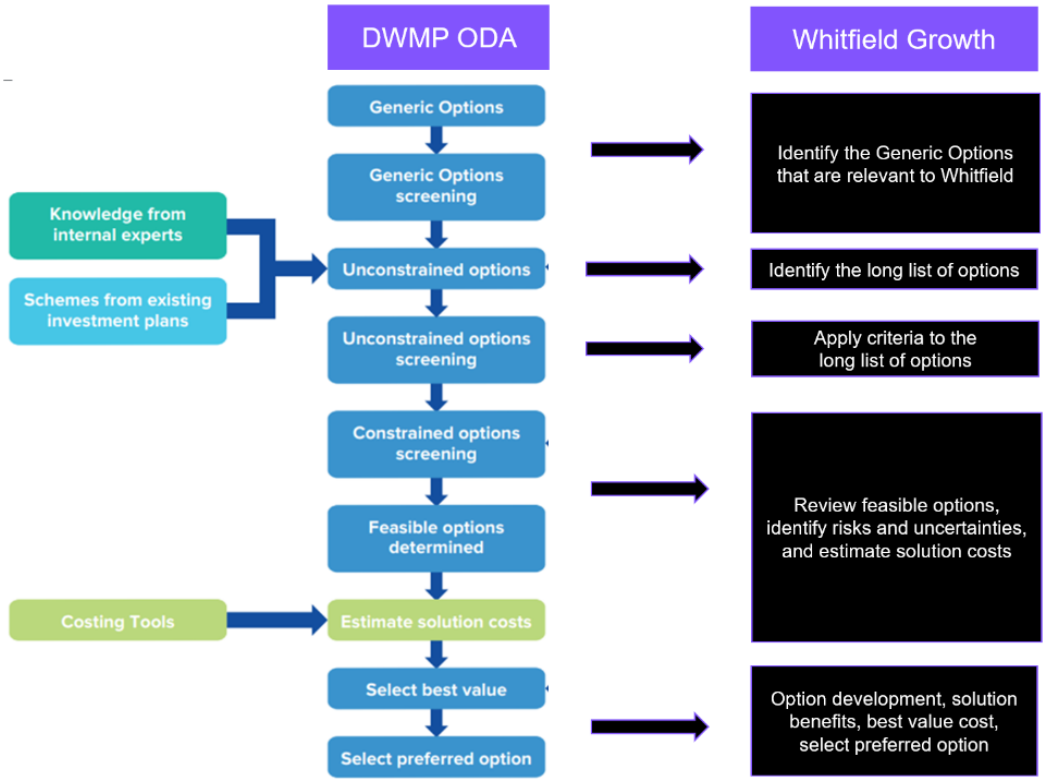

Figure 3.2.1 Drainage and Wastewater Management Plan Options Development Appraisal method and alignment to the approach being taken for Whitfield Growth Scheme

Once the unconstrained options screening was complete, the list of feasible options was compared to the PR19 options (specified in Section 3.2.1). No additional feasible options were identified. It was recognised, however, that nature-based solutions perform well under some criteria and could form part of a future wastewater process solution. In addition, although options such as additional attenuation would not comprehensively meet the anticipated need, they provide benefits as interim solutions if needed.

3.2.3 Findings from the feasible options review

The scope of the feasible options identified at PR19 has been updated and reviewed to inform Submission 1. See Annex A2: Feasible Options Review. A review of environmental and social considerations is set out in Annex A3: Environmental Appraisal.

A summary of the key issues and uncertainties for the feasible options is set out below:

Option 1 – Upgrade of Dover & Folkestone WTW (Broomfield Bank)

- High complexity because it is likely that assets will need to be underground for planning requirements, similar to those applied to the existing WTW at this location. Further consultation is required to understand whether this would be the case. Engagement with the Kent Downs National Landscape Unit, Kent County Council

and Dover District Council will help verify the initial views regarding the complexity associated with this option.

- High risk as the new underground structures will be adjacent to or over the Channel Tunnel Rail Link (HS1). Further information is required on the position and depth of the HS1 tunnel to quantify this risk and to assess the feasibility of mitigation measures.
- High cost uncertainty as likely need for additional scope to allow for modifications to the existing outfall, this would be dependent on likely modifications required to the discharge permit and confirmation of capacity restrictions on the existing outfall. Further consultation with the EA to determine the potential environmental permit amendments will provide confirmation on the scope changes required.

Options 2 and 2A – Transfer to Dambridge WTW

- A long pipeline to another catchment (Dambridge Wingham WTW), may pose issues with septicity. Further work is required to ensure that the complexity of this option, including appropriate mitigation, is sufficiently understood.
- Concerns regarding the required technology to meet environmental performance standards, alongside concern with operational risk of ensuring multiple process streams operate efficiently to achieve the environmental permit requirements. Further review of the proposed treatment to define the risks will enable a conclusion as to whether this option is feasible.
- There is a concern that disturbance arising as a result of the construction of a new pipeline and WTW could impact communities remote from the source of the wastewater. Engagement, management and mitigation measures would need to be in place to minimise disruption to customers and stakeholders.

Option 3 – New WTW; Groundwater Discharge

- Significant risks relating to obtaining a permit to discharge to ground in an environmentally sensitive location. SWS is concerned about the potential impact on groundwater quality, which is shared by the EA, meaning that obtaining a permit is considered unlikely.
- Significant uncertainty of the final effluent requirement and associated treatment technology to achieve that target.
- Operational complexity associated with managing storm and emergency discharges as well as operational contingencies could result in significant additional scope. This could reduce the identified benefits of this option above others. For example, a new outfall may be required for emergency discharges.

Option 4 – New WTW; Coastal Discharge (PR24 Preferred Option)

- Uncertainty on effluent quality requirements and hence treatment requirements are assumed at this stage and likely restrictions will be confirmed as the scheme progresses.
- Complexity of constructing new treatment works which would require land purchase, road and rail crossings and tunnelling activities for pipelines would increase design complexity, potentially resulting in increased costs and programme delays.

