UUWLGS_P2S2_01 Windermere

Windermere: Package 2

Submission 2 – Solution Delivery Plan

April 2026

Contents

1. Executive Summary

1.1.1 UUW is investing at Windermere in AMP8: several investments are already funded through Ofwat's final determination (FD) and a further 12 projects are going through Ofwat's large schemes gated process.

1.1.2 This submission sets out UUW's solution delivery plan for four of the projects going through the gated process – package two. Package two projects comprise a mixture of phosphorus and sanitary (Hawkshead and Langdale) projects, and storm overflows projects (Glebe Road and Hawkshead) which UUW is looking to deliver ahead of the 2035 WINEP regulatory dates.

1.1.3 Submission two is designed to provide the information required by Ofwat to review and approve access to funding for delivery of the four projects. In line with the PR24 Large Schemes Approach Guidance, it sets out UUW's proposed definition of scheme, cost allowances and price control deliverables (PCDs). It builds on submission one in October 2025, which set out the progress of scheme design and feasibility assessments, and incorporates Ofwat feedback on submission one and further discussions at the December 2025 and March 2026 quarterly review meetings.

1.1.4 Since submission one, we have continued to develop the schemes and in line with the requirements for submission two we have:

- Developed final outline designs, finalised feasibility and pre-planning investigations;
- Finalised detailed cost estimates for the schemes, which are set out with benchmarking and where appropriate supported by deep dive evidence, to ensure efficiency;
- Updated the risk register setting out the remaining risks to scope, programme and costs;
- Set out the strategy and delivery plan for the proposed schemes;
- Set out a proposed PCD for the delivery phase, taking into account previous feedback from Ofwat;
- Identified a contractor for each scheme;
- Engaged with relevant stakeholders and customers, and agreed our plans with key stakeholders including the Environment Agency (EA); and
- Made planning pre-applications, with planning applications to be made over the next few months.

1.1.5 We have finalised the outline design specifications, refined the construction methodologies drawing on ground investigation data and with input from the supply chain and refined the commissioning periods. As a result, while construction durations are longer for most projects, as our programmes now reflect proceeding to delivery without waiting for the outcome of Ofwat's cost change process, completion dates remain ahead of submission one for most projects. A summary of the final outline design for each scheme and updated totex are set out in Table 1 below.

Table 1: Solutions summary (£m, 2022-23 CPIH prices)

Project	Final outline design	Submission 1 totex	Submission 2 totex	Change in totex
Document	*Section 3*	*Section 5*	*Section 5*	*Section 5*
Langdale WwTW	Upgrade of the ferric dosing assets and the addition of tertiary solids removal	4.1	7.3	3.3
Hawkshead WwTW	Upgrade of assets on site: enhanced chemical dosing, a new final settlement tank and new tertiary solids removal.	8.1	5.2	-2.9
Hawkshead PS LAK0107SO	25 per cent catchment water removal, 3,000m^3 storm storage tank and increase in flow to full treatment (FTFT) of 5 litres/second	29.5	27.9	-1.6
Glebe Road PS LAK0045SO	Below ground 10,000m3 storage at Glebe Road	36.5	41.7	5.2
Total		**78.1**	**82.1**	**4.0**

Source: Summarised from submission chapters

1.1.6 The changes in design and extended construction programmes, coupled with a small number of other scope and programme changes, have led to an overall increase in costs for package two of five per cent :

- Costs for Langdale Wastewater Treatment Works (WwTW) have increased and are in line with Ofwat's modelled allowances;
- At Hawkshead, costs have decreased for both the WwTW (phosphorus and sanitary) and pumping station (spills) projects, although continue to exceed Ofwat's modelled allowances for the spills project; and
- At Glebe Road pumping station (PS), costs have increased by 14 per cent and are also above Ofwat's modelled allowances.

1.1.7 While costs are higher, this is consistent with a greater maturity of the package two schemes. The overall change in package two cost is within the overall range of uncertainty indicated at submission one and we have resolved some of the cost uncertainty previously highlighted. We provide deep dive evidence to demonstrate efficiency of costs at Hawkshead and Glebe Road.

1.1.8 Each of the projects is at a slightly different stage in the project lifecycle. Work is expected to start on site in Langdale later in 2026 and at Hawkshead and Glebe Road in early 2027 once planning permission has been obtained. In parallel to delivery, we will continue to engage with stakeholders and progress the required planning applications during 2026.

1.1.9 There continues to be a wider strategic risk around the political and campaign focus on Windermere, and the potential for longer term goals to distract from the short-term benefits being delivered by these projects. UUW is committed to the government's "only rainwater" vision. However, given this will take significantly longer to deliver than the more immediate improvements described in this submission we strongly believe the package two schemes need to go ahead as quickly as possible. This will maximise benefits for residents, businesses and visitors to Windermere while longer term plans are formed.

2. Background and Objectives

2.1.1 This section outlines the objectives of the Windermere programme, including statutory compliance requirements. The information aligns with UUW's draft determination response Windermere enhancement case (UUWR78) except where highlighted.

2.1.2 The enhancement schemes for Windermere are driven by the Water Environment (Water Framework Directive) Regulations 2017 and Environment Act 2021 statutory drivers. In addition to these statutory drivers the Environment Agency (EA) has introduced a '25-year environment plan' non statutory driver. Where supported by customers, this allows companies to go beyond statutory requirements for locally significant issues. Under EA guidance, nine WwTW enhancement schemes for Windermere have been identified in AMP8, as part of a long-term plan to reduce nutrient load into Windermere under the AMP8 WINEP driver 25YEP_IMP.

Table 2: Windermere gated programme: package two projects

Project name	Project drivers	Determinands	WINEP date	Statutory / non statutory
Langdale WwTW	WFD_ND	20mg/l ammonia, 1mg/l phosphorus	31/03/2030	Statutory
	25YEP_IMP	0.25mg/l phosphorus (annual average)	31/03/2030	Non- statutory
Glebe Road PS (LAK0045SO)	EnvAct_IMP3 EnvAct_IMP4 EnvAct_IMP5	Improvements to reduce storm overflows that spill to designated bathing waters to protect public health. Improvements to reduce storm overflows spills so they do not discharge above an average of 10 rainfall events by 2050. Improvements to reduce storm overflow aesthetic impacts by installation of screens.	AMP9	Statutory
Hawkshead WwTW	WFD_IMPg	17mg/l Biochemical Oxygen Demand (BOD), 25mg/l suspended solids, 4mg/l ammonia, 0.8mg/l phosphorus	31/03/2030	Statutory
	HD_IMP	0.8mg/l phosphorus	31/03/2030	Statutory
	25YEP_IMP	0.25mg/l phosphorus (annual average)	31/03/2030	Non- statutory
Hawkshead PS (LAK0107SO)	EnvAct_IMP2[1] EnvAct_IMP5	Protect the environment in the river stretch Cunsey Beck/Black Beck and have no local adverse ecological impact. Improvements to reduce storm overflow aesthetic impacts by installation of screens.	31/03/2030	Statutory
	EnvAct_IMP4	Improvements to reduce storm overflows spills so they do not discharge above an average of ten rainfall events by 2050, including increase to FTFT at Hawkshead WwTW	AMP9	Statutory

Source: UUW summary

2.1.3 The twelve identified enhancement schemes included in UUWR78 have been split into three work packages for the gated process to align with the timeline for each project. This submission relates to package two and Table 2 above sets out the four projects included. It is supported by UUWLGS_P2S2_09 which sets out all Windermere package two WINEP drivers in full. The HD_IMP driver for Hawkshead

[1] The EnvAct_IMP2 and EnvAct_IMP5 have been included in Table 2 following confirmation from Ofwat that they are to be included in the large schemes gated process.

WwTW has been added to align with the approach at final determination (FD) with no impact on cost or programme. [2]

2.1.4 Package two comprises projects at two WwTWs and two wastewater PSs :

- Langdale WwTW and Hawkshead WwTW have been identified for enhancement to meet new or more onerous phosphorus limits and additional sanitary final effluent permit requirements.
- Glebe Road PS has been identified for several improvements to reduce storm overflows and reduce storm overflow aesthetic impacts by installation of screens. Glebe Road PS was not previously profiled for completion until AMP9 but is being delivered earlier through this work.
- Hawkshead PS has been identified for improvements to protect the environment, reduce storm overflow aesthetic impacts by installation of screens and reduce storm overflows spills. Since FD, we have been developing a holistic solution for all three drivers at Hawkshead PS (IMP2, IMP4 and IMP5). Since submission one, Ofwat has confirmed that all three drivers at Hawkshead PS (IMP2, IMP4 and IMP5) will be delivered through the large schemes gated process and Table 2 has been updated to include the IMP2 and IMP5 project drivers.[3]

2.1.5 The package two gated schemes align with the overall strategic ambition for UUW's Drainage and Wastewater Management Plan (DWMP) to reduce phosphorus loads into waterbodies across the North West, accelerating the investment set out in DWMP23. Delivery of the package two schemes by 2029-30 will provide a baseline for DWMP28, allowing us to proceed at pace to achieve environmental commitments in the Windermere catchment.

3. Solution design

3.1 Introduction

3.1.1 This section provides an overview of:

- Key drivers of design change; and
- Development of final outline design.

3.1.2 Since submission one, we have finalised outline designs, allowing corresponding updates to programmes and costs. This has involved engineering and operational input, as well as drawing on our identified contractors, to ensure that the final outline designs consider solution resilience, access, maintenance, commissioning, handover and operability of the new assets.

3.2 Key drivers of design change

3.2.1 During definition stage, there have been three key drivers of design change for the package two schemes: design development, power resilience, and the approach to project commissioning.

Design development

3.2.2 Since submission one, we have used ground investigation data and contractor input to develop the package two solutions. We have used historic and new ground investigation data alongside desktop

[2] In the draft determination response the costs for Hawkshead WwTW HD_IMP and 25YEP_IMP phosphorus drivers were included on one line in data table CWW19, with six percent development funding allowed in the final determination. The CWW19 data table referenced the WFD_IMPg driver, but the costs were included in data table ADD17 sanitary parameters, with six per cent development funding provided in the final determination. The proposed solutions to achieve the WFD_IMPg and HD_IMP phosphorus drivers are the same, therefore the inclusion of HD_IMP driver has no impact on overall cost or programme.

[3] In line with our existing commitments, we propose to maintain the accelerated delivery date of 31 March 2028 for the IMP2 driver.

work to better understand rock level. Our contractors and their wider supply chain, including rock and piling experts, have provided specialist input into design, buildability, commissioning and estimating.

3.2.3 This has been particularly important for the package two sites, which are in areas that experience challenging ground conditions and logistical challenges. This additional input has resulted in the refinement of the scheme design and updates to programme and cost.

Power resilience

3.2.4 Since submission one we have undertaken a hazard and operability (HAZOP) study and an access, lifting and maintenance (ALM) workshop which have informed our approach to power resilience. We have considered factors such as site location, access and electrical supply infrastructure.

3.2.5 [✂

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3.2.6 [✂

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Commissioning

3.2.7 Since submission one, our understanding of the commissioning requirements has increased. The final outline designs of the schemes have been developed to consider new equipment, site layouts and site interdependencies. This has provided a clearer understanding of the proposed commissioning approach, sequencing and programme. We have also considered in more detail the linkages between the Elterwater PS ten spills project (an existing AMP8 requirement not included in this gated submission), and the Langdale WwTW solution, for commissioning and optimisation.

3.3 Development of final outline design

3.3.1 This section provides an overview of the work undertaken for each project since submission one and the impact on final outline design. Further detail is included in the site-specific single solution papers (SSPs) which are provided as part of this submission UUWLGS_P2S2_13 to UUWLGS_P2S2_15.

