



Confidential

Water Industry Commission Scotland **Engineering Review of SR27 Business Plan**

Final Review Report

2026-05-28

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Executive Summary

WSP were commissioned by the Water Industry Commission for Scotland (WICS) to provide independent engineering support to inform its review of Scottish Water's Strategic Review of Charges 2027 to 2033 (SRC27) Final Business Plan. The purpose of the review is to support WICS in assessing whether the proposed investment plan is robust, proportionate, and represents the lowest reasonable overall cost of delivering the Scottish Ministers' Objectives, consistent with WICS' statutory duties.

Two projects and twelve programme areas have been reviewed against a number of key lines of inquiry broadly relating to:

- Identified investment need and definition in accordance with WICS' methodology, ministerial objectives and other relevant policy and regulation.
- Scope of work and how it meets the investment need.
- Cost of scoped solution(s) including the appropriateness of the method for costing and any benchmarking and efficiencies.

The review has consisted of an initial headline findings review, where the SRC27 business case documents were rapidly reviewed and RAG (red, amber, green) reviewed against a series of test questions. This was supported by verbal discussions with Scottish Water representatives, and a review of further evidence provided directly by Scottish Water. The outcomes of the review have been summarised in this report, along with a series of recommendations for the WICS assessment of the SRC27 business plan. A summary of key observations, recommendations and our view on potential cost challenges for each project and programme reviewed is included in the table below. A summary of the potential cost challenges is available in Appendix A.

Disclaimer: The cost estimates detailed in this report are indicative and have been developed to support WICS's Draft Determination. They reflect WSP's engineering judgement based on the information available at this stage and are not intended to represent a formal cost estimate for commercial, contractual, or investment purposes.

Area of Review	WSP Observations	Recommendations
Projects reviewed		
West Central Bioresources Project	<ul style="list-style-type: none"> ■ The proposed WCB project is supported by several needs, including maintenance of sludge treatment, maximising value from bioresources and overall system resilience. In delivering additional value through generation of renewable energy, the project would also deliver systemic benefits from GHG reductions. Improved bioresource quality also provides the greatest range of options for recycling to agricultural (and other) land. ■ The proposed hub and spoke treatment / dewatering model has been in development for around a decade, is common outside Scotland and well supported in terms of supply chain knowledge and capabilities. It also represents a ‘no / least’ regret option in terms of future add-ons that might be required in the event of regulatory or market changes. ■ Based on Scottish Water’s LBE (“Latest Best Estimate”) itemised breakdown of costs for this project, direct construction and construction risk costs appear appropriate at £285m, but a large sum (£171m) is allocated to DV and SW overheads under ‘on costs’, which is high. Budget allocations for Electrical and ICA disciplines also appear high for this type of plant (for example, the various motor control centres and their associated kiosks), although there is mix of higher and lower than anticipated costs for different types of equipment in the itemised breakdown. We would expect the systems and costs to be rationalised during the detailed design process. ■ The extent of landbank requirements under EASR have not yet been modelled. Access to agricultural landbank has been assumed, but not market tested. Both of these could have material impacts on post-AAD management of the treated bioresource. ■ Although the Business Plan 2027-2033 (Technical Appendices) document has the ‘five cases’ set out in HM Treasury Green Book guidance, the document should be referred to as a Business Case with further clarity provided as to which business case stage this has been developed to (‘Strategic Outline’, ‘Outline’ or ‘Full’ business case stage). The sections / headings in each of the five cases could also better align to those set out in Green Book-based business case templates. 	<ul style="list-style-type: none"> ■ Revisit AAD system and (specifically) handling options for treated bioresource when EASR / landbank assessment and agricultural market testing are complete.
Suitability of MIM	<ul style="list-style-type: none"> ■ The WCB Project aligns with some MIM characteristics, but current evidence does not show that scale, complexity, or market conditions allow risk transfer at a fixed price. The project meets statutory and strategic needs, yet scope maturity, output definitions, demand sensitivity, asset interface issues, and limited proof of risk transfer to the private sector raise concerns. While MIM is theoretically feasible and can achieve off-balance-sheet treatment, practical confidence in its deliverability for WCB is low given market feedback. ■ While EY’s technical assessment confirms that a MIM could theoretically be structured to meet Eurostat requirements, the accompanying market sounding highlights material 	<ul style="list-style-type: none"> ■ While MIM is theoretically possible, current evidence presented does not support its viability as a practical option for WCB. The available data is not sufficiently robust to definitively rule it out either. Instead of focusing on WCB’s suitability for MIM, it is