- The long sea outfall and balancing tank will involve extensive marine construction activities. These design complexities may result in increased design and construction costs
- Depending on location the pipeline and outfall could intercept several biodiversity designations on the east Kent coast, including Dover to Kingsdown Cliffs Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI), Dover to Deal Marine Conservation Zone (MCZ) and Kingsdown and Walmer Beach Local Wildlife Site (LWS) and priority habitats. Further assessment will be required, including a Habitats Regulation Assessment (HRA) and Water Framework Directive (WFD) assessment (for impacts on designated bathing waters).

Option 5 – New WTW; Inland River Discharge

- High risk relating to obtaining a permit to discharge to river. The River Dour is a chalk stream as it is in hydraulic continuity with the groundwater, such that any impact to water quality in the river would be seen as impacting water quality in the aquifer. Ongoing discussions with the EA will provide further insight on this risk.
- Complexities of construction as this option required significant disturbance in highly populated areas of Dover, interaction with major roads and railway crossings need to be further understood to determine how they would constrain the option.
- Understanding the balance of environmental risk against the cost, programme, deliverability risk could improve this option against the PR24 Preferred Option (Option 4).

3.2.4 Optioneering conclusions at Submission 1

The review of optioneering has not identified any new feasible options. The findings from previous optioneering that the PR24 Preferred Option (Option 4) remains the preferred option for the same reasons identified in PR19 and PR24, principally that Option 4 has:

- Higher likelihood of gaining discharge consent, compared to Options 3 and 5.
- Greater opportunity to size a new WTW to accommodate flows for additional future capacity in the network, compared to Options 1, 2 and 2A.
- Lower impact to customers / public compared to Option 1, and reduced risks to the Kent Downs National Landscape and the Channel Tunnel Rail Link.

The PR24 Preferred Option (Option 4) remains the preferred option at this stage, subject to further consideration of the alternative options which will be undertaken during the preparation for Submission 2. This will include an appraisal of best value.

Based on the review of feasible options, Option 3 (a new WTW with discharge to ground) is being discontinued due to the significant risks in obtaining a permit, reflecting the views of the EA, combined with uncertainty on treatment scope and complexity for emergency operational contingencies required for plant failure scenarios. All other options will be taken forward to the best value assessment and solution benefits, for further investigation in the Submission 2 period.

Information on the design of Option 4 (PR24 Preferred Option), is set out below.

3.3 Solution Design

The purpose of a new WTW is to accommodate the additional wastewater flows being generated by the WUE. A new WTW will enable the treatment of wastewater near to the source, with the treated final effluent being transferred via an underground pipeline to the coast of the English Channel. This is referred to as the PR24 Preferred Option (Option 4).

A high-level summary of the solution design is provided below:

- Upgrading of an existing attenuation tank and pumping station to transfer flows via a new rising main to a new WTW.
- A new WTW to accommodate growth from the WUE, treating effluent to the required standard.
- Treated final effluent transferred via a pumped underground pipeline (approximately 10km) to the coast.
- A new long sea outfall (approximately 3km) discharging treated final effluent to the sea, within the conditions of a new permit.

A site and route selection exercise will be conducted to identify options for siting a new WTW, routing new pipelines and locating a long sea outfall. This exercise will start with identifying the environmental and social constraints in the area around Whitfield and in the area between Whitfield and the coast (between Walmer in the north and Dover in the south).

Work to understand the available existing hydraulic capacity around Whitfield is ongoing. Depending on these findings as well as the realisation of the housing forecast in the short term, there may be a requirement for the early phases of the Whitfield Growth Scheme to provide additional capacity in the existing network. For example, the existing attenuation tank may be expanded and developed to support the full Whitfield Growth Scheme and could act as a wet well for a pump station for untreated sewage to be transferred to the proposed treatment site.

To inform solution design, a detailed investigation will be required to review the optimum way to configure any additional infrastructure with the existing assets.

The provision of additional wastewater capacity will be sized to accommodate growth at Whitfield. This is currently considered to be a PE of 15,240. Providing a new WTW means that the additional flows are diverted from the existing Broomfield Bank wastewater catchment and therefore do not contribute to additional pressures on this catchment. Additional information on the current treatment assumptions is set out in Annex A4: Basis of Design.

A new WTW to accommodate a PE of 15,240 could be sited on approximately 4ha of land. Additional land would be required should opportunities to incorporate nature-based solutions, treat flows from the existing Whitfield village or provide any additional treatment capabilities be pursued. It is anticipated that any new WTW would be developed as a modular unit, providing flexibility and phasing to meet future growth.

Planning for the long term and incorporating nature-based solutions are supported by our findings from our customer insight work.

A new transfer pipeline (transferring the treated final effluent to the sea outfall) is expected to be approximately 10km. The routing of the pipeline will be informed by the route and site selection exercise to identify viable options. It is expected that a new pipeline with an internal diameter of 450mm will provide sufficient capacity to accommodate the anticipated flows. Pipelines of this size typically require around 20m either side for a construction corridor, with subsequent arrangements for easements for access for operation and maintenance purposes. The hydraulic conditions and operability of the new network assets will be subject to additional studies. Third-party statutory undertakers will be contacted, as road and rail crossings will be required. It is anticipated that no-dig techniques will be used for crossings of railways, national highways and main rivers (if required).

The treated final effluent will be discharged into a balancing tank. This tank serves as a hydraulic buffer and flow regulator, feeding the downstream long sea outfall system (approximately 3km). Discharged treated final effluent will enter the sea within the conditions of a new discharge permit to be agreed with the EA.

Following the granting of planning permission, construction is expected to take five to six years (see Section 5).

Given the scale and complexity of a new WTW and associated network improvements, the delivery phases will likely be undertaken by SWS existing Framework Partners, following a competitive tendering process. This approach offers several key advantages:

Existing Strategic Relationships
- Faster mobilisation due to established trust and working relationships.
- Reduced mobilisation time and costs.
- Better collaboration and communication from prior experience.
- Culture and behaviour alignment.
- Long term commitment to Southern Water as agreements extend beyond the programme of the Whitfield Growth Scheme.

Competitive Tendering Ensures Value for Money
- Encourages innovation and cost-efficiency.
- Ensures transparency and fairness.
- Commercial competition between partner organisations.