3.3.2 We have carried out a series of common design activities between submission one and two:

- We have developed Piping and Instrumentation Diagrams (P&IDs), a process control philosophy, and completed a HAZOP review, with operational input in line with our standard design delivery methodology. These activities provide confidence in the design from a future operational and maintenance perspective and inform the estimates, programmes, and future commissioning activity.
- We have assessed the operational interventions required to ensure that the solution is both safe to operate and robust in terms of permit compliance. This fed into the final outline design and P&IDs.
- We developed a 3D model of the site layout and undertook an ALM review as part of our standard design delivery methodology. This included operational, engineering and commissioning teams, as well as technology suppliers and identified contractors. It explored safe arrangements for accessing plant for maintenance activities and operational interventions, safe lifting of any equipment and safe access for removal of any plant for maintenance envisaged by the suppliers. We have reflected outputs in the revised design and 3D model.
- We have incorporated telemetry signals required for future operations into the final outline design.
- We have made requests to the Distribution Network Operator (DNO) for new connections or upgrades to the current single-phase supplies, with associated cost and programme allowances.

3.3.3 The remainder of this section provides an overview of the final outline solution for each site, along with the site-specific design activities undertaken since submission one.

Langdale WwTW

3.3.4 Langdale WwTW receives flows from Elterwater PS, which has an existing AMP8 WINEP driver in the accelerated programme to reduce storm overflow spills to no more than an average of ten spills per year. The Elterwater PS driver has not been included as part of this submission but has significantly influenced the development of the final outline solution at Langdale WwTW.[4]

3.3.5 The Langdale WwTW solution augments the existing assets and new assets delivered for the Elterwater PS ten spills scheme, with the addition of a tertiary solids removal (TSR) process, a new final effluent pumping station to provide backwashing to the TSR and a new ferric dosing setup to provide additional control and chemical storage capacity to achieve the tighter phosphorus permit of 0.25mg/l. [✂]

3.3.6 Access to Langdale WwTW is by narrow C-roads and up a steep gravel access track, with limited available space within the site area. This is a significant constraint driving us to minimise the size of delivery vehicles. As a result, equipment that would normally be delivered as prefabricated units cannot be delivered already assembled and we have allowed in the programme for assembly on site.

3.3.7 We have finalised the site layout outline including the new dosing rig,[ ] and TSR units; leading to a need to expand the site boundary:

- We have been engaging with the National Trust which leases the current site to UUW and owns the land surrounding the site. The surrounding designated ancient woodland (south and west of the site) restricts options to extend the site boundary for construction of the new assets.
- Consequently, the new TSR system,[✂] and extended site road/turning head will need to be cut into the steep banking to the north-west of the site. The new process assets and [✂]will require extensive earthworks to provide terraces to safely site these assets. We will also need to construct a retaining wall behind the new assets, and additional land will be needed on a temporary licence to create space for site set up, working and laydown areas.

3.3.8 There are challenges working near existing assets at Langdale WwTW and limitations to the construction plant and equipment that can fit on site. The small working area reduces the number of workfaces available and has increased the duration of the construction programme.

3.3.9 Following submission one in October 2025, we have undertaken the following site-specific design activities to finalise the outline design for Langdale WwTW:

- At submission one the solution at Langdale WwTW included an anoxic tank to improve the performance of the final settlement tanks and thereby reduce the solids load into the TSR process. Since submission one, the outputs from the ongoing Mobile Organic Biofilm (MOB) trial at Langdale WwTW has provided confidence that the anoxic tank is no longer required as part of the solution.
- We selected a ferric dosing system from our range of standard products, which reduces cost for customers. However, we found that that due to the required size of the ferric tank a change in tank location was required. The change in ferric dosing tank location has been incorporated into the final outline design for Langdale WwTW.
- We have undertaken optioneering to select the most appropriate TSR technology.
- We have developed a pumping station design to feed the TSR process. We have updated the generic pumping station design included in submission one to reflect the choice of TSR technology.

[4] Costs have been split between the Elterwater and Langdale schemes based on the required proportion of each asset for the project drivers, using the design and engineering judgement of the project teams.

- We have reviewed the pipework routing to take into account the limited space and constructability constraints of the site.
- We have assessed the ground conditions and civil engineering elements of this scheme. The assessment concluded that there are likely to be challenges due to the indication of high rock level. The construction methodology for the access road has been reviewed to manage the varying rock levels across the site.
- We reviewed power resilience and concluded that [✂

  ]; this has been reflected in cost and programme.

Hawkshead WwTW & PS

3.3.10 Hawkshead PS passes forward flows to Hawkshead WwTW through an underground rising main which runs through third party land between the two sites. The solution for Hawkshead WwTW and Hawkshead PS drivers is a combined holistic solution across the two sites to meet the drivers set out in Table 2. The solution design has been optimised by maximising the increase in pass forward flow at Hawkshead WwTW without significant re-build, ensuring best value for customers.

3.3.11 The solution for the spills drivers at Hawkshead PS includes three interventions:

- 3,000m^3 storage at Hawkshead PS ;
- 25 per cent reduction in surface water and/or ground water in the network ; and
- Increased pass forward flow from Hawkshead PS to Hawkshead WwTW from 14l/s to 24l/s

3.3.12 Since submission one we submitted a planning pre-application to the local planning authority for the 3,000m^3 storage tank. In its response the local authority indicated that an above ground or partially below ground tank would cause landscape harm and be unacceptable, and that a below ground storage tank would be the only option which meets the requirements of local planning policy. As a result, the solution has now been confirmed as a below ground tank. This has been reflected in the final outline design for Hawkshead PS.

3.3.13 Our solution is based on removal of 25 per cent of ingress and infiltration into the network. We have identified a range of interventions in the Hawkshead sewer network to reduce the amount of rain and ground water entering the system. The costs and scope of this work are not included in the gated submission; this will be progressed as base maintenance in parallel to the gated scheme.

3.3.14 To meet the quality drivers at and treat the increased pass forward flow, we need to upgrade and improve Hawkshead WwTW by:

- Enhancing the chemical dosing with Nanofloc to improve settlement;
- Adding new ferric dosing assets to provide additional control and chemical storage capacity to achieve the tighter phosphorus permit of 0.25mg/l;
- Installing new caustic dosing and storage assets[5];
- Providing new tertiary solids removal assets;
- Adding a new anoxic tank; and
- [✂

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[5] The IMP2 driver will be delivered by accelerating the delivery of the new caustic dosing and storage, which is also required for the IMP 4 driver.

3.3.15 Low lying areas of the field adjacent to the existing Hawkshead PS are known to flood in wet weather. Therefore, the new below ground detention tank and control building have been located on higher ground, outside of the floodplain. Groundwater flows in the tank location will be high due to highly permeable superficial deposits and a high groundwater table, and excavations below the water table will be unstable. For these anticipated ground conditions, we have selected secant piling as the construction method for the below ground tank, which is associated with higher costs relative to the caisson method typically used in more benign ground conditions.

3.3.16 There are considerable construction challenges to deliver the solution for Hawkshead. In particular, this includes handling the volume of excavated material and delivery of concrete in Hawkshead and the surrounding area while protecting the character of the Lake District National Park and minimising disruption to local residents and visitors.

3.3.17 Access to both the Hawkshead sites is via heavily used C-roads, with nearly nine miles of narrow rural roads between the sites and the A590 at Newby Bridge. The final outline solution includes for a temporary haul road between the sites to avoid impact on a local B-road (north of the site) which is the main route for tourist traffic to the National Trust property Hill Top, the former home of Beatrix Potter.

3.3.18 Following submission one in October 2025, we have undertaken the following site-specific design activities to finalise the outline design for this scheme:

- We have carried out a successful trial improving the settleability of mixed liquor suspended solids in the final settlement tanks (FST) by dosing a proprietary chemical, Nanofloc. The final outline solution at Hawkshead WwTW includes for Nanofloc chemical dosing into the existing FSTs and does not require construction of additional FST capacity.
- We have optimised the solution design by maximising the increase in pass forward flow without significant re-build of the existing WwTW, ensuring best value for customers.
- We completed a winter flow survey of the sewerage network in Hawkshead and the resulting data has confirmed the basis of the solution for the ten spills driver.
- We have carried out ground investigations and geotechnical studies to inform the piling designs and development of the construction methodology.
- We completed an asset condition survey of the existing 6mm combined sewer overflow (CSO), screens confirming that they are in good condition. Therefore no further works are required to meet the requirements of the IMP5 driver.
- We have selected new Tertiary Pile Cloth Filter (TPCF) units as the TSR technology to achieve the 0.25mg/l phosphorus driver, replacing the existing disc-filters. An assessment has been undertaken and concluded it was too high risk to reuse the existing disc-filters at the increased pass forward flow while achieving the phosphorus driver and remaining compliant with the associated iron permit.

Glebe Road PS

3.3.19 Glebe Road PS is an intercept for all flows received from the northern pumping stations in the catchment and gravity flows in the area. Glebe Road PS passes flows forward to Windermere WwTW via a rising main installed during AMP6. During storm events, when flows surpass pumping and wet well capacity of Glebe Road PS, flow weirs over into the wet well of the Tourist Information Centre PS, and flows are discharged directly to Lake Windermere, via pumps. Spill flows are screened to 6mm via an existing powered screen as they enter the wet well.

3.3.20 To achieve the spills drivers, the final outline solution for Glebe Road PS is to deliver a 10,000m^3 storm detention tank, constructed using diaphragm walls, for storage of flows before they discharge to Lake Windermere. The storage will intercept and capture flows being pumped by the Tourist Information Centre PS during storm events. Intercepted flows will be temporarily stored, before being pumped back to the network to be passed forward to Windermere WwTW by Glebe Road PS.

3.3.21 Given the sensitive location, early engagement with Lake District National Park Authority (LDNPA) Planning Authority has confirmed that a below ground storage tank is the only viable option, which has been reflected in the final outline design. The site lies adjacent to Lake Windermere, near the main car parks of Bowness and within a proposed Conservation Area. The key challenge when building the storage tank is the presence of high compressive strength rock in the proposed location.

3.3.22 A 17th Century farm building, known as Rectory Farm, sits near the proposed detention tank site. The farm is owned by the National Trust and must be considered for structural integrity and potential for damage from large vibrations during excavation and construction.

3.3.23 The site for the storage tank will be close to Glebe Road, a single direction carriageway which circles the Glebe area and includes parking areas along it. During peak months this road is heavily inundated resulting in frequent queues and parking issues. Traffic management throughout construction requires detailed planning and consideration to mitigate impact on the community and local businesses. The final outline solution includes a haul road through adjacent fields to prevent HGVs from having to circulate Glebe Road and therefore minimising traffic interactions.

3.3.24 Following submission one in October 2025, we have undertaken the following site-specific design activities to finalise the outline design for this scheme:

- We have reviewed the local topography, ground conditions and potential impact upon leisure activities and access issues and decided to locate the new assets in the field south of Glebe Road, approximately 200m south of Glebe Road PS. This location is close enough to return flows to Glebe Road PS and use the existing outfall infrastructure ensuring best value for customers, while where possible limiting the impact on tourism, local businesses and the community.
- We have undertaken geotechnical studies and developed piling designs and construction methodology using existing and additional geotechnical information. This has resulted in the refinement of the final outline solution and enhanced our understanding of the complexities.
- We have carried out an asset condition survey of the existing 6mm CSO screen at the Tourist Information Centre PS. An engineering review has determined that the refurbishment of the CSO screen is not an option, and a new unit is required. The cost and scope of the work to replace the CSO screen has not been included in the gated submission; the screen will be replaced as base maintenance in parallel to the gated scheme, to achieve the IMP5 driver.
- We have produced and reviewed 2D general arrangement drawings to allow UUW and external stakeholders to understand asset arrangement and visualise temporary and permanent access and traffic management.
- We have completed a winter flow survey to increase certainty of the flows to Glebe Road PS and Windermere WwTW and improve confidence in the outputs from the network model. The flow surveys identified additional flows during periods of heavy rainfall into the network. Investigation is ongoing and it is anticipated that a range of interventions in the Glebe Road sewer network, similar to those proposed for Hawkshead, will be required to reduce the amount of rain and ground water entering the system. During the flow surveys it was identified that a private network within a holiday park is contributing to the additional flows. UUW has commenced engagement with the owners regarding plans for resolution. The costs and scope of the work to remove the additional identified flows has not been included in the gated submission.
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4. Solution compliance requirements

4.1 Introduction

4.1.1 This section provides an overview of:

- Environmental assessments undertaken; and
- Carbon accounting.