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	<p>challenges to practical risk transfer; however, given the limited and preliminary nature of the market engagement, the evidence is not yet robust enough to conclusively rule out MIM without further scope definition, risk optioneering, and structured re-testing with the market</p>	<p>advised that SW conduct a thorough Delivery Model Assessment (DMA). This assessment should be supported by multi-criteria analysis aligned with government guidance and include focused, iterative market engagement. Such an approach will enable a well-founded, comparative, and defensible decision regarding the most effective funding and delivery model for the WCB project.</p>
<p>MIM vs SW-Funded Option – Benefits Assessment</p>	<ul style="list-style-type: none"> ■ SW’s comparative assessment is directionally reasonable but was not initially presented as a consolidated benefits comparison. A supplementary benefits table was subsequently provided and reviewed, clarifying the relative merits across cost, delivery certainty, control, risk, innovation, market appetite and customer impacts. The evidence supports SW-funded delivery in terms of lower whole-life cost and greater delivery certainty. Other MIM benefits are recognised in principle but remain largely theoretical or weakly evidenced in the context of WCB. 	<ul style="list-style-type: none"> ■ SW-funded delivery is currently preferred on cost and deliverability; however, confidence is constrained by an insufficiently robust and comparable evidence base. A comprehensive DMA, supported by multi-criteria analysis of all relevant delivery and funding models (such as DPC and RAB) and enhanced market engagement, is recommended to ensure a defensible, evidence-based selection of the optimal delivery model.
<p>Meter upgrades for non-domestic properties</p>	<ul style="list-style-type: none"> ■ The need to invest in this smart metering for non-household customers project is clearly articulated. ■ Scottish Water appropriately evaluates the chosen solution, noting that few viable alternatives exist and that this approach is widely used and proven in England and Wales for domestic metering, offering clear advantages over traditional mechanical meters. ■ The stated benefits for Network Leakage (40MI/d) does seem high and challenging to achieve based on assumptions from a pilot study. Therefore, tracking these benefits is key. 	<ul style="list-style-type: none"> ■ Even though SW have a benefit monitoring framework for this programme, close attention must be paid to the realisation of the Network leakage benefit as this is ambitious. ■ Further challenge on the unit costs is required, as they are materially higher than in England and Wales. Particularly as the overall cost of