Alignment with Strategic Objectives
- Aligned goals and objectives, which will deliver a solution that is sustainable and resilient, provides the required asset performance long term and meets customer expectations.

Reduced Risk and Increased Certainty

- Familiarity with processes and procedures mitigates delivery risk.
- Common understanding of regulatory constraints.
- Risks will be better managed through established delivery model and governance.

4 Solution Costs and Benefits

4.1 Introduction

This section provides costs for the PR24 Preferred Option (Option 4) and the costing methodology that has been used to derive the costs. A best value appraisal has not yet been undertaken and will be submitted at Submission 2.

4.2 Change Log - Post PR24 FD

There have been no material changes to the scope, benefits, site location, route, programme or costs on this project since the PR24 Final Determination in December 2024 (based on Ofwat's PR24 criteria of change). As a result, no change log is included in this submission. The alternative options will continue to be developed and appraised and will be adopted, if appropriate, in the Change Log at Submission 2.

4.3 Cost Estimates

The cost estimate is based on scope information and data derived from the PR19/ PR24 submissions, alongside updated design and technical inputs. The cost build-up is in-line with SWS' PR24 Methodology entitled "*SRN15 Cost and Option Methodology*" [14].

Reviews on the scope items has been undertaken to ensure that relevant yardstick and sizing information is available and correctly presented. The scope items were reviewed to ensure they matched the associated curves and models.

The cost models and generated costs were validated and a sense check was applied to the outputs to address any further anomalies. The cost information was benchmarked and is reported within Annex B1 - Cost Build Up Outline Methodology.

Table 4.1 Summary Cost Breakdown PR24 Preferred Option (Option 4) - Class 4 Estimate

Item	Cost
Blended Total Project Estimated Cost (Inc Corp OH for Price Review (PR) Only)	[redacted]
Corporate OH	[redacted]
Blended Total Project Estimated Cost (Exc Corp OH)	[redacted]
Total Indirect Costs	[redacted]
Contractor & Client Indirects	[redacted]
Sites Specifics and TtOR	[redacted]
Net Direct Works Costs	[redacted]

[14] Southern Water. SRN15 Cost and Option Methodology: Technical Annex (October, 2023). Available at: https://www.southernwater.co.uk/media/mjyp0of4/srn15-cost-and-option-methodology_redacted.pdf

The base cost of the project includes all direct construction and delivery activities, such as, civil, mechanical and electrical works; installation of pipelines, treatment facilities, or infrastructure; materials, labour, and subcontractor costs and site preparation and enabling works.

These components collectively form the Total Net Direct Works, which represents the base cost of the project;

- Cost Models: circa 60%
- Bottom-Up Estimates and Quotations (inflated to 2022/23) undertaken by SWS CIT: circa 40%

Contractor and client Indirect Costs are applied to the Net Direct Works to account for site management and supervision, temporary works and facilities design and engineering support and project controls and administration.

These have been applied as a percentage uplift of 76.5% to the Net Direct Works.

Blended project total is the sum of Net Direct Works and Indirect Costs, representing the full cost of delivering the physical scope of the project.

A contingency or risk allowance is added to cover estimating and scope uncertainty. This has been calculated as 9.8% of the Blended Project Total, as per SWS' PR24 Methodology (as detailed above).

The Total, includes all costs required to deliver the project, including net direct works, contractor and client indirect costs and risk allowance it does not include corporate overheads. Corporate overheads include head office support, governance and assurance, legal, finance, and HR functions and strategic management. These have been applied as a percentage uplift of 11.7% the Total (Excluding Corporate Overheads).

The Total Project Cost includes Net Direct Works, Contractor & Client Indirect Costs, Risk Allowance and Corporate Overheads.

This estimate has been classified as being at Class 4 with the upper limit of 35% (£144,464,288) and lower limit of -21% (£84,538,361). The percentage level of current cost confidence is based upon the current scope / design maturity which underpins the estimate.

Benchmarking analysis was also completed and is included within Annex B2 - Options Benchmark Report.

4.4 Best value appraisal

Best value appraisal has not been undertaken at this stage, due to the remaining uncertainties that need to be resolved. This activity will be undertaken once the planned work has been completed to resolve identified uncertainties and issues for the current feasible options. The best value appraisal will then be applied, during Submission 2 preparation, to the remaining feasible options.

The approach to best value appraisal will be informed by:

- SWS corporate value framework for Cost Benefit Appraisal[15] and Risk and Value process. This includes consideration of embodied carbon, operational carbon and natural and social capital value. Example natural and social capital measures include:
  - Waterbodies regulated by the Water Framework Directive and potential changes to their status'
  - Designated bathing waters and potential changes to the expected level of bathing water quality
  - Land use change (informed by the type of asset being proposed)
  - Global climate regulation (carbon sequestration)
  - Natural hazard regulation (flooding and erosion)
  - Impacts on biodiversity
  - The level of public trust / institutional support
  - Engagement, networks and partnerships
- SWS DWMP[16] stated approach to Value Engineering:
  - Identifying options that offer best value to customers and the environment, ensuring robust, resilience and sustainable drainage and wastewater services in the long-term.
- Ofwat's Public Value Principles[17], which set out expectations that companies should seek to create further social and environmental value while delivering their core services.

[15] Southern Water. SRN15 Cost and Option Methodology: Technical Annex (October, 2023). Available at: https://www.southernwater.co.uk/media/mjyp0of4/srn15-cost-and-option-methodology_redacted.pdf
[16] Southern Water. Drainage and Wastewater Management Plan (DWMP): Strategic Context (March, 2023). Available at: https://www.southernwater.co.uk/media/4cplzcbj/b0005-dwmp-strategic-context.pdf
[17] Ofwat. Ofwat's Final Public Value Principles (March, 2022). Available at https://www.ofwat.gov.uk/about-us/our-strategy/ofwats-public-value-principles/

5 Programme and Planning

5.1 Project delivery plan

We have developed a project delivery plan for the PR24 Preferred Option (Option 4) encompassing Submission 1 through to commissioning. We have ensured that this submission is fully aligned with our DPWW4 delivery plan table, including all key milestones and expenditure details. The relevant table is provided in the Annex C1. The work undertaken as part of our Submission 1 preparation has produced a more robust delivery plan which supersedes our 12 August delivery plan submission. While this is our best expert view of the delivery plan at the point of submission, our work continues and any further amendments required will be incorporated into our 7th November delivery plan update. As part of Submission 2 there may be further changes to the delivery plan baseline.