4.2 Environmental assessment

4.2.1 All the development proposals are within the LDNPA and covered by Schedule 2 of the Environmental Impact Assessment Regulations 2017. The schemes require screening by the LDNPA as to the need for Environmental Impact Assessment (EIA).

4.2.2 Due to the scale and nature of the proposed developments, the risk of requiring EIA is very low. To reduce the programme and the resource commitments**,** including those of our regulators**,** we have agreed with the LDNPA that where a planning application is required the screening opinion would be considered as part of the main planning application process. Accordingly, we have not made separate requests for screening opinions.

4.2.3 Environmental surveys and assessments have been undertaken to support the required planning applications, and the scope of work has been agreed with LDNPA, Westmorland and Furness Council Highways and Flood Risk Teams as well as Natural England through informal discussions and the use of its pre-submission screening service This covered key topics including ecology, heritage, landscape, visual and flood risk.

4.2.4 We have an AMP8 programme-wide Discretionary Advice Service agreement in place with Natural England and “call off” this agreement for project-specific advice. Projects are screened for Habitats Regulations Assessment (HRA) requirements, including for the initial ground investigation works in discussion with the Natural England team. A HRA will be prepared and agreed with Natural England for submission with the planning application at Hawkshead WwTW.

4.2.5 In keeping with our approach for package one projects, we have maintained regular engagement with the EA covering package two schemes. We have shared details of how solutions will meet requirements**,** including sharing single solution papers to provide details relevant to each scheme. As outlined in UUWLGS_P2S2_12, the EA is supportive of proposed solutions, as outlined in the single solution papers, considering constraints on locations and sensitive nature of the area.

4.3 Carbon

Carbon estimating methodology

4.3.1 The whole life carbon impact for each scheme has been quantified using our carbon estimating process, following the requirements of the Water Resource Planning guidelines. The process was developed to be aligned with global standard guidance for carbon quantification[6]. The lifecycle modules covered in our whole life carbon approach include A1-A5, B1, B2, B4 and B6, following EN 15978:2011 Sustainability of Construction Works. For the calculations listed below, a whole life period of 30 years has been applied.

4.3.2 For capital carbon (A1-A5), our approach uses a database of ‘cradle to build’ carbon models for water sector assets (i.e. pumps, access roads). These models draw on industry-recognised emission factor

[6] Including UKWIR (2012) Framework for accounting for embodied carbon in water industry assets and the GHG Protocol.

inventories for typical construction materials, fuels and construction techniques. Where sufficient design information or a carbon model is not available, a carbon intensity metric is applied.

4.3.3 For operational usage carbon (B1 and B6), our estimating process quantifies power consumption, chemicals and additional sludge transport as a result of operating our new assets, using emission factor inventories such as the Carbon Accounting Workbook and Defra greenhouse gas (GHG) Conversion Factors. Carbon sequestration from land change has also been quantified, drawing from industry literature for sequestration rates.

4.3.4 In January 2026, we updated our carbon estimating methodology including select emission factor data sources and how maintenance and replacement carbon is calculated over the 30-year whole life period.

4.3.5 At this stage in design, several assumptions have been factored into the carbon estimates such as materials, quantities and transportation distance. As design progresses, our estimates will be updated and the level of uncertainty reduced as these assumptions are replaced with specific design data.

Scheme carbon emissions and other Greenhouse gases

4.3.6 The table below presents the estimated whole life carbon emissions of the schemes, in tonnes of carbon dioxide equivalent (tCO2e). Associated carbon costs for each scheme are found in Table 11.

Table 3: Carbon emission estimates for Windermere package 2 schemes

Project	Capital Carbon (tCO2e)	Replacement Carbon (tC02e/30 years)	Operational Usage Carbon (tC02e/year)	Maintenance Carbon (tC02e/year)	Sequestered Carbon (tC02e/year)[7]	Whole Life Carbon (tC02e/30 years)
Langdale WwTW	380.45	38.99	5.41	0.1	$7.5x10^{-5}$	584.56
Hawkshead WwTW and Hawkshead PS LAK0107SO	6,001.82	720.71	18.71	1.86	$1.15x10^{-4}$	7339.36
Glebe Road PS LAK0045SO	12,150.98	1,528.47	0.16	3.96	$3.57x10^{-5}$	13,802.89

Source: UUW Carbon Emissions Summary

4.3.7 Table 4 below sets out the environmental impact of other GHGs such as those identified under the Kyoto Protocol.

Table 4: Environmental Impact of greenhouse gases

Carbon dioxide (CO_2)	• Carbon dioxide emissions have been quantified for all solutions following our whole life carbon approach as detailed above.
Methane (CH_4)	• Methane emissions have not been quantified for the projects. For Langdale WwTW, it is expected that adjustments to the process (i.e. chemical dosing regime and addition of tertiary solids removal) may have a minor, indirect influence on methane emissions at the treatment works. • For Glebe Road PS and Hawkhead PS, it is expected that minor methane emissions will be released as a result of attenuation within the storage tanks. These emissions may be mitigated through management of drain down time / rate. • For Hawkshead WwTW, it expected that increasing the pass forward flow through the works will increase the potential for methane emissions. Other adjustments to the process (i.e. chemical dosing regime and addition of anoxic tank) may have a minor, indirect influence on methane emissions. • For all projects, methane emissions may be emitted from the tailpipe of vehicles travelling to site as a result of construction or additional deliveries to site.

[7] A positive carbon sequestration value indicates a loss of carbon sequestration.

Nitrous oxide (N_2O)	• Nitrous oxide emissions have not been quantified for the projects. • For Langdale WwTW, it is expected that nitrous oxide emissions will occur as a result of the treatment process. We do not believe there is any global data on N_2O emissions from the use of Mobile Organic Biofilm (MOB) media and research is ongoing into N_2O emissions more broadly. • For Glebe Road PS and Hawkshead PS, it is anticipated that minimal emissions from nitrous oxide would be released as a result of storm water retention within the proposed detention tank. • For Hawkshead WwTW, it is expected that nitrous oxide emissions will occur as a result of the treatment process. This is expected to be mostly from the introduction of the anoxic tank, however these may be partially mitigated through further design and operational control mechanisms. • We do not believe there are global datasets currently quantify N_2O emissions associated with the use of Nanofloc, however its application may help mitigate N_2O generation by enhancing ammonia removal and improving overall process stability. • For all projects, nitrous oxide emissions may be emitted from the tailpipe of vehicles travelling to site as a result of construction or additional deliveries to site.
Hydrofluorocarbons (HFCs)	• It is not anticipated that hydrofluorocarbons will be emitted as a result of the Windemere projects.
Perfluorocarbons (PFCs)	• It is not anticipated that perfluorocarbons will be emitted as a result of the Windemere projects.
Sulphur hexafluoride (SF_6)	• Sulphur hexafluoride can be found in high voltage switchgear. At this stage of design, it is not anticipated that sulphur hexafluoride will be present in the low voltage electrical switchgear that is planned for the Windemere projects.

Source: UUW

Our approach to carbon reduction

4.3.8 Our approach to carbon reduction for the Windermere projects follows the carbon management process we adopted for the AMP8 capital programme. This process follows PAS 2080[8] principles and reflects Ofwat's Net Zero Principles Position Paper by embedding whole-life carbon management and the carbon reduction hierarchy—avoid, switch, improve—throughout the project lifecycle. This supports reductions in both capital and operational emissions.

4.3.9 At this stage in design, there has been a greater focus on assessing opportunities for 'reduced build' solutions. As an example, to achieve the required drivers at Hawkshead WwTW and PS, our solution design has been optimised by maximising the increase in pass forward flow, avoiding a significant re-build at the existing wastewater treatment works. The application of Nanofloc into the process stream supports this, which improves the settleability of suspended solids and mitigates the needs for additional final settlement tanks as part of the solution. In addition, through further investigations since submission one, we have identified alternative locations for upstream network disconnections, reducing flows and mitigating further stormwater storage requirements.

4.3.10 The adoption of innovative technologies has also allowed carbon emissions to be reduced:

- MOB (Langdale WwTW) increases treatment capacity within the existing footprint, negating carbon emissions associated with construction of additional concrete tanks, aeration basins and other major infrastructure. The MOB process requires minimal mixing and aeration compared with conventional fixed film or granular sludge technologies, reducing future operational carbon emissions associated with energy usage. Furthermore, MOB also provides enhanced nutrient removal and efficient settling, reducing reliance on additional chemical dosing.
- Nanofloc (Hawkshead WwTW) is an advanced flocculant that accelerates and strengthens floc formation. This has several potential benefits including reduced energy consumption from aeration activities and reduced need for carbon intensive chemicals (i.e. coagulants), both supporting reductions in future operational carbon emissions.

[8] PAS2080:2013 Carbon Management in Buildings and Infrastructure

4.3.11 As the projects progress into later stages of design, the carbon estimates will be updated and become increasingly accurate. These results will be evaluated and we will explore further opportunities for carbon reduction and mitigation. These opportunities may include the use of green site welfare facilities (i.e. powered by renewable energy), lower carbon materials and efficient use and reuse of resources. Opportunities will be tracked and considered through our carbon management process.

5. Solution costs and benefits

5.1 Introduction

5.1.1 This section:

- Sets out the efficient solution cost estimates for package two projects. For schemes with cost estimates above the relevant Ofwat cost models, we provide detailed evidence of cost efficiency;
- Describes UUW's approach to best value assessment and solution benefits; and
- Summarises the key changes from the solutions and costs set out in submission one.

5.1.2 Since submission one, the level of uncertainty in cost estimates has reduced, with estimates now AACE class 2, with pricing accuracy of -10 per cent to +12.5 per cent.[9] Cost estimates will continue to change through delivery and we will update Ofwat through Delivery Plan and large schemes quarterly reporting. All costs in this submission are provided in 2022-23 CPIH-adjusted prices.

5.1.3 We also attach the following supporting documents to this submission:

(a) A change log covering the package two projects (UUWLGS_P2S2_05 Change Log);

(b) Cost deep dive documents for Glebe Road and Hawkshead, as part of the scheme-specific supporting documents (UUWLGS_P2S2_13 to UUWLGS_P2S2_15);

(c) Ofwat's large gated schemes cost tables (UUWLGS_P2S2_10 Data tables) including tables CWW19, ADD17[10] and ADD20, and accompanying commentary (UUWLGS_P2S2_11 Data table commentary).

5.2 How we have developed and benchmarked our costs

Estimating methodology

5.2.1 We engaged Costain (Glebe Road and Hawkshead) and C2V[11] (Langdale) to review and update submission one cost estimates based on the developed design and site-specific requirements including [✂], planning requirements and site topography.

5.2.2 We used a collaborative approach to undertake joint reviews of pricing with the contractors. Each contractor presented submission two pricing to the UUW team, which challenged as appropriate on all elements of costings, including level of resource and unit prices. Between first and final contractor prices for submission two, costs reduced by nine per cent for Glebe Road and 21 per cent for Langdale.[12]

5.2.3 Building on the more high-level approach to indirect costs, risk and overheads at submission one, we have now assessed site-specific requirements and replaced high-level uplifts with detailed estimates:

[9] AACE International provides a structured Cost Estimate Classification System that categorizes project cost estimates into five classes (5 down to 1) based on maturity and accuracy.

[10] While not part of Ofwat's standard suite of large gated schemes cost tables, we have added to this submission as it is the scheme level table for projects with sanitary drivers.

[11] C2V is a joint venture between Jacobs and Volker Stevin; see section 8.3 for further information.

[12] The reduction in costs for Hawkshead was relatively limited as the first submission incorporated many of the changes already implemented for Glebe Road.