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	<ul style="list-style-type: none"> ■ Although challenging, the projected customer demand reduction benefits are clearly profiled and appropriately articulated. ■ There is a risk that delivery partners may not achieve or maintain the required installation rates since procurement is ongoing, but WSP believes this is feasible. ■ After examining Scottish Water's granular unit cost data for smart meters, we acknowledge that start-up costs are expected to be high. However, WSP observes that 95% of smart meter installations involve small meter sizes, which have significantly elevated costs, as do installations for medium-sized meters. ■ Overall programme costs have increased to £69.974m, considering new information provided by SW. 	<p>this programme has increase to approx. £69m This may result in a potential cost challenge.</p> <ul style="list-style-type: none"> ■ Our view is that there is a potential cost challenge here of ~ 10-15% as the rates for small and medium size meter replacements to smart meters are elevated based on our evaluation of the data reviewed and our SME review.
Programmes reviewed		
Wastewater Sewer Network – Maintain Critical and Non-Critical Sewers	<ul style="list-style-type: none"> ■ The investment need is robust and justified to address Scottish Water's capital maintenance needs for critical and non-critical gravity sewers for SR27 and is based on a sound approach. ■ The chosen policy options and solutions for the 3 activities for this programme are appropriate and in line with industry practice for the activities for a sewer maintenance programme. ■ Whilst unit rates look broadly appropriate, there is a high number of cost assumptions around unit rates, which limits cost efficiency and increases the risk of higher overall programme costs due to uncertainties. 	<ul style="list-style-type: none"> ■ SW would benefit to strengthen the clarity and precision of all assumptions made on unit costs with better data and reducing the reliance on assumption. ■ Potential cost challenge could be applied to this programme due to cost assumptions. ■ Our view is that there is a potential cost challenge here of ~ 3-5% as several cost assumptions within the unit-rate build-up introduce uncertainty and indicate scope for cost efficiencies, as highlighted through our SME review
Resolve Matters in the Interest of Safety	<ul style="list-style-type: none"> ■ The investment need is clearly and robustly demonstrated, driven by statutory obligations under the Reservoirs (Scotland) Act 2011, with failure consequences firmly aligned to Scottish Water's highest risk appetite due to potential impacts on public safety, the environment and continuity of supply. ■ The proposed scope of solutions is appropriate and proportionate, encompassing statutory and proactive inspections, rolling maintenance and Measures in the Interest of Safety, with Policy Option 3 (proactive compliance and maintenance) reasonably selected on the basis of whole life cost, risk reduction and resilience benefits. 	<ul style="list-style-type: none"> ■ SW should have a more granular approach to determining MIOS unit costs. ■ Our view is that there is a potential cost challenge here of ~ 8-12% as the standard MIOS unit cost appears high compared to industry standard and that it appears to

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	<ul style="list-style-type: none"> ■ The costing method appears generally reasonable and based on historic data and recent estimates. WSP observes one unit cost is high and two are low. Confidence would improve with more detailed MIOS costs; SW should omit “MIOS Big Ticket” items when calculating standard MIOS unit costs. 	<p>make up a significant proportion of the total investment requirement.</p>
<p>Unsatisfactory Intermittent Discharges (UID) programme</p>	<ul style="list-style-type: none"> ■ The investment need is clearly and robustly justified, supported by legislative drivers, regulatory alignment, environmental evidence, and a structured, risk-based policy framework. ■ There is confidence that Scottish Water is effectively managing the solution development for this programme. ■ The average unit rates for both Water Quality drivers and SRD drivers are generally considered acceptable and are comparable to those observed in England and Wales UID projects. It is anticipated that these rates will be further enhanced through the implementation of the enterprise delivery model, which is expected to drive efficiencies. ■ Most projects, around 112, are still in early development, which increases the likelihood of cost growth because estimates rely heavily on engineering judgement with limited scope definition. As a result, there is a significant risk of future cost escalation, particularly for medium priority UIDs. ■ Delivery capability is credible and improving, however, stronger cost transparency, benchmarking (especially for standard SRD interventions), and clearer demonstration of efficiency benefits are required to fully validate value for money and reduce delivery risk in SR27 	<ul style="list-style-type: none"> ■ SW to challenge unit rates as through the implementation of the enterprise delivery model, which is expected to drive efficiencies. ■ SW to rigorously manage cost through the delivery lifecycle of these projects as they have potential for cost escalation during investment period. ■ Potential cost challenge could be applied to this programme due to costs based on assumptions. ■ WSP believe that many SRD UID interventions (e.g. screening) are relatively standard and could reasonably be benchmarked. ■ We consider there to be a potential cost challenge of around 10–15%, as several cost assumptions within the unit rate build up introduces uncertainty due to the lack of detailed project costs, which indicates scope for cost efficiencies, as highlighted through our SME review.
<p>Maintain WTW Chemical Storage, Dosing & Inspections</p>	<ul style="list-style-type: none"> ■ The investment need is robust and justified to address Scottish Water’s capital maintenance needs for chemical storage, dosing equipment and inspections for SR27 and is based on a sound approach. ■ Scottish Water has managed the process of developing solutions for the programme appropriately. 	<ul style="list-style-type: none"> ■ SW to challenge unit rates as through the implementation of the enterprise delivery model, which is expected to drive efficiencies.