Depending on the results of ongoing hydraulic modelling to determine the capacity of the existing network, a phased implementation may be required. Current forecasts indicate that some investment would be required before 2031, due to capacity constraints within the existing wastewater system, prior to the completion of construction and commissioning of the full scheme. The current delivery plan, based on the PR24 Preferred Option (Option 4), identifies a full scheme would be operational by 2035 and is summarised in Figure 5.1.

Based on the proposed scope of works and programme constraints, our proposed target date for Submission 2 is within the 2027 assessment window (March to May). Should any significant risks emerge that affect our delivery plan, we may propose the Submission 2 target date be adjusted. SWS would discuss this approach in the quarterly engagement meetings with Ofwat as required.

The activities completed by Submission 2 will deliver the following:

- Greater certainty on the available hydraulic network capacity in the existing system, which will help identify when the first phase of the scheme will be required. This will be achieved by reviewing the outputs from ongoing network modelling and continuing to improve our intelligence on developer forecasts, planning permissions and housing completions. This will be completed in early 2026.
- The uncertainties will have been closed out and the best value appraisal of the feasible options will be completed. We will have confirmed the Final Selected Option. This will be completed early 2026.
- Further engagement with stakeholders will have been undertaken. This will inform the confirmation of the Final Selected Option which will be reported on at Submission 2. This will include the local planning authority (Kent County Council), the EA, Natural England (NE), Historic England, Kent Downs National Landscape Unit and other statutory consultees. We will have developed our land strategy following engagement with selected landowners. This will be ongoing through 2026.

- Enhanced pipeline routes and site selection approach to further improve the robustness of the solution design of the Final Selected Option. Siting decisions will continue to be subject to derisking activities (e.g. desk-based assessment, focused site surveys, landowner identification) alongside engagement to manage impacts, promote benefits and capturing evidence to inform consenting activities. This will be completed by the end of 2026.
- Enhanced solution design through ongoing development of the engineering scope and additional consideration of modular design, nature-based solutions and permitting. This will inform scheme costs and risks. This will be completed by the end of 2026.

The delivery plan has been created and reviewed with the following working assumptions which are subject to change as the project matures.

Table 5.1 Indicative Delivery Plan Working Assumptions

Delivery Plan Phase	Working Assumptions
Ofwat Submission	Submission 2 to be submitted between March to May 2027. 2026 will be required to; confirm Final Selected Option, define suitable land, routing of network upgrades, enabling and ecology surveys, ongoing engagement with statutory bodies, and procurement of a framework partner to commence outline design.
Solution Development	Forecasting to be completed in the first quarter of 2026, this will enable identification of suitable locations and site selection process to commence (ca. 6 months). Purchase of land (permanent or temporary) inclusive of negotiating terms (ca. 12 months).
Enabling	Undertake proportionate ecology surveys across relevant seasons. (ca.12months). Unable to undertake ecology surveys until landowner permission granted. Commence formal process with all relevant agencies (excluding LPA), e.g. MMO, Crown Estate, Dover Port Authority and others. (ca. 3 years).
Design	Delivery of outputs required for Submission 2 (ca. 12 months). Drafting Scope documentation & procurement /tender selection process of framework partner for outline design (6 months). Outline design for a scheme of this scale and complexity (ca. 12 months). EIA to commence towards the latter stages of Outline design (ca. 12 months). Planning submission to follow EIA to ensure all designs/construction methodologies are sufficiently advanced (ca. 12 months).
Delivery	Anticipated delivery of a scheme of this scale and complexity would be in the order of 6 years. Phased approach to delivery, Phase 1 solution will be required by the end of 2031 to ensure catchment capacity is maintained until Phase 2 is delivered.