- Informed by project teams and specialist input, we have produced staff profiles aligned to programmes, and land estimates aligned with detailed site layouts and landowner consultation;
- The risk provision is driven by a full risk review and the associated costed risk registers; and
- Opex costs are derived from operating plans consistent with our PR24 methodology and reflect the output in use dates of each scheme.

5.2.4 This has led to a more detailed and robust bottom-up cost estimate.

Cost estimates

5.2.5 Table 5 below summarises the required totex costs at each site. These estimates feed through to our cost change submission, net of development allowances.

Table 5: Summary of totex costs (£m, 2022-23 CPIH prices)

	Langdale WwTW	Hawkshead WwTW	Hawkshead PS LAK0107SO	Glebe Road PS LAK0045SO	Total
Capex	7.1	5.0	27.9	41.6	81.6
Opex	0.2	0.2	0.0	0.0	0.5
Totex	**7.3**	**5.2**	**27.9**	**41.7**	**82.1**

Source: UUW Estimating

Risk provision

5.2.6 The risk registers are now mature and fully aligned to the cost estimates and programmes included in this submission. Since submission one, we have undertaken detailed risk workshops to identify all current project risks and opportunities and assign probability and three-point price and programme impacts We have included an estimated weighted average risk value in cost estimates that reflects project value and complexity.[13] This is broken down by scheme and risk category in Table 6.

Table 6: Risk breakdown by scheme and risk category (£m, 2022-23 CPIH prices)

Description	Langdale WwTW	Hawkshead WWTW and PS	Glebe Road PS LAK0045SO
Planning, control and consents	0.041	0.331	0.305
Technical performance	0.020	0.007	0.000
Land acquisition and access	0.020	0.014	0.000
Environmental and weather	0.007	0.094	0.002
Infrastructure, operational and supporting services	0.011	0.123	0.005
Customer, public and other stakeholders	0.016	0.069	0.130
Commercial, procurement and contract	0.074	0.112	0.117
Ground conditions	0.033	0.716	1.073
Project and programme management	0.035	0.000	0.086
Regulatory and legislative	0.005	0.176	0.106
Design, requirements and scope	0.000	0.005	0.623
Total	**0.262**[14]	**1.648**	**2.447**

Source: Risk registers for each scheme

[13] We have applied the PERT method to the minimum, maximum and most likely risk values to generate an estimated weighted average value for exposure.

[14] Due to a data correction following finalisation of cost estimates, there is a non-material discrepancy between this value (aligned with the Langdale WwTW risk register) and the risk value of £0.259m included in the Langdale WwTW cost estimate.

5.2.7 Table 7 breaks down opportunities by scheme and category.

Table 7: Opportunity breakdown by scheme and risk category (£m, 2022-23 CPIH prices)

Description	Langdale WwTW	Hawkshead WWTW and PS	Glebe Road PS LAK0045SO
Ground conditions		0.033	
Project and programme management		0.141	0.179
Design, requirements and scope		0.115	0.225
Total	**0.000**	**0.289**	**0.404**

Source: Risk registers for each scheme

External benchmarking: comparison to Ofwat's Final Determination enhancement models

5.2.8 We have compared the costs for each project to modelled costs calculated using Ofwat's PR24 enhancement models. As for submission one, we have maintained all elements of Ofwat's PR24 methodology for this submission such as retaining the reconciliation adjustment that corrected for differences between CWW3 and scheme level business plan data tables. We have also rebased the frontier shift efficiency challenge to the current year.

5.2.9 The comparison of modelled to actual costs is set out in Table 8 below, which aligns with CWW19, ADD17 and ADD20. Where schemes are delivering against multiple enhancement drivers these are captured in both tables.

Table 8: We are considered efficient relative to Ofwat's FD models for phosphorus removal and sanitary determinands at a programme level (£m, 2022-23 CPIH prices)

	P-removal			Sanitary			Overflows		
Project name	Modelled allowance	Totex estimate	Variance	Modelled allowance	Totex estimate	Variance	Modelled allowance	Totex estimate	Variance
Langdale WwTW	5.0	4.8	0.2	2.3	2.6	-0.2	-	-	-
Hawkshead WwTW	4.5	3.4	1.1	2.3	1.8	0.5	-	-	-
Hawkshead PS LAK0107SO	-	-	-	-	-	-	10.1	27.9	-17.8
Glebe Road PS LAK0045SO	-	-	-	-	-	-	11.3	41.7	-30.4
Total	**9.5**	**8.2**	**1.3**	**4.6**	**4.4**	**0.2**	**21.3**	**69.5**	**-48.2**

Source: UUW analysis based on Ofwat's PR24 Final Determination

5.2.10 The required cost of the overflow schemes is greater than that implied by Ofwat's PR24 benchmark. This is because the site-specific challenges faced at each site are not reflected in the average cost implied by Ofwat's benchmark. We summarise these challenges in section 5.3, with a comprehensive explanation of the reasons for the increased costs set out within deep dive documents within the scheme-specific supporting documents for Hawkshead (UUWLGS_P2S2_14) and Glebe Road (UUWLGS_P2S2_15).

We have not included any element of base expenditure within our cost estimates

5.2.11 The investment drivers for these projects (as described in section 2) will require a step-change in performance at each site. As reflected in section 3, the solution scope items relate primarily to the installation of new assets rather than maintenance of existing assets. Where activities to be undertaken align to the definitions of activities funded by base maintenance the costs have not been included

above.[15] As such, we are clear that our costs relate to enhancement expenditure only and therefore base expenditure is excluded.

We have updated our view of cost since submission one

5.2.12 Table 9 summarises changes to costs since submission one, with total costs increasing by five per cent.

Table 9: Summary of changes since submission one (£m, 2022-23 CPIH prices)

Scheme	Submission one	Updated estimate	Change
Langdale WwTW	4.1	7.3	3.3
Hawkshead WwTW	8.1	5.2	-2.9
Hawkshead PS LAK0107SO	29.5	27.9	-1.6
Glebe Road PS LAK0045SO	36.5	41.7	5.2
Total	**78.1**	**82.1**	**4.0**

Source: Windermere package two submission one, 1 October 202 and Table 5

5.2.13 The key changes in cost are summarised in Table 10 and described on a site by site basis below, as well as set out in our supporting document UUWLGS_P2S2_05 Change Log.

Table 10: Cost changes between submissions one and two (£m, 2022-23 CPIH prices)

Description	Change
Ground conditions - new information or analysis has allowed refinements at cost for each of the projects	5.6
[✂] driving additional costs	1.1
Commissioning periods - reviewed and refined, particularly increasing costs at Langdale WwTW	0.5
Design development - finalisation of design specifications and refinement of construction methodologies	0.5
Removal of ingress and infiltration scope – to be funded as base maintenance	-3.8
Total	**4.0**

Source: UUWLGS_P2S2_05 Change Log.

Langdale

5.2.14 Costs have increased since submission one by £3.3m driven by the following key factors:

- The key driver of change is design development, as described in section 3.3:
  - **Sizing of the ferric tank** – To provide the capacity and resilience necessary to achieve the tighter phosphorus permit, we have identified the need for a new ferric dosing rig in a new location. This requires additional rock excavation, adding to direct costs and increasing the duration of works driving higher indirect costs. We also need additional land for delivery and storage areas.
  - [✂] These new assets have driven additional costs, with costs of the assets and associated civils work now included in the cost estimates.
  - We have included a **washwater system** and specified the TSR, both of which have increased costs. However, our decision to remove the anoxic tank has offset the increased costs.
- **Access** and logistics review – as a result of the narrow C-roads and steep access track to Langdale WwTW, since submission one we have identified that we will need to assemble equipment on site that would usually be delivered prefabricated, driving additional costs.

[15] This includes the IMP5 screen at Glebe Road and the network intervention works at Hawkshead due to both items being identified to be related to asset health.

- Additional **desktop work** and review of **historic ground investigation data** has indicated that the rock level is much higher than previously assumed. Applied to the required construction works this increases the volume of rock excavation required, driving the critical path of the project and increasing duration and cost of civils works.
- **Commissioning** periods – as described in 3.2.7, we have developed our approach to commissioning based on the developed design and additional new assets described above has extended the programme and driven increased staff costs.

5.2.15 As described earlier in this section, we have challenged contractor pricing to limit cost increases.

Hawkshead

5.2.16 Costs have reduced since submission one at both Hawkshead WwTW and pumping station, with total costs decreasing by £4.5m. This has been driven by the following key factors:

- **Design development**, where we have used contractor input to develop construction methodology and refine programme and cost.
- **Additional ground investigation information,** which has indicated there is less contaminated ground to be removed than previously assumed, reducing costs.
- Successful completion of the **Nanofloc trial** and subsequent cost evaluation of available technologies allowed us to conclude that Nanofloc was the correct solution for the site and as a result we removed an additional final settlement tank that had been included in submission one.
- We have challenged ourselves to deliver **enhanced ingress and infiltration targeting works from base allowances**, despite Ofwat acknowledging at PR24 that this activity could be classed as enhancement.
- The above decreases have been partially offset by the inclusion of[✂]

5.2.17 The IMP2 and IMP5 drivers have been included in the scope of the Hawkshead project since submission one. Neither driver has driven a change in costs: the screen required for the IMP5 driver is already in place and the IMP2 driver will be delivered by the solution already required for the IMP4 driver.

Glebe Road

5.2.18 The overall cost of the Glebe Road scheme has increased by £5.2m from submission one:

- The main driver of the cost increase has been **design development**, with ground investigation data showing higher rock strength than assumed in submission one. Using our contractors to develop construction methodology confirmed that the only feasible solution for this type of rock in the presence of groundwater is diaphragm wall excavation, and updates to the previous assumed production rates for piling and excavation works increased both direct and indirect costs.
- Secondly, we have included [✂]

5.3 Site-specific complexities have driven higher efficient costs

5.3.1 As set out in Table 8 in section 5.2, we expect delivery costs at Glebe Road and Hawkshead to be significantly greater than the storage cost benchmark Ofwat used in its PR24 FD. This section summarises the reasons for this. We also attach two deep dive documents that provide additional detailed evidence to support our view of efficient cost at these sites as part of the scheme-specific supporting documents for Hawkshead (UUWLGS_P2S2_14) and Glebe Road (UUWLGS_P2S2_15).

5.3.2 Ofwat's benchmark model reflects an industry-wide average. Where a company faces a greater-than-average share of regional cost-driving factors, its efficient costs will naturally sit above this benchmark. These higher costs remain efficient because they arise from regional circumstances outside management's control.

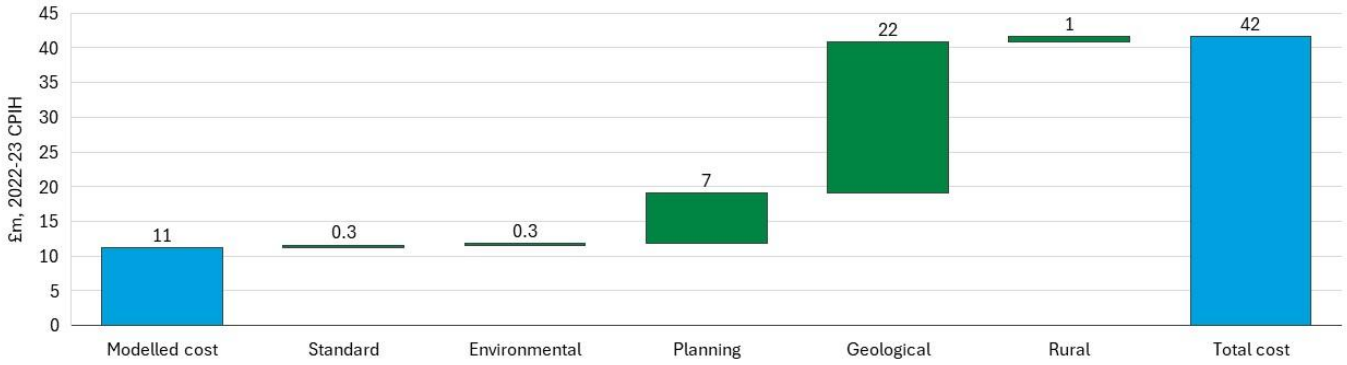
5.3.3 Ofwat recognised this in its PR24 FD, when it provided a significant uplift to UUW's storm overflow allowances in response to evidence of regional complexity factors in UUW's draft determination response.