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	<ul style="list-style-type: none"> ■ The unit rates applied for the three activity areas are broadly reasonably costed for this programme, even as the programme remains at an early stage of development through latest best estimates (LBE), however notifying the possibilities of risk of rate increases as the programme further develops. 	<ul style="list-style-type: none"> ■ Potential cost challenge due to delivery efficiencies assumptions to drive unit costs down. ■ Our view is that there is a potential cost challenge here of ~ 2-4% as the costs are based on LBEs with assumptions, which could be improved
Chlorine Contact Tank Management	<ul style="list-style-type: none"> ■ Critical asset risk and incomplete condition data. The programme correctly treats all CCTs as critical assets due to legislative requirements and Scottish Water’s “Do Not” risk appetite for failure. However, asset condition is only known for ~60% of the 77 CCTs, creating a significant risk when prioritising and justifying investment needs. ■ Operational constraints with no clear mitigation plan - A large proportion of CCTs have severe operational limitations (some cannot be taken out of service at all, others only partially). There is no clear plan identified to manage these constraints, which could lead to unplanned maintenance approaches and unaccounted costs during delivery. Scottish Water is inspecting and cleaning tanks in SR21 to assess operational needs. Remote Operated Vehicles (ROVs) or shutdowns are used for cleaning, while maintenance requires bypasses and additional cells, along with necessary dosing. WSP recognises that this process will improve the scope of work as the programme progresses reducing risk and uncertainty. ■ Costing and performance measurement weaknesses - While the scope and policy option selection are well justified, costing assumptions raise concerns, particularly the use of TWS-derived unit costs for smaller CCT assets. In addition, programme outcomes are defined only in terms of activity counts (e.g. number of refurbishments) without quantified targets or post-efficiency values, limiting confidence in value-for-money and deliverability assurances. Scottish Water provided detailed information regarding the cost models applied in the development of programme costs. 	<ul style="list-style-type: none"> ■ Although WSP was not able to carry out cost benchmarking for this element of the TWSP programme to the same extent as for other assets, our review indicates a potential cost adjustment of 7–10% due to programme uncertainties. This reflects the use of a condition-based methodology, the delivery pace required by DWQR regulations, and possible data inconsistencies arising from comparisons between larger TWS tanks and smaller chlorine contact tanks. WSP does not consider condition grade alone to be a sufficient basis for defining investment need, nor have we identified any clear DWQR requirement that requires this approach. A risk-based review of all CCTs, focused on inspection and remediation prioritised by risk, could help target investment more effectively and reduce the level of expenditure currently proposed, resulting in a more efficient programme for customers whilst