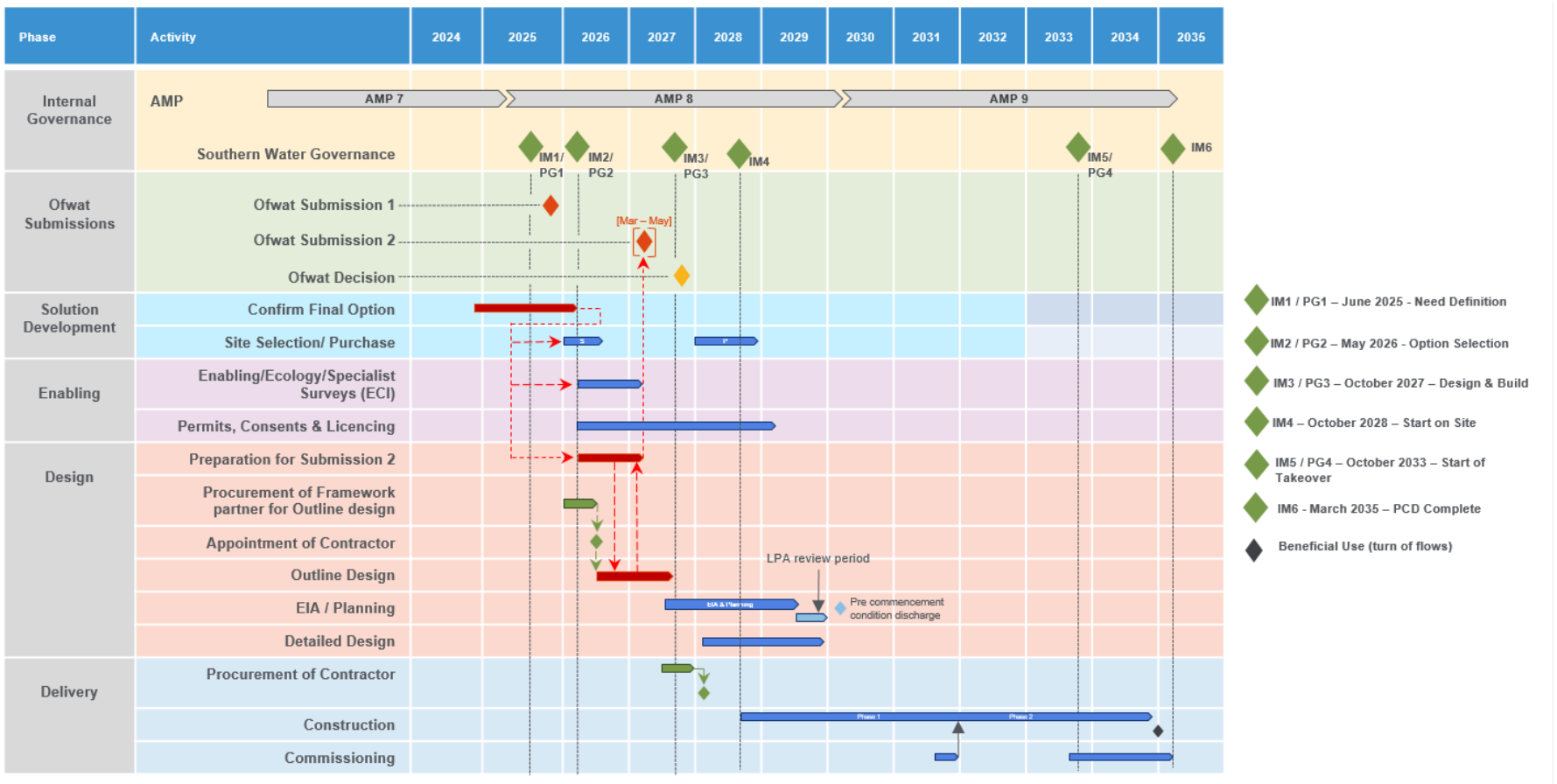

Figure 5.1 Delivery Plan for PR24 Preferred Option (Option 4)

5.2 Planning and consenting route

In progressing the PR24 Preferred Option (Option 4), the appropriate planning consent route would be that a planning application (via the Town and Country Planning Act 1990) be made to the local planning authority – Kent County Council.

The approach to planning consent is described in Annex D1: Planning and consenting strategy, and key issues are summarised below.

The appreciable scale and scope of works required for the PR24 Preferred Option (Option 4) may well be assessed as producing a 'likelihood of significant environmental impacts. This would trigger the requirement to carry out an Environmental Impact Assessment (EIA) to provide an Environmental Statement to accompany the planning application.

Significant planning constraints exist in the area are the Kent Down National Landscape and the Dover to Folkestone MCZ. To secure consent for development in the National Landscape, it would be necessary to meet the public interest test, demonstrate exceptional circumstances (including the need for the scheme, the cost and scope of developing elsewhere or meeting the need in another way). Development, such as a sea outfall, would require a marine licence, granted by the MMO (also triggering the need for an EIA).

If the PR24 Preferred Option (Option 4) is selected as the final selected option, initial assessment of local constraints show that it would be possible to locate a new WTW and route a pipeline from Whitfield to the coast that avoids the National Landscape and MCZ. There is confidence at this stage that a scheme can be identified, assessed and promoted to successfully secure planning consent.

The final selected option will require temporary use and permanent land acquisition, whether secured through negotiation and agreement or through statutory powers. Environmental Permits for discharges would need to be discussed and agreed with the EA.

5.3 Key risks and mitigation measures

The identification and evaluation of project risks has been undertaken in accordance with SWS's Capital Delivery Risk Management Framework. This framework stipulates the process that all capital projects must follow regarding the management of risks and is ISO31000:2018 Risk Management Standard.

In accordance with the above requirements, the key risks to achieving the project objectives have been identified and assessed and mitigation action plans developed.

Given the early stage of this project, and that the final design option has not yet been confirmed, full Quantitative Risk Assessment, through recognised modelling approaches (e.g. Montecarlo analysis) has not been undertaken. However, the risks

presented below have undergone individual quantitative assessment, against a range of impact criteria, as per the Risk Management Framework (see Annex D2 for the risk impact assessment matrix used).

The top risks as currently assessed are shown in Table 5.2; the risks in this table apply to all identified options.

To note: Whilst certain risks such as the requirements associated with Biodiversity Net Gain, or the ability of our Supply Chain to meet the demands of the project, have bearing on this project, these are managed centrally within Capital Delivery in accordance with our current risk hierarchy. Details of the framework and hierarchy are available.

Table 5.2 Top Risks

Risk ID	Risk Description	Current Risk Score	Mitigation Action	Residual Risk Score
5	Due to the locality of Whitfield, there is a risk of delays in obtaining key consents, specifically, planning application; discharge permits; marine license, due the area being designated with the National Landscape (ANOB) resulting in an increase in project costs and programme delays.		Stakeholder engagement plan includes prioritising engagement with local planning authority, Environment Agency, Natural England and Marine Management Organisation.	
12	For Option 1 there is a risk that a new outfall and discharge chamber is required, as a result of the existing Broomfield Bank long sea outfall potentially not having sufficient hydraulic capacity nor meeting current environmental standards. This would lead to significant additional scope, costs and project delays.		Early technical assessments and dispersion modelling should be undertaken. If limitations confirmed, alternative solutions such as a new outfall and discharge chamber should be evaluated alongside budget and schedule contingencies. Early engagement with regulators will help streamline approvals reduce potential delays.	
13	For Option 1 Broomfield Bank WTW, there is a risk that there is an underestimate of scope required to deliver the solution. For example, hydraulic capacity shortfalls as well as process capacity shortfall due to media migration and uneven aeration. This would lead to increased capital costs and delays to project delivery.		Further hydraulic modelling and deliverability / constructability of Option 1 - Upgrading Broomfield Bank to be undertaken to inform the Option selection process.	
4	Due to a location for the preferred option not yet identified. There is a risk that site selection and purchasing of land requires protracted legal intervention. Resulting in delays to enabling/ecology surveys, planning submission and potentially the start of construction activities		Critical once final option is chosen. Draft and implement a Capital Communication Plan to determine the approach for early customer/land owner engagement.	
15	Due to Option 1 Broomfield Bank WTW locality to the Channel Tunnel, there may be restrictions in where and how the existing treatment process can be modified which may lead to increased cost and programme delays.		Early engagement with the Channel Tunnel Safety Authority (CTSA) to understand restrictions and limitations on construction activities.	
17	There is a risk discussion with the EA will become protracted which may lead to delays in the design and construction of the solution, and/or require significant rework resulting in additional cost and time.		Maintain collaborative working relationship with the EA throughout the duration of the scheme via regular bimonthly mtgs to escalate concerns alongside the formal Pre app process.	
6	There is a risk the existing attenuation tank is not of sufficient capacity to accommodate the catchment until December 2031 based on build out rates exceeding the current design parameters. As a result, this will require additional design and construction activities which are over and above the current scope and design.		Complete ongoing hydraulic modelling to determine the capacity of the existing network. Introduce a phased approach to delivery.	