5.3.4 Our scoping and design work, along with experience from past schemes at those locations, suggests that Hawkshead and Glebe Road will be particularly expensive to deliver. This is due to site specific challenges arising from the regional environmental conditions typical of UUW's region, particularly in the Lake District. We do not consider these factors are appropriately captured in Ofwat's PR24 benchmark for storage schemes.

5.3.5 Glebe Road is in the centre of one of the busiest areas of the Lake District, Bowness-on-Windermere. As such, planning requirements state that we will need to deliver a below-ground solution, which drives additional cost. Compounding this issue, the local geology is characterised by extensive hard rock close to surface level and high groundwater. As such, we will need to use a particularly expensive excavation and shaft construction technique called diaphragm wall construction. In addition to higher costs for specialist equipment and labour, this will prolong construction time. Typically, we would expect an above-ground storage project to last eight months. However, this project is expected to take 16 months. This is leading to higher direct and indirect costs because labour, equipment and specialist support is needed for twice the length of time as a typical scheme.

5.3.6 Figure 1 shows how these factors combine to lead efficient costs to be significantly higher than Ofwat's view of modelled cost. We provide a full explanation in the deep dive included in UUWLGS_P2S2_15.

Figure 1: How regional factors drive efficient costs above Ofwat's view of modelled cost at Glebe Road

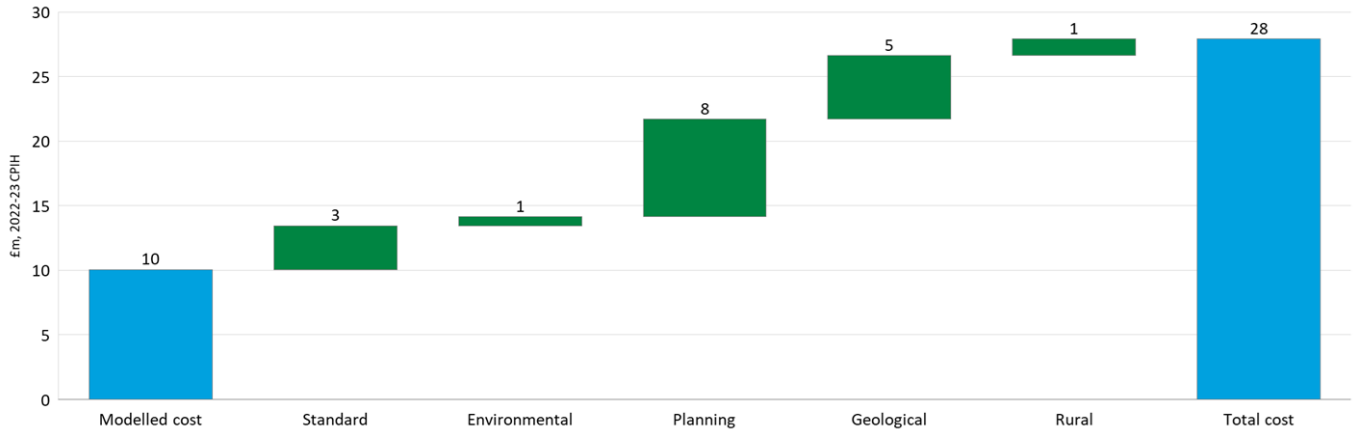


Source: Deep dive document included in UUWLGS_P2S2_15

5.3.7 Hawkshead is a rural village to the west of Windermere. Access roads are typical of the Lake District but significantly smaller than is typical across England and Wales. This complicates logistics and means we need to create bespoke site access. Planning requires a below ground storage tank. However, the site suffers from high groundwater levels and sits within a flood zone. In addition, rock is present towards the bottom of the dig zone. This means we will need to use a more expensive 'secant piling' technique than the 'caisson' technique that can be used in better ground. A combination of these factors means that construction time is expected to be slower than is typical for an above ground storage scheme, which heads to high costs for the same reasons as set out in paragraph 5.3.5.

5.3.8 Figure 2 shows how these factors combine to lead efficient costs to be significantly higher than Ofwat's view of modelled cost. We provide a full explanation in the deep dive included in UUWLGS_P2S2_14.

Figure 2: How regional factors drive efficient costs above Ofwat's view of modelled cost at Hawkshead



Source: Deep dive document included in UUWLGS_P2S2_14

5.4 Best value assessment and solution benefits

5.4.1 The schemes in the Windermere gated programme help to protect and enhance Windermere, England's largest lake and an iconic site of significant importance to customers, communities and stakeholders. The package two schemes comprise a mixture of phosphorus and sanitary (Hawkshead and Langdale) and storm overflows projects (Glebe Road and Hawkshead). These enhancements offer benefits across a range of areas including amenity value, biodiversity and wider environmental outcomes.

5.4.2 The value derived by society from these enhancements is central to our approach to developing them. There is strong qualitative evidence underpinning the value placed by customers and communities on the health of Windermere, with support for maintaining the health of the lake, preventing future deterioration and reducing impacts on plants and wildlife.[16] This support underpins going beyond statutory requirements at Windermere.

5.4.3 For this submission, we have used a cost-benefit tool that reflects our current thinking on valuing the benefits of investing at Windermere and demonstrates that the Langdale and Hawkshead projects are cost-beneficial relative to a "do nothing" scenario, and that the Glebe Road project has selected the most beneficial option. This analysis draws on our work to develop a broader "six capitals" valuation approach to reflect changes in regulatory and government approaches to valuations of service, the environment and amenity values, and takes account of the unique context around Windermere.

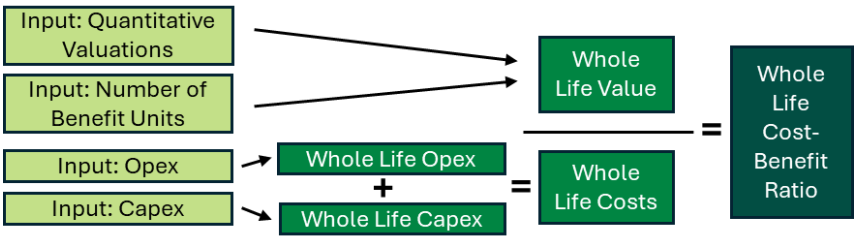
Our approach

5.4.4 Our approach comprises three key steps, summarised in Figure 3 and described in further detail below:

- Calculating the whole life value;
- Calculating the whole life cost; and
- Comparing the whole life cost-benefit ratio across different solutions.

[16] Bespoke Performance Commitments Research Report, 12 September 2023, page 53

Figure 3: Cost benefit analysis flow diagram



Whole life value

5.4.5 We calculate whole life value of an investment solution as the present value of the total benefits accrued over a 30-year assessment period. This is derived by:

- Multiplying the number of projected benefit units from the investment solution by the annual quantitative valuation; and
- Calculating the compounded value over the investment horizon and discounting it using the Social Time Preference Rate, in line with the HM Treasury Green Book.

5.4.6 Value-based decision making is informed by the six capitals framework, drawing from the internationally adopted Integrated Reporting and using a broad range of metrics that cover:

- Natural capital metrics based on the EA's Wider Environmental Outcomes to reflect values for society and the environment (e.g. water quality, air quality);
- Customers' preferences for service improvements and wider amenity values resulting from the investment solution;
- GHG emissions through the UK Government's cost of carbon;
- Risks (e.g. reduced accidents, customer complaints); and
- Health and safety.

Whole life cost

5.4.7 We calculate the whole life cost of an investment solution by adding the whole life capital expenditure and the whole life ongoing operating costs. Capital expenditure includes capital overheads but excludes the effect of taxation. Whole life cost has been calculated on a consistent basis to the approach taken for PR24 investment appraisal. The present value of capital expenditure has been converted to a stream of annual costs over a 30-year appraisal period. To calculate the present value of these costs, and associated operating costs, the Social Time Preference Rate was used for discounting, consistent with the HM Treasury Green Book. Costs are in 2022-23 price base, using the CPIH financial year average.

Cost benefit ratio

5.4.8 The cost benefit ratio is calculated by dividing whole life value by whole life cost.

Quantification of benefits

5.4.9 Table 11 summarises the quantified benefits for the four package two schemes, together with whole life cost and the benefit cost ratio. This ratio is substantially greater than one for Langdale WwTW and Hawkshead WwTW and PS.

5.4.10 For Glebe Road, the storage-only option reflected in this submission shows a comparatively modest level of quantified environmental improvement which is insufficient to offset costs and disbenefits. However, given the prominent location of Glebe Road PS in a highly touristed area and iconic location, it is likely that the value used to monetise the benefit of reduced spills underestimates its value to customers. We set out the potential extent of wider societal value below. Furthermore, relative to the alternative option (fully described in submission one), the preferred option delivers the highest level of net benefit, and the scheme is being progressed to meet statutory WINEP drivers.

Table 11: Summary of costs and benefits (£m, 2022-23 CPIH prices)

Benefit	Langdale WwTW	Hawkshead WwTW-and Hawkshead PS LAK0107SO	Glebe Road PS LAK0045SO	
			Preferred option	Alternative option (storage and increased FTFT)
River water quality (phosphorus)	65.3	31.3	2.9	2.9
Permit compliance	7.8	7.8	7.8	7.1
Reduced spills	0.0	8.3	1.7	1.7
Reduced pollution incidents	0.0	1.5	1.5	1.5
Carbon Impact	-0.1	-2.0	-3.8	-3.2
Escalated contacts	0.0	0.3	0.5	0.5
Whole Life Value	72.9	47.1	10.6	10.5
Whole Life Cost	9.6	31.4	31.1	40.3
Cost Benefit Ratio	**7.63**	**1.50**	**0.34**	**0.26**

Source: Windermere gated submission two cost benefit analysis

5.4.11 For Langdale and Hawkshead, the largest of the benefits valued are associated with **reducing phosphorus**, which reduces the risk of eutrophication and algal blooms. We have valued phosphorus reductions using UUW's research to inform the Wonderful Windermere Outcome Delivery Incentive (ODI) (as set out in our business plan supplementary document UUW31). This research collated and triangulated the various sources of phosphorus valuation which ranged from £2.0- £25.4k per kg. We applied a systematic and robust approach to triangulating evidence to determine a marginal benefit rate of £13.6k per kg of phosphorus removed.[17]

5.4.12 The Hawkshead and Langdale projects also deliver **improvements in BOD, suspended solids and ammonia**, for which we do not have applicable valuations. As a proxy, we have estimated the benefits associated with compliance with the tighter permits at each of the sites, valued using the PR19 ODI triangulated customer research valuation for permit compliance.[18] While this may also reflect some of the benefits associated with phosphorus reduction, these schemes are cost-beneficial even if the value associated with permit compliance is excluded. Therefore, any uncertainty over the allocation of these benefits between phosphorus and sanitary outputs does not affect the overall outcome of the analysis.

5.4.13 Benefits for **reduced spills** and **pollution incidents** at the Hawkshead PS and Glebe Road PS sites have been valued using PR19 customer research and the Storm Overflows Evidence Project[19], applied to the average baseline spill performance at each site to estimate the economic value of avoiding these events. We have also valued consequential carbon impacts and avoided customer complaints as part of this analysis, which make a relatively small contribution to the overall assessment.

Evidence of wider societal value of investment at Windermere

5.4.14 There is a wide range of evidence supporting the value of investment at Windermere. While these values overlap with the benefits valued above and cannot be applied in addition, together the evidence underlines the significant value attached to environmental improvements in the Windermere catchment.