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		still achieving the required outcome.
Sludge Treatment	<ul style="list-style-type: none"> ■ The need to invest in planned and responsive maintenance at the bioresource dewatering and treatment centres is clear, since these are critical assets. ■ Additional investment in a number of these centres is captured under the Sludge Treatment Programme and West Central Bioresources Project, to ensure that they are appropriately equipped to support the proposed AAD hub at Daldowie. ■ Costs for planned and reactive maintenance appear appropriate to the number of sites and planning stage, being “unit rate-based, age driven, and applied at asset/unit level”. Costs for AR3 sites are based on “engineering judgement, recent experience and knowledge of the overall asset base and local knowledge of the sites”. Site-specific costings for these sites are in development. 	<ul style="list-style-type: none"> ■ Proposed AR3 costs are currently based on engineering judgement. Scottish Water must capture all proposed maintenance, operation and enhancement costs for these sites on an individual basis and implement appropriate cost controls through programme delivery.
PFI Return	<ul style="list-style-type: none"> ■ This programme is being driven by the expiry of PFI contracts across the regulatory period. There are limited hand back conditions, with the requirements for asset condition being minimal. This is creating a level of unseen risk for Scottish Water. ■ SW’s asset models assume that assets will be returned back to SW with minimum or zero asset life. This high-level assumption can lead to over forecasting and estimation of the capital maintenance needs at the outset, leading to high levels of cost for each PFI. ■ A large component of the investment costs is allocated against risk, with limited evidence for the assumptions. No risk model has been produced to show reasonable scenarios. ■ There are no efficiencies built into transition costs. ■ Based on previous PFI returns (Allanfearn, Nigg, Persley and Peterhead PFI in 2022), evidence suggest cost reductions should be applied to this PFI programme 	<ul style="list-style-type: none"> ■ Potential cost challenge as a result of the potential investment need being over forecasted for SR27 expenditure through risk ASM / SIM modelling. ■ Scottish Water produce risk assumption models for scenario planning. ■ Our view is that there is a potential cost challenge here of ~ 10-15% as the overall programme is mainly based on modelled cost forecast data therefore level of uncertainties would be high.
Wastewater Treatment Assets – Ancillary Assets	<ul style="list-style-type: none"> ■ The programme covers the maintenance of WwTW ancillary assets. The scope of options is appropriate for the given risk appetite and required outcomes. ■ Costs have been determined using ASM and SIM models for the asset classes to determine the volume of interventions over the regulatory period and costed with Scottish Water in-house cost models. This is appropriate for the breadth and scope of the project. ■ Unit costs seem broadly reasonable for this type of programme. 	<ul style="list-style-type: none"> ■ N/A

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Wastewater Treatment Assets - Secondary Treatment Assets	<ul style="list-style-type: none"> ■ The programme covers the maintenance of WwTW secondary and tertiary treatment assets. The scope of options is appropriate for the given risk appetite and required outcomes. ■ Costs have been determined using ASM and SIM models for the asset classes to determine the volume of interventions over the regulatory period and costed with Scottish Water in-house cost models. This is appropriate for the breadth and scope of the project. ■ External benchmarking (CKBS Report) has shown that costs for some assets covered by this programme are significantly high compared to industry averages. There is no clear reasoning for these high costs. ■ Costs for representative assets detailed may not be representative of the asset base. ■ There are no clear efficiencies that have been applied to this programme level, which may be important given the high costs for wastewater infrastructure identified 	<ul style="list-style-type: none"> ■ Benchmarking has shown that some of the Scottish Water cost models for this programme are significantly high compared to industry averages. These should be further investigated whether they are reasonable. ■ Scottish Water should provide clearer justification of cost assumptions, including how average asset and equipment costs were calculated, the data sources used, and the key factors influencing these estimates. ■ Our view is that there is a potential cost challenge here of ~ 7-10% as the overall programme is mainly based on modelled cost forecast data therefore level of uncertainties would be high.
Maintain SCADA, HMI, PLC	<ul style="list-style-type: none"> ■ The investment need is clearly demonstrated and justified, reflecting the critical role of SCADA, HMI and PLC assets in maintaining safe, compliant and resilient system operation, with failures posing unacceptable risks to public health, environmental performance and security of supply. ■ Scottish Water has a strong and comprehensive understanding of the operational technology asset base, supported by complete obsolescence data and well-defined lifecycle assumptions, which provides a robust foundation for forecasting investment needs over the SR27 period. ■ The selected policy of planned replacement at obsolescence Grade 3 is appropriate and proportionate, striking a reasonable balance between cost, risk and deliverability given short asset lifecycles and the lead times required for project development and delivery. ■ Unit costs and overall cost forecasts are considered reasonable and well supported by recent delivery experience and transparent assumptions, with limited site-specific variability enabling a relatively high degree of confidence in the proposed investment profile. 	<ul style="list-style-type: none"> ■ N/A