6 Customer Protection

Ofwat proposed a non-delivery Price Control Deliverable (PCD) for all wastewater companies to clawback allowances for additional growth at sewage treatment works (STWs) for capacity that is not delivered. For Whitfield Growth Scheme this will follow the conditions as set out in the PR24 Final Determinations Expenditure Allowance[18].

Southern Water and Ofwat will track the delivery of this scheme quarterly. The PCD for the Whitfield Growth Scheme (PCDWW27) is based on the addition of added process capacity between 2025-30 to meet current and expected quality permits, measured by Population Equivalent (PE). The Whitfield solution will be forecasted to be completed by 2035; therefore, the process capacity will not be increased until 2035.

The scheme is not suitable for standard modelling due to its nature, i.e., the PR24 Preferred Option (Option 4) is a new treatment works. Therefore, the PCD excludes Dry Weather Flow and ammonia permit changes.

At PR24 final determination, the total allowance including development funding is proposed to be £103.74m. Delivery is expected by March 2035, with flexibility for extension to 2040 if substantially started. The PCD will be updated based on final solution and by Submission 2.

For the purposes of this price control deliverable, for this scheme to be confirmed as delivered it must be fully commissioned, operational and in permanent use. The solution delivered must be permanent and not temporary.

Table 6.1 PCD Information

Company	Southern Water
Enhancement area	PR24 Growth at STWs
PCD No.	PCDWW27
Common Requirements	See Section 4.4 of Price control deliverable appendix
Additional company specific requirements	
Description	None
Output measurement and reporting	None
Assurance	None
Conditions on scheme	None

Non-delivery PCD rate	Unit	Scheme type	Outlier type	Outlier efficiency	Reason for outlier	Added Process Capacity in PE	Expected change in DWF permit	Ammonia permit change dummy (<3 mg/l)	Allowance pre adjustments (£m)	AMP 8 adjustment factor	DWF compliance adjustment value	Post AMP8 and DWF adjustment allowance	Other adjustment factor	Post adjustments and FS and RPEs allowance
Whitfield WTW	£m	Deep dived	Cook's Distance	Efficient	Statistical	15240	3,024*	-	[redacted]					

*the change in Dry Weather Flow (DWF) is for information only and we are not proposing this forms part of the PCD

[18] Ofwat. PR24 final determinations: Expenditure allowances. Available at: https://www.ofwat.gov.uk/wp-content/uploads/2024/12/9.-PR24-final-determinations-Expenditure-allowances.pdf

7 Stakeholder and Customer Engagement

7.1 Introduction

The development of the scheme has been informed by inputs from stakeholders. We are committed to working openly and transparently. We have taken on board views captured from stakeholders to date and have developed a stakeholder engagement plan to inform our activities to Submission 2 (see Annex E1: Stakeholder and Customer Engagement).

7.2 Customer Priorities

SWS customers recognise that population growth in the Southeast is high. They want us to ensure infrastructure is developed to not just 'keep up' with growth but protect for future generations. For our stakeholders, development and new housing remains a top issue in our engagement and view us as central to the planning process.

Customers want to see solutions that feel logical and are more focused on the right option for the long term. They want solutions that can cope with increases in population and demand, and climate change for the years ahead. Customers, in general, do not support a quick fix (using the term 'sticking plaster') for essential infrastructure. There is an underlying perception the UK, in general, has been lacking at forward thinking and investment planning.

In the comprehensive responses we received to SWS DWMP[19], our customers cited addressing ageing infrastructure combined with the impact of population growth and climate change as the most important issues for SWS plans. We observe the same feedback when engaging less informed customers, with the top two issues for our operational area being the ageing infrastructure and population growth.

When engaging with SWS local communities, of the 15 major population areas of our region, 60% have concerns about population growth, lack of funding and the ageing infrastructure. For example, customers in central Kent are concerned at the over development and loss of green space. However, customers in nearby Deal perceive that there are too many houses being built without the proper infrastructure in place.[20]

To support the best option, customers want reassurances that the right solutions have been explored. They want to see nature based and partnership options prioritised but also understand a twin track of natural and traditional solutions are often needed. Customers want to see the infrastructure delivered in a sustainable way that balances the need for meeting long term requirements with keeping bills affordable.

[19] Southern Water. Drainage and Wastewater Management Plan: Statement of Response (May 2023) https://www.southernwater.co.uk/media/mhyfixph/a0012-statement-of-response.pdf
[20] Southern Water. SRN44 Growth at Wastewater Treatment Works: Enhanced Business Case (October 2023) Available at https://www.southernwater.co.uk/media/dgbkg4ww/srn44-wastewater-growth_redacted.pdf

We carried out dedicated customer insight in the area to help inform our Submission 1 options development and understand customers' views and preferences. Customers' initial reaction to the scheme was mixed but they had a shared understanding of the need to plan for future growth, highlighting existing issues with blockages and tankering. A potential new WTW was seen as a long-term, environmentally sustainable solution. However, customers shared concerns about further development in the area and the impact of odour and noise. Some residents expressed support for moving flows elsewhere to be treated, believing it would be less disruptive and make better use of existing infrastructure. However, other customers thought it would be more costly and complicated, requiring major infrastructure upgrades.

Engagement with customers will continue through the development of the Whitfield Growth Scheme.