[17] UUW 31, Customer research triangulation, October 2023, para 3.2.31

[18] See Performance commitments technical document, page 164. We have used PR19 valuations instead of the PR24 ODI rate. PR19 quantitative customer research provides the most robust and recent bottom-up customer valuations for this performance area, including views on environmental and societal value. In contrast, PR24 ODIs were set using a top-down RoRE approach, which weakens the link between customer valuations and the rewards or penalties applied.

[19] See Defra (2022), "Storm overflows discharge reduction plan: Impact assessment", para 185

Recreational value – in the context of the Windermere catchment as a tourist hotspot with exceptionally high levels of recreational activity

5.4.15 There are many approaches to capturing recreational value, although many do not appropriately account for specific locations. The most widely used approach is the University of Exeter's tool "ORVal", which is funded by Defra and was used as part of the AMP7 Natural Capital ODI.[20] ORVal suggests a present value of £48.6m across the Windermere catchment based on 750,000 visits per year. However as Cumbria Tourism / EA research suggests that actual visitor numbers could be closer to seven million per year, the recreational value could be significantly higher.

Tourism value

5.4.16 As well as a recreational hotspot, Windermere and the surrounding towns provide crucial economic value to the region through tourism. The EA and Cumbria Tourism's report "Windermere Catchment: Tourism Value, March 2021"[21] estimates the indirect and direct economic impact of tourism across the Windermere Catchment is £753m. It also estimates that between £24m and £122m of this could be lost due to deteriorating water quality. This economic value supports an estimated 9,315 jobs, between 303 and 2,304 of which could be put at risk due to deterioration in water quality.

Impact on the local housing market

5.4.17 There are numerous studies which link local environmental quality with property values. The B£ST Tool[22] makes use of a study from the Royal Institute of Chartered Surveyors (RICS) on the Urban Parks, Open Space and Residential Property Values, which when inflated to 2025 values, places a value of £6,533 per home benefitting from improved natural environment and £1,064 per business benefitting from improved natural environment. We estimate that there are around 12,600 unique addresses in the Windermere catchment, leading to a valuation of between £13.4m and £82.3m for a one-off increase in property values.

Non-use value

5.4.18 In environmental economics, "non-use" value refers to the intrinsic worth or significance that individuals attribute to goods or services, regardless of direct engagement with them. This is likely to be significant for Windermere, which has an iconic status, embedded into the cultural heritage of Cumbria and the UK. Although no relevant willingness to pay study exists, given the importance of the lake across the UK, Windermere's non-use value could easily be in the region of tens of millions of pounds.

Conclusion

5.4.19 As described above. the schemes in the Windermere gated programme offer benefits across a range of areas including amenity value, biodiversity and wider environmental outcomes. Our analysis demonstrates that the Langdale and Hawkshead projects are cost-beneficial relative to a "do nothing" scenario, and that the Glebe Road project has selected the most beneficial option. While we have adopted a Windermere-specific phosphorus valuation, we use standard valuations for reduced spills and pollution incidents, which together with the evidence above around the value of investing in the environment at Windermere, suggests that these benefits may be valued conservatively.

6. Programme and Planning

6.1 Introduction

6.1.1 This section summarises the programme for the package two schemes, including for third party approvals and consents and provides an update on the key risks faced on the package two projects. To support the information we provide:

[20] https://leep.exeter.ac.uk/orval/

[21] Windermere Catchment: Tourism Value March 2021

[22] www.ciriabest.com

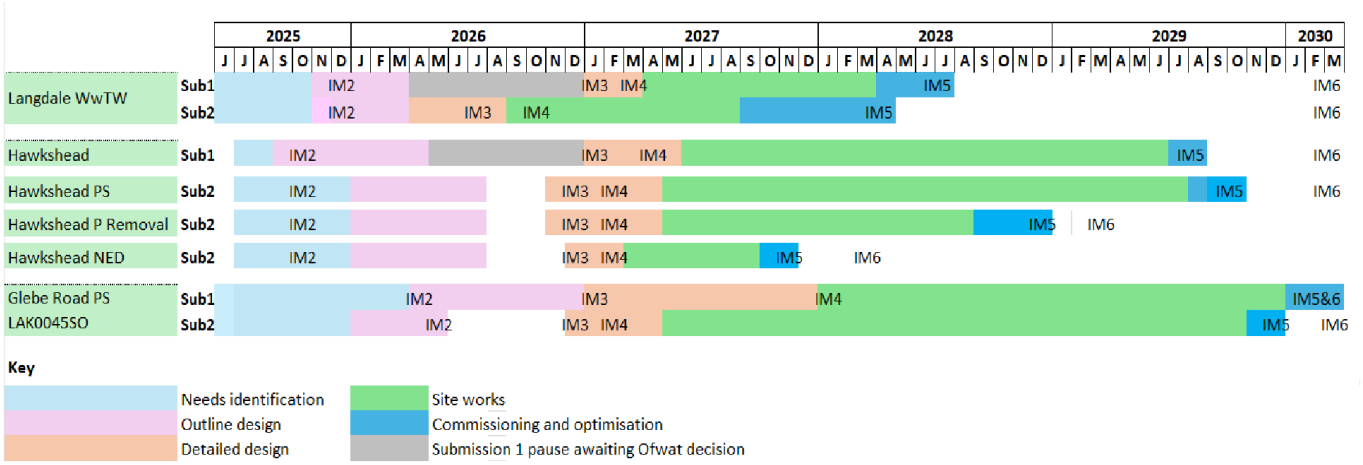
- A detailed programme and risk register for each scheme, as part of the scheme-specific supporting documents UUWLGS_P2S2_13 to UUWLGS_P2S2_15 inclusive; and
- A finalised delivery plan, in the format required by Ofwat's delivery plan guidance, as part of UUWLGS_P2S2_10 Data tables.

6.1.2 Programmes are based on data cut-offs in February 2026. They continue to be maintained and progress updates will be provided to Ofwat as part of large schemes quarterly reporting.

6.2 Summary of programmes

6.2.1 The latest programmes are summarised in Figure 4. The schemes in package two have progressed through outline design and will proceed to delivery between October 2026 and February 2027. This is between two and eleven months earlier than reflected in submission one, as UUW has confirmed its plans to proceed to delivery to deliver benefits to customers at the earliest opportunity.

Figure 4: Summary of programme changes



Source: UUW systems

6.2.2 More detailed summary programmes for each of the package two schemes are set out in Figure 5 to Figure 7. These programmes set key activities over the delivery phase (including for third-party interactions, design, site surveys, mobilisation activities, construction and commissioning). They show Ofwat interim milestones which are key reference points through the project including IM3 (contract award), IM4 (start on site) and IM5 (construction complete and project in operational use).

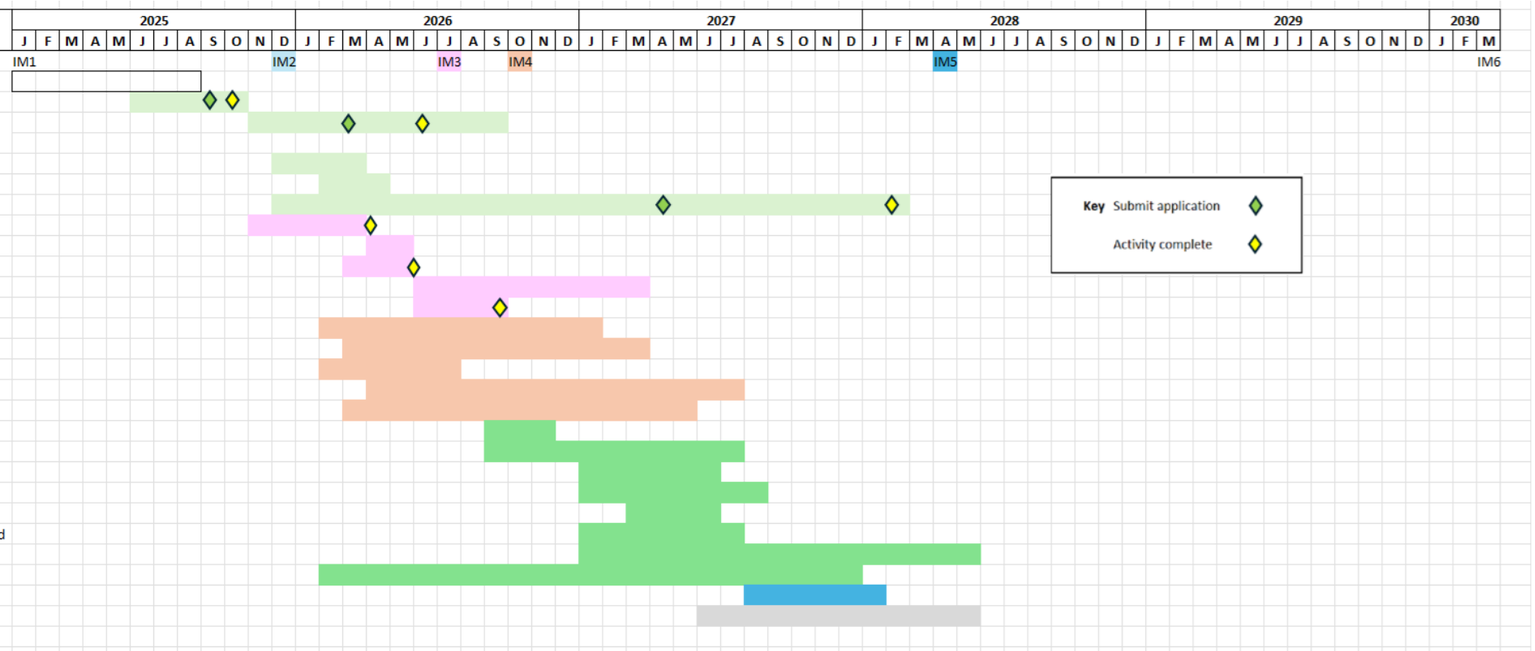
6.2.3 As well as a much greater level of detail, the programmes are aligned with design development since submission one and reflect optimisation of construction activities:

- At Langdale, the IM5 date has been brought forward by three months reflecting an earlier start to delivery prior to the outcome of the cost change process, partially offset by longer construction.
- At Glebe Road, the IM5 date has also been brought forward by three months. Earlier contractor involvement has accelerated the design allowing earlier start on site, with a longer construction period reflecting greater rock strength than previously assumed which will affect production rates for piling and excavation works.
- The single Hawkshead programme provided for submission one has also been split out to separately cover works at the WwTW and PS, and to reflect the accelerated date for the IMP2 driver.

6.2.4 We have included a time risk allowance against key activities on the critical path in each of the programmes (including for planning, shaft construction and excavation, mechanical and electrical works, and commissioning). The total critical path time risk allowance is 12.8 weeks at Langdale, 10.6 weeks at Hawkshead and 12.4 weeks at Glebe Road. Programmes allow thirteen weeks for planning determination and an additional seven weeks time risk allowance.