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Wastewater Treatment Assets - Inlet works	<ul style="list-style-type: none"> ■ The programme covers the maintenance of WwTW inlet assets. The scope of options is appropriate for the given risk appetite and required outcomes. ■ Costs have been determined using ASM and SIM models for the asset classes to determine the volume of interventions over the regulatory period and costed with Scottish Water in-house cost models. This is appropriate for the breadth and scope of the project. ■ The total costs seem broadly reasonable for this type of programme, but the assets covered can vary significantly in cost based on their size and type of each component within this programme, WSP cannot make appropriate observation of the unit costs at that granular level as there is no detail to the average size / type of the assets included in the derivation of the average unit cost, or the assets covered by the programme. 	<ul style="list-style-type: none"> ■ Scottish Water should ensure clearer justification of cost assumptions, including how average asset and equipment costs were calculated at a granular level, the data sources used, and the key factors influencing these estimates
Wastewater Treatment - PFF Compliance	<ul style="list-style-type: none"> ■ The programme is at a pre-development stage, with no Management Approach in place, but the proposed scope is proportionate and appropriate given the current level of maturity and uncertainty. ■ The primary driver is regulatory, with SEPA clearly signalling that a lack of evidence on Pass Forward Flow compliance will not be acceptable under the Environmental Performance Assessment Scheme, regardless of whether actual non-compliance exists. ■ The initial focus on enhanced monitoring and data integration is appropriate as a first step to establish compliance status, recognising that monitoring alone does not resolve non-compliance but enables informed and best-value decisions on operational, licensing or capital interventions. ■ Cost estimates are high level and reliant on professional judgement, however there is no supporting evidence for programme allowances at this stage, creating uncertainty over affordability and future funding requirements. 	<ul style="list-style-type: none"> ■ WICS should continue to assess this programme as it develops through SR27. ■ WICs should also get confirmation from SEPA that the proposed solution will meet the required need for EPAS.

Summary of Common Themes

Across the projects and programmes reviewed, there is a consistent finding that the strategic and regulatory need for investment is generally robust and clearly articulated. In most cases, investment drivers are well grounded in statutory obligations, Ministerial Objectives and recognised asset risks, with a clear line of sight from regulatory requirement through to proposed outcomes. This provides a strong foundation for the SR27 Business Plan and supports confidence that the overall investment envelope targets genuine needs rather than discretionary enhancement.

However, while the justification of need is strong, there are recurring weaknesses in the evidence used to support costs, efficiencies and value for money. Many programmes rely heavily on historic unit rates, modelling assumptions or high-level allowances, with limited transparency on how these have been derived, challenged or benchmarked. External benchmarking, where undertaken, frequently indicates material variance from industry comparators, and the rationale for these differences is not always fully evidenced. As a result, cost certainty and assurance over efficiency outcomes is a recurring concern across multiple programmes.

A further consistent theme is variation in programme maturity. Some interventions are well developed, with clear scopes, defined options and delivery strategies, while others remain at early or pre-development stages. Where maturity is low, this is often reflected in broad scopes, reliance on professional judgement for cost estimation, and limited articulation of risks, assumptions or contingency. Reviews repeatedly highlight the need for clearer profiling of how costs, risks and outputs are expected to evolve as schemes progress through gated development.

In summary, the reviews demonstrate that SR27 is underpinned by a strong strategic case and well-established need for investment. The main cross cutting challenges relate not to whether investment is required, but to how confidently scope, cost, risk and value for money are evidenced at this stage. Addressing these recurring assurance gaps, particularly around cost substantiation, risk modelling, and benchmarking, would materially strengthen the robustness of the Business Plan ahead of determination.

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