7.3 Regulators and partner organisations

In developing our DWMP, we worked with a wide range of partners, including the EA, Local Planning Authorities and organisations with responsibilities for protecting and enhancing the environment such as NE, Catchment Partnerships and River and Wildlife Trusts. We engaged with over 180 individuals from 75 organisations. Issues and comments relevant to the area around Whitfield, Deal and Dover and Folkestone have been captured[21].

The EA have been kept up to date with this scheme through quarterly meetings setting out scheme progress. Views and initial feedback from the EA were inputs to the consideration of solution options at PR19[22]. In July 2025, we agreed to hold a series of regular meetings with the EA to identify risks and issues early and develop plans to mitigate them through solution development, assessment and consenting. Our first meeting in August 2025 provided an update to the Whitfield Growth Scheme, position at PR24 and planned approach to Submission 1 and Submission 2 of the Large Scheme Gated Process.

We met with Ofwat in July 2025 as part of the regular Quarterly Review meetings. We introduced the team, provided an update on the scheme progress, issues, risks and timeline. Quarterly meetings will continue through Submission 1 and Submission 2.

[21] Southern Water. DWMP: Register of Stakeholder Comments (July 2022). Available at https://www.southernwater.co.uk/media/jc5llcts/register-of-stakeholder-comments.pdf
[22] Southern Water. TA14.3 Cost Adjustment Claim 3 – Growth – Whitfield. Technical Annex (September 2018). Available at https://www.southernwater.co.uk/media/h4heh2g5/ta-143-growth-whitfield.pdf

7.4 Stakeholder engagement plan

Stakeholder mapping has been undertaken and is reported in Annex E1. This exercise has identified the following groups:

- Regulators: Ofwat, EA, Drinking Water Inspectorate, MMO, NE, Historic England.
- Local Planning Authority: Kent County Council
- Local authorities and parish councils: Dover District Council and Parish Councils.
- Statutory Undertakers: Network Rail, National Highways, Crown Estate, and Utility providers.
- Environmental, community and business groups: Kent Downs National Landscape Unit, Kent Wildlife Trust, National Trust, Recreational users of the coast / sea, Residents, East Kent Chamber of Commerce, Port of Dover.

Key engagement activities with these groups in the period to Submission 2 are:

- Regular contact with Ofwat and the EA to report solution progress and risk management.
- Targeted meetings with the Local Planning Authority, Kent Downs National Landscape Unit, NE, Historic England and the MMO to discuss initial development ideas and constraints, which can inform design development.
- Contacting Statutory Undertakers to identify technical and programme constraints in the location of the solution and ways of working to mitigate constraints.
- Providing updates to neighbouring local authorities and parish councils to share.
- In addition, consulting environmental, community groups and residents through steps in the planning process, e.g. non-statutory consultation exercise.

Customer engagement will continue through our established channels, including seeking feedback from our customer panel as the development of the solution continues, as well as aligning with other LSG projects.

8 Assurance

8.1 Our approach to assurance

As described in our statement Data Assurance Summary, we take full responsibility for the performance information and seek to take a transparent approach to data assurance. The 'three lines of defence' framework is tailored for our reporting governance and assurance activity. This framework helps to assure performance information by applying multiple levels of control.

Ultimately, all assurance activity has oversight from the Board and Audit Committee; the Board maintains oversight of material risks and issues, and the timelines for improvement, while the Audit Committee monitors the assurance over the integrity of information reported by us in fulfilment of our regulatory, legal and environmental obligations as well as overseeing and challenging the effectiveness of the approach.

SWS Risk, Audit and Assurance team ensures compliant reporting to our regulators by ensuring all our reporting is subject to internal review and appropriate external assurance.

[redacted] have been engaged to undertake limited assurance (under ISAE (UK) 3000) on SWS Large Scheme Gated Submission 1, focusing on completeness, accuracy and validity of the data in the areas detailed by Ofwat in their Final Determination and subsequent guidance. [redacted] reports for each scheme are appended to this submission and describe their scope, approach and findings in greater detail.

8.2 Managing Risks and Improvements

Through an extensive execution planning process, SWS has developed the PR24 Business Plan into AMP8 delivery and investment plans. We continue to refine the plans for the period 2025 – 2030 and are collaborating with the internal and supply chain stakeholders to improve maturity. During the development of the plans we are identifying, mitigating and managing deliverability risks.

A Strategic Programme Operating Model has been established, with each Strategic Programme Leadership Team responsible for mitigating and managing identified risks. This is an active and ongoing process and will be used to support future reporting submissions.

8.3 External Assurance Findings ([redacted]

Annex F1 and F2 contain the external assurance findings from our independent advisors (both technical and commercial). These findings have been reviewed by our Assurance teams, the respective MDs and our CFO as part of our signoff governance process.

All findings will be incorporated into our preparations for Submission 2 and reviewed as part of Submission 2 assurance.

9 Efficiency of Expenditure to Date

9.1 Introduction

The cost estimate for delivering the Whitfield Growth Scheme as submitted within SWS PR24 Business Plan for a new WTW with coastal discharge was [redacted] The Final Determination (FD) allowance to Submission 2 was 6% equating to £6.2m for development costs.

9.2 Submission 1

The total spend to Submission 1 is estimated to be £350k (2022/23). A summary of costs incurred across the different technical workstreams to Submission 1 is provided below in Table 9.1.

9.3 Submission 2

The estimated total spend at Submission 2 is forecast at £10.7m (2022/23). A detailed forecast of costs to Submission 2 will be developed once a final option has been selected following the best value appraisal. Forecast costs across the different technical workstreams for Submission 2 are provided below in Table 9.1.

These costs have been informed in line with the Ofwat requirements for Submission 2 alongside the delivery plan in Figure 5.1. SWS Engineering and Delivery has provided input to the costs as outlined below. The costs have been checked and reviewed by SWS Head of Project Delivery Wastewater.

- Programme and project management costs have been informed by SWS Capital Delivery team as being suitable for a project of this scale and stage.
- Solution development costs have been informed by consultation with SWS's technical author.
- Design cost for a project of this scale has been based on SWS experience in delivery with our Strategic Delivery Partners.
- Procurement strategy, tender and bid evaluation costs have been estimated based on projects of a similar scale and complexity.