Figure 5: Langdale WwTW– high-level programme summary

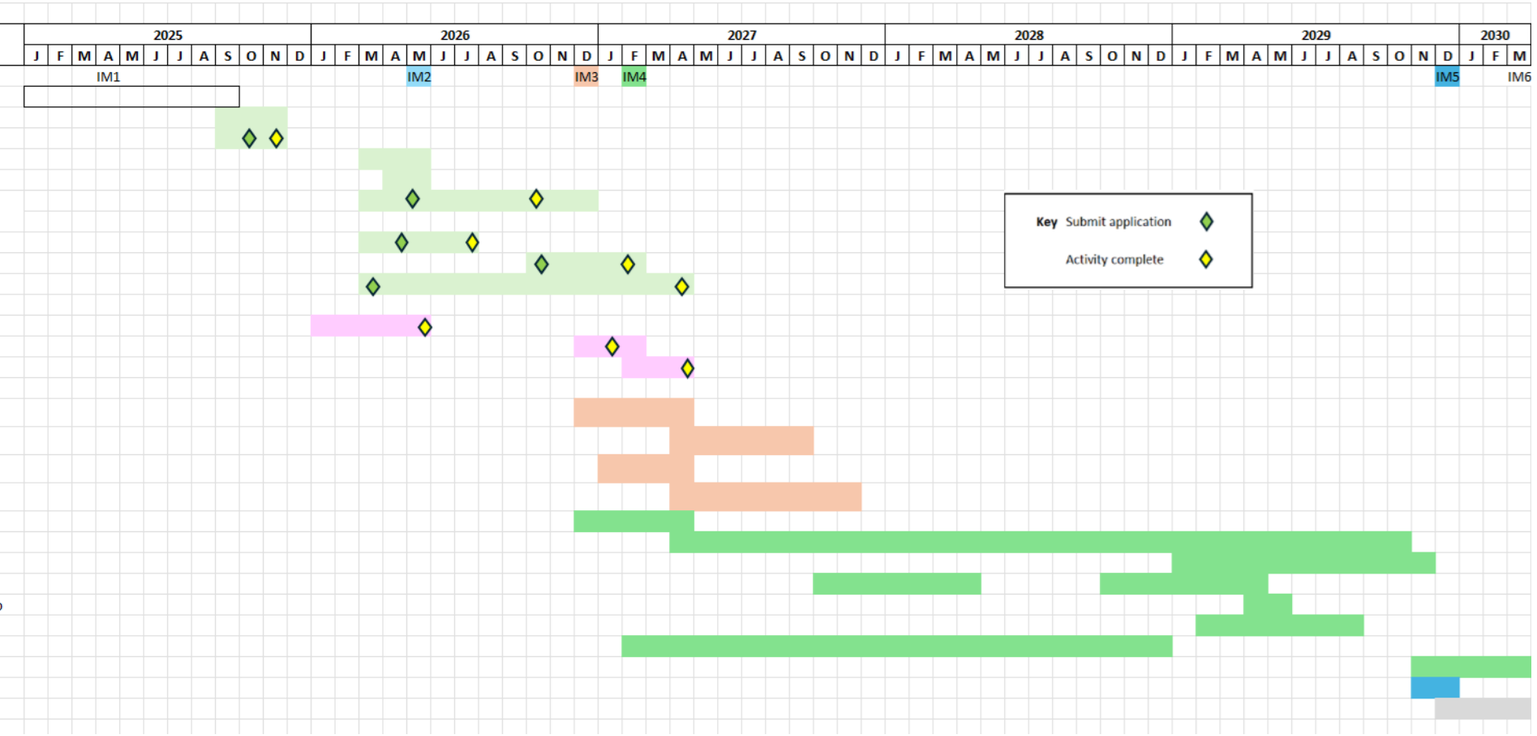
	Activity	Predecessor
	Ofwat IMs	
	Project start and early works	
Third party interactions	Local Authority planning pre-app	Maturity of outline design
	Local Authority planning application and discharge of conditions	Maturity of outline design to enable discussions, completion of outline design for LPA submission, public engagement
	Land access quarry compound	Maturity of outline design
	Land access permanent	Completion of outline design
	Regulatory (EA) permitting	Completion of outline design
Mobilisation / detailed construction deliverables	Outline design	Project start and early works
	Datasheets for early procurement	Outline design
	Initial deliverables development, finalise and	Outline design
	Telemetry	Outline design
	Final deliverables issue	Initial deliverables
Procurement	Ferric procurement	Completion of datasheets
	Tertiary solids removal	Completion of datasheets
	TSR pumps procurement	Completion of datasheets
	[✂	[✂
	Mechanical and electrical installation contractor	Completion of datasheets
Construction	Quarry compound	Mechanical and electrical installation contractor
	Access road and crane pad	Quarry compound
	TSR Pumping Station	Access road and crane pad, TSR pumps procurement
	[✂	[✂
	Ferric dosing area	Flocell procurement, mechanical and electrical procurement
	Pipework	Mechanical and electrical installation contractor procurement, access road
	[✂	
	Asset registration and de-registration	Maturity of outline design
	Commissioning	Commence when first system installed
	Close out	Maturity of detailed design for development of training material



Source: UUW systems.

Figure 6: Glebe Road PS LAK0045SO– high-level programme summary

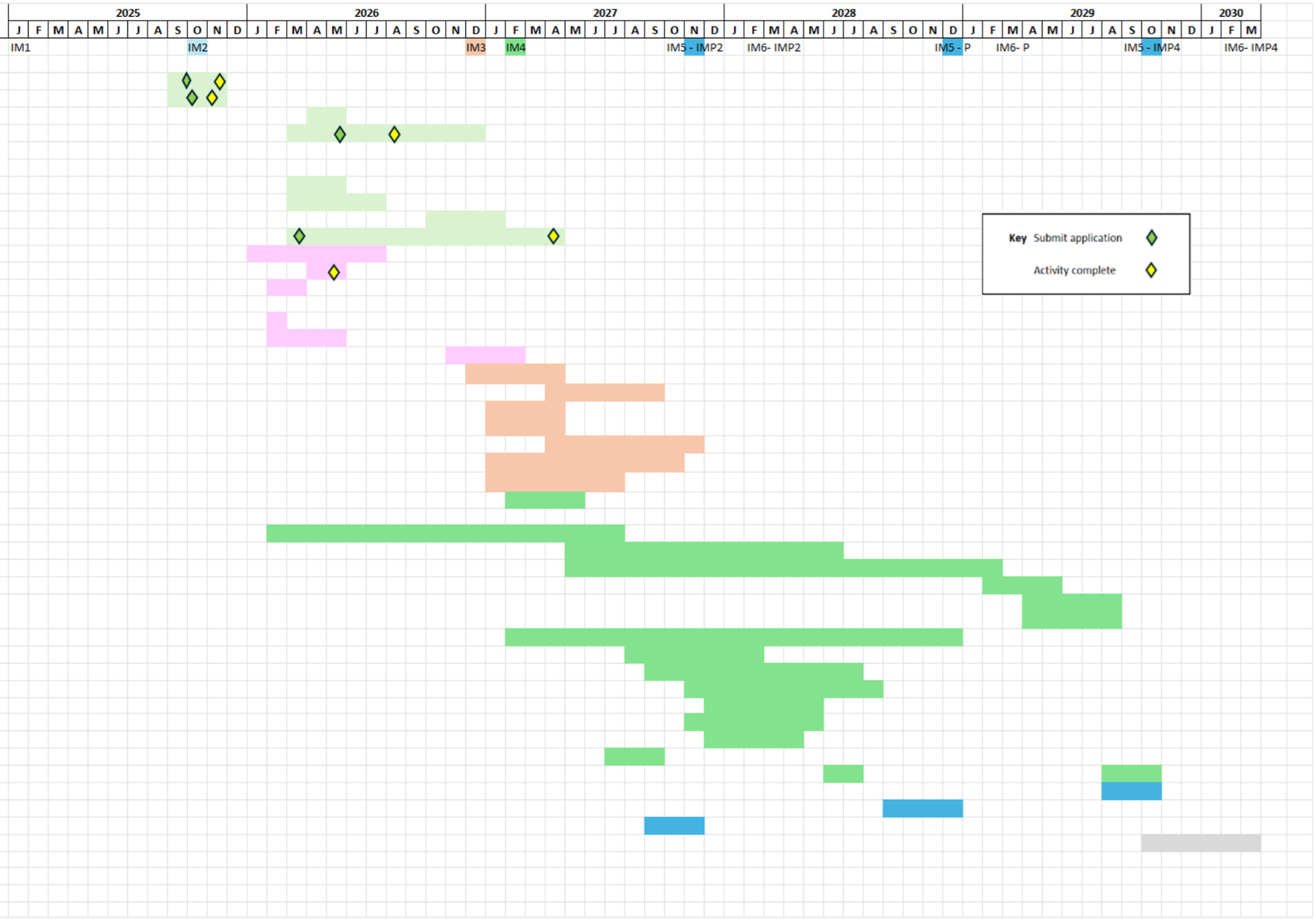
	Activity	Predecessor
	OFWAT IMs	
	Project start and early works	
Third party interactions	Highways pre app	Maturity of outline design to enable discussions
	Local Authority planning pre-app	Maturity of outline design
	HRA	Maturity of outline design
	Public engagement	Completion of outline design, and pre-app
	Local Authority planning application and discharge of conditions	Maturity of outline design to enable discussions, completion of outline design for LPA submission, public engagement
	Land access	Maturity of outline design
	Highways Licence Application	Completion of outline design
	Regulatory permitting	Completion of outline design
Mobilisation / detailed construction deliverables	Outline design	Project start and early works
	Detailed design part 1	Outline design, LPA and land access
	Detailed design part 2	Detailed design part 1
Procurement	Piling	Completion of datasheets
	Pumps	Completion of datasheets
	General civils	Completion of datasheets
	Mechanical and electrical installation	Completion of datasheets
Construction	Access and enabling	General civils procurement, land access and LPA planning approval
	Storage and spill reduction	General civils procurement, access and enabling
	Bifurcation chamber	General Civils procurement and initial civils work
	Rising main to pump station	Mechanical procurement and pump
	Flow meter chamber	Mechanical and electrical installation procurement; rising main to pump
	[✂	[✂
	[✂	
	External civils / reinstatement	Completion of install
	Commissioning	Commence when first system installed
	Close out	Following early commissioning



Source: UUW systems.

Figure 7: Hawkshead WwTW and PS – high-level programme summary

	Activity	Predecessor
	OFWAT IMs	
	Project start and early works	
Third party interactions	Local Authority planning pre-app	Maturity of outline design to enable discussions
	Highways pre-app	Maturity of outline design
	Public engagement	Completion of outline design, and pre-app
	Local Authority planning application	Maturity of outline design to enable discussions, completion of outline design for submission, public engagement
	HRA	Maturity of outline design
	Land access	Completion of outline design
	Highways Licence application	Maturity of outline design
	Regulatory permitting	Completion of outline design
Mobilisation / detailed construction deliverables	Outline design	Project start and early works
	Initial deliverables development, finalise and	Maturity of outline design
	Shaft outline design, geotech and terrain modelling, and mechanical	Outline design
	hydraulic Analysis	Outline design
	Electrical, ICA	Outline design
	Detailed cesign	Outline design and planning
Procurement	Piling - IMP4	Initial deliverables
	Pumps - IMP4	Initial deliverables
	General civils (common)	Initial deliverables, shaft outline design, detailed design
	[✂	[✂
	[✂	[✂
	Chemical dosing (Caustic) (IMP2)	Initial deliverables
Construction	Access and enabling	Civils procurement, land licence and LPA planning approval, and permanent indications
	Re-lining and network works	
	Shaft piling and construction and civils	Civils procurement
	Tank structure (below ground)	Shaft outline design, and mechanical and piling
	Shaft outlet pipework and remaining civils	Mechanical procurement, shaft construction
	Storage - mechanical and electrical installation	Procurement of general civils, mechanical and electrical
	[✂	
	FST	Package FST procurement
	Anoxic tank	Package tank and mechanical
	Tertiary filters	Mechanical procurement
	[✂	[✂
	Ferric dosing	Ferric dosing procurement and mechanical
	Underground pipework and ducts	Mechanical procurement
	Caustic dosing	Civils procurement, caustic dosing
	Reinstatement and external works	Completion of install (each driver)
	Commissioning (IMP4)	Commence when first system installed,
	Commissioning (P removal)	Commence when first system installed
	Commissioning (IMP2)	Commence when first system installed
	Close out	Commissioning
Key	Submit application	
	Activity complete	



Source: UUW systems.

6.3 Risk

6.3.1 We manage risks in line with our risk management procedure as described in submission one. Key categories of risk and how these risks have changed since submission one is described below.

Design risk

6.3.2 We have updated design risks in line with progression of the schemes.

Planning, control and consents

- Planning permissions for the storage solutions at Hawkshead PS and Glebe Road PS are complex due to location. Full planning applications are due to be submitted mid 2026 and a risk remains that extended lead times on planning permissions could cause significant delays, or that planning conditions could drive additional costs. We are engaging closely with the planning authority to mitigate any delays or additional costs, including submitting pre-applications.