Based on recent schemes of similar scale and complexity we are seeing cumulative costs outturn prior to commencing construction activities returning at circa 10% of their budgets. Therefore at 10.3% this represents a realistic value for the Whitfield Growth Scheme to Submission 2.

Table 9.1 Efficiency of Expenditure

Phase	Category	Cost Base (2025/26)	Cost Base (2022/23) *(Deflation Factor 25/26 to 22/23 = 0.901257)*	Description of activity
AMP8 Expenditure to date				
Solution Development	Technical Author	[redacted]	[redacted]	Review previous documentation, holding scheme specific workshops and drafting key elements of Submission 1
Internal Governance	Programme and project management			Includes external engineering support and third party external assurance activities.
Expenditure forecast to Submission 1 (1st October 2025)				
Solution Development	Technical Author	[redacted]		Responding to technical queries amendments from Assurance review
Internal Governance	Programme, Project Management & Assurance			Management of Technical Author, management of submission through to Ofwat submission.
	Sub total			
Estimated forecast to Submission 2 (May '27)				
Internal Governance	Programme and project management	[redacted]	[redacted]	Includes for project management time
Solution Development	Feasibility assessment and concept design			All work attributed to the continued development and appraisal of the options, preferred solution selection, network modelling and surveys, through to technical delivery of Submission 2.
	Option benefits development and appraisal			
Design	Outline Design			Outline Design
	Stakeholder engagement			All stakeholder and customer engagement activities including independent customer research
	Legal			
	Environmental assessment, licencing, permits and consents			Undertake a full suite of ecology surveys across all seasons, Commence formal processes with all relevant agencies - Kent County Council (KCC) Marine Management Organisation (MMO), Crown Estate, Dover Port Authority and others.
Delivery	Procurement strategy, tender & bid evaluation			Commercial and procurement strategy for overall development of the scheme.
	Sub total			
In-Direct Costs (on forecast to Submission 2 only)				
Risk Allowance	9.80%	[redacted]	[redacted]	In-line with SWS' PR24 Methodology entitled "SRN15 Cost and Option Methodology"
	Sub total			
Corporate OH	11.20%			As advised by SW Finance

Summary	2025/26	2022/23	% of Total Project Estimated Cost at PR24 (£103,740,000) (2022/23)
Total (Expenditure to Date + Forecast)	[redacted]		
PR24 Development Allowance (2022/23)		[redacted]	
Variance (2022/23)		[redacted]	

Table 9.2 Comparison of development allowance (£ deflated to 22/23 price base)

Development Funding Allowance	Submission 1 Costs	Submission 2 Forecast	Total EAC	Variance
[redacted]				

10 Conclusions and Recommendations

10.1 Conclusions

The WUE, located near Dover in Kent, is forecast to be developed by an additional 6,350 new homes, which requires additional treatment for a population equivalent of 15,240. Current assets (including Broomfield Bank catchment) do not have the capacity to accommodate the forecasted increase in flow and load without significant upgrades. Without these upgrades, we anticipate adverse impacts on the regulatory performance commitments. The provision of additional wastewater capacity to meet demand is known as the Whitfield Growth Scheme.

Optioneering to inform PR19 and PR24 has been updated to inform Submission 1, with scope and cost reviews undertaken for six options. Best value appraisals are planned post Submission 1.

Within this context, the two options identified at PR24 remain: the PR24 Preferred Option of a new WTW discharging to sea (Option 4); and transfer and upgrade of the existing Broomfield Bank WTW (Option 1). Actions have been identified to increase the cost certainty of these two options, particularly understanding the substantial risk and uncertainties associated with the construction and operational complexities of upgrading Broomfield Bank WTW, which is located underground in a sensitive environment.

The option for a new WTW discharging to ground (Option 3) has been discontinued due to the significant risks in obtaining a permit, reflecting the views of the EA, combined with uncertainty on treatment scope and complexity for emergency operational contingencies required in the event of plant failure scenarios.

For the remaining options, key issues and risks have been identified that need to be resolved. In our delivery plan, we have identified actions for the period post Submission 1 to be implemented as part of the ongoing options appraisal process.

In parallel, understanding the available hydraulic capacity in the existing network is also a key area of further investigation. This will inform whether a phased approach to delivery can be implemented and involve providing some additional capacity prior to the full scheme being developed.

In the development of the PR24 Preferred Option (Option 4) of a new WTW discharging to sea, actions have been identified that will address uncertainty in planning, permitting, stakeholder engagement and risk mitigation. Our project plan in Section 5 confirms a full scheme completion (based on PR24 scope) is possible, provided currently identified risks and issues can be mitigated with continued key stakeholder support. Our activities at or before Submission 2 will confirm our preferred solution and updated forward plan for completion. Any significant changes will be notified to Ofwat.

Confirming the option for delivery is forecast for the first half of 2026. Subsequent work will focus on developing the selected option to meet the requirements for Submission 2, in line with our proposed delivery plan, with regular updates provided to Ofwat and other stakeholders.

10.2 Recommendations

Recommendations of Submission 1 are:

1. The Whitfield Growth Scheme should progress to Submission 2.

2. Submission 2, to be submitted within the 2027 assessment window (March to May) to enable option selection to be finalised and progress option development with sufficient robustness, with key decisions shared with Ofwat through quarterly reporting. This timescale does not affect any statutory obligations.

11 Supporting Documentation

Annex A1: Solution Optioneering Report

(See attached)

Annex A2: Feasible Options Review

(See attached)

Annex A3: Environmental Appraisal

(See attached)

Annex A4: Basis of Design

(See attached)

Annex B1: Cost Build Up Outline Methodology

(See attached)

Annex B2: Options Benchmark Report

(See attached)

Annex C1: Delivery Plan Table (DPWW4)

(See attached)

Annex D1: Planning and Consenting Strategy

(See attached)

Annex D2: Risk Register

(See attached)

Annex E1: Stakeholder and Customer Engagement

(See attached)

Annex F1: Technical Assurance Report

(See attached)

Annex F2: Commercial Assurance Report

(See attached)