Solution design

- Glebe Road PS is located in one of the busiest locations around Windermere and there are multiple customer and stakeholder considerations for solution design, including vibration considerations given the excavation required and the proximity of the site to a 17th century farmhouse, leading to additional costs. Since submission one we have started to engage with local businesses and residents, and plan to undertake vibration monitoring and structural assessments.
- The risk identified in submission one around the outcome of the MOB trial solution at Langdale is now resolved (also see 3.3.9). The MOB trial has been deemed a success and no additional land is required relative to the first submission.

Environmental permitting

- Upon delivery, as with most projects of this nature, sites will be required to have an updated environmental permit in place, solutions are dependent upon the timely agreement of new or amended environmental permit conditions. Permit changes are likely to include an increase to flow to full treatment (FTFT) at Langdale WwTW and Hawkshead WwTW. We are managing this risk through early engagement with the EA.

Constructability risk

6.3.3 We described a series of constructability risks in submission one, which have been reviewed and updated in the light of further design work.

Accessibility

- Access for construction is limited at sites in package two. Since submission one, we have identified an alternative access route for Glebe Road PS in consultation with Westmorland and Furness Highways, which will allow us to avoid the one way system. While the construction of the temporary access road will introduce additional costs, it will provide planning and delivery benefits and reduce impacts on local businesses.

Land availability and topography

- There is limited land availability for construction at Hawkshead WwTW and Langdale WwTW, with the potential for delays or increased costs should additional land be required. Since submission one, we have minimised land take where possible:
  - Langdale WwTW requires additional land for the new assets, requiring negotiations with the National Trust for the leasing of additional land. Due to site constraints a temporary compound at a local quarry will be used to provide welfare facilities.
  - Both permanent (for the tank) and temporary land is required at Hawkshead. Conversations are ongoing with all involved parties to minimise potential delays in securing the required land.

- Glebe Road PS is in an area of extremely high compressive strength rock, and desk top study geotechnical investigation indicates rock close to the surface, which will make the construction of a below ground tank challenging. To mitigate the risk this causes delays, a tier two supply chain specialist has been engaged, informing the submission two programme, cost and risk provision.

Environment

- Parts of the Windermere catchment are a SSSI, Ramsar sites and/or National Nature Reserves; project sites may require special protections for environmental habitats which will require assessment for relocation, avoidance and potentially set up of new habitats. We continue to undertake ecology surveys to understand and manage these requirements and will also undertake pre-commencement surveys and watching briefs as required.
- At submission one we identified a risk that the development at Langdale WwTW might require land designated as ancient woodland. Although we have now confirmed the need for additional land and planning permission as described above, we have minimised any impact on ancient woodland, reducing the risk of additional costs and delay.

Power

- We have now confirmed that power upgrades are required: assessments have been carried out and engagement with ENWL has commenced. The risk that power upgrades are not in place in time is low, given the timeframe until commissioning.

Construction risk

6.3.4 We described a series of construction risks in submission one which remain valid.

Weather

- Weather conditions in the Lake District can be particularly challenging and construction may be impacted, leading to delays and additional costs. To mitigate this, ground works are being planned for drier months where possible.

Ground conditions

- A risk remains that unforeseen or bad ground conditions could be encountered, resulting in difficulties during construction, increased programme delay and construction costs. This is a particular concern at Glebe Road, where previous projects (e.g. new rising main delivered during AMP6), have been significantly impacted by high compressive strength rock which caused delays and additional costs. We have mitigated this risk as far as possible since submission one through engagement on the construction methodology with a specialist tier two subcontractor, which has been reflected in cost, risk and programme.

Customer, public and other stakeholder

- Farmers, landowners or other third-party stakeholders could be adversely affected by the construction, for example at Glebe Road PS, which is close to highly touristed areas and several businesses. We have mitigated this risk through the alternative access route for Glebe Road as set out above, to minimise disruption to local businesses.
- There is significant interest in the projects and their delivery. We expect this will lead to a high number of contacts and requirement for engagement. To mitigate this, we are undertaking significant stakeholder engagement (as set out in section 9.4 and the Customer and Stakeholder Engagement Plan), will share information about construction works well in advance, and have identified a single point of contact for stakeholder management across projects in the Windermere area.

7. Customer protection

7.1 Introduction

7.1.1 To safeguard customers and uphold confidence in delivering the Windermere enhancement schemes, we have proposed a set of price control deliverables (PCDs) aligned with Ofwat's PR24 FD for similar areas of expenditure. The proposed PCDs will compensate customers if we fail to deliver or are late delivering our committed improvements. This section is supported by an Excel workbook (UUWLGS_P2S2_06 PCD workbook) which uses the structure and format of the PR24 FD UUW PCDs.

7.1.2 As discussed with Ofwat, we are happy to engage further on the design of these PCDs prior to finalisation.

7.2 Approach

7.2.1 Following feedback from Ofwat on our submission one PCD proposals, we are now proposing to create four new discrete "Windermere" PCDs. These are:

- Storm Overflows (PCDWW5_UUWLGS), containing two schemes
- FTFT (PCDWW4_UUWLGS), containing one scheme
- Phosphorus removal (PCDWW10_UUWLGS), containing eight schemes; and
- Sanitary Parameters (PCDWW12_UUWLGS), containing six schemes.

7.2.2 We plan to consolidate the PCDs for all Windermere large gated schemes in the final "Windermere" PCDs and not create separate PCDs for each package. Accordingly, as we are proposing to update these "Windermere" PCDs to incorporate the schemes from package two, we also propose to update them subsequently for package three.

7.2.3 The structure and requirements of the proposed large gated scheme PCDs follow those of comparable PCDs included in the PR24 FD. We therefore propose:

- For Storm Overflows and FTFT, PCDWW5_UUWLGS and PCDWW4_UUWLGS, that the PCD follows PCDWW5 and PCDWW4 set out in section 4.2 of "PR24 final determinations: Price control deliverables appendix".[23]
- For Phosphorus, PCDWW10_UUWLGS, that the PCD follows PCDWW10 set out in section 4.3 of the same appendix.
- For Sanitary Parameters, PCDWW12_UUWLGS, that this follows PCDWW12 set out in section 4.5 of the same appendix.

7.2.4 Where Ofwat applied timing incentives to similar schemes in the PR24 FD, we also propose timing incentives for the new large gated scheme PCD. For clarity, all PCDs are subject to timing incentives other than Sanitary Parameters. The timing incentive rates are calculated in line with the FD methodology:

- The timing underperformance rate is based on the company wholesale weighted average cost of capital of 3.97 per cent, multiplied by the unit allowance. For example, for phosphorus removal, the unit allowance is "Population Equivalent".
- The timing outperformance rate is set as one third of the underperformance rate, multiplied by minus 1.

[23] PR24 final determinations: Price control deliverables appendix, Ofwat, December 2024, https://www.ofwat.gov.uk/wp-content/uploads/2025/01/9.6-PR24-final-determinations-Price-control-deliverables-appendix_Redacted-1.pdf

7.2.5 We have provided an accompanying Excel workbook (UUWLGS_P2S2_06 PCD workbook). This follows the same structure as the FD PCD "Wastewater scheme level" excel files[24]. For reference, we have used the PCD workbooks published by Ofwat as of 13 June 2025. For this submission we have included schemes in the Excel workbook relating to packages one and two.

7.2.6 There is one line per site. Some sites have expenditure related to more than one delivery programme. As such, these sites have corresponding entries in two PCDs within the Excel workbook, with the relevant proposed cost allowance for that PCD. For simplicity, we have included our proposed totex estimate (£m) in the Excel workbook in the standard PCD column headed "Reconciled post adjustments and FS and RPEs allowance (£m)" but have not renamed the column header. Our proposed totex allowance has undergone an appropriate cost estimation process for the level of maturity of each scheme, detailed in section 5.2 of this document, which is equivalent in rigour to the methodology used by Ofwat to determine its "Reconciled post adjustments and FS and RPEs allowance (£m)" figures.

7.2.7 This proposal ensures customers remain protected against non- or late-delivery and provides regulatory alignment and clear and accountable reporting.

7.3 Proposed final PCDs

Storm overflows

Approach to deliverable

7.3.1 The PCD proposed is in line with that applied in PR24 FD for similar areas of expenditure, related to delivery of storm overflow investments (PCDWW5). The PCD will track delivery at the scheme level for the two storm overflow schemes in package two and claw back allowed investment in the event of overall non-delivery, in line with the payment calculations set out in the FD Price control deliverables appendix.

7.3.2 We have included the proposed cost allowance for each scheme in the proposed PCD, on a separate line for each scheme. The PCD will hold UUW to delivering the schemes and equivalent storage included in package two.

Flexibility across deliverables

7.3.3 We intend to deliver the proposed schemes.

7.3.4 We propose that the schemes which we include in package two will also have the delivery flexibility applied by Ofwat to storm overflow schemes included in the FD PCD[25]. This means, for example, that increased treated flow at sewage treatment works can be reported within the storm overflows storage PCD, rather than in the FTFT only PCD.

Time incentives

7.3.5 Consistent with Ofwat's PR24 FD, we propose time incentives for this PCD. We have applied the standard FD timing incentive calculation to the proposed PCD, i.e. applied on the profile of equivalent storage (in m^3) and flow (litres per second (l/s)). As the PCD contains only two schemes, the incentive is calculated solely on those schemes. This is a direct consequence of applying the FD methodology to a single-scheme PCD and is not the result of any alternative approach. This is shown in the accompanying Excel spreadsheet UUWLGS_P2S2_06 PCD workbook, tab "P_2 SO proposed" line 17.

7.3.6 We propose a delivery profile for the PCD which is in line with the planned delivery of the specific Windermere schemes. Ofwat's PR24 FD applied a standardised delivery profile for storm overflow schemes in the timing incentive element of the storm overflow and FFT PCDs at PR24 FD (see table 6

[24] Available here: https://www.ofwat.gov.uk/wp-content/uploads/2025/06/PR24PCD113-Wastewater-Scheme-level-PCDs-v3.xlsx

[25] See page 6 "Storm overflows PCD" in "Price control deliverables guidance", Ofwat, February 2026, available here: https://www.ofwat.gov.uk/wp-content/uploads/2025/09/Price-control-deliverables-guidance-Feb-4-republishing.pdf

and 7 in 9.6-PR24-final-determinations-Price-control-deliverables-appendix_Redacted-1.pdf). This used the assumption that companies should deliver about two thirds of capacity by the end of year 4 (2028-29) of the price control period. This assumption is not appropriate for Windermere, where schemes start later due to the gated process and are not part of the wider FD Storm Overflows and FFT PCDs. A Windermere-specific delivery profile is therefore necessary to ensure deliverability while maintaining programme efficiency.

7.3.7 We have therefore proposed a delivery profile detailed in the accompanying Excel spreadsheet UUWLGS_P2S2_06 PCD workbook, tab "P_2 SO proposed" line 20.

Flow to Full Treatment

Approach to deliverable

7.3.8 The PCD proposed is in line with that applied in PR24 FD for similar areas of expenditure, related to delivery of FTFT investments (PCDWW4). The PCD will track delivery at the scheme level for the FFT scheme (part of the Hawkshead PS scheme, the other part is included in the storm overflows PCD) in package two and claw back allowed investment in the event of non-delivery, in line with the payment calculations set out in the FD Price control deliverables appendix.

7.3.9 We have included the proposed cost allowance for the scheme in the proposed PCD. The PCD will hold UUW to delivering the scheme and flow included in package two.

Flexibility across deliverables

7.3.10 We intend to deliver the proposed scheme.

7.3.11 We propose that the scheme which we include in package two will also have the delivery flexibility applied by Ofwat to FFT schemes included in the FD PCD (see section 7.3.4).

Time incentives

7.3.12 Consistent with Ofwat's PR24 FD, we propose time incentives for this PCD. We have applied the standard FD timing incentive calculation to the proposed FFT PCD, i.e. applied on the profile of equivalent storage (in m3) and flow (litres per second (l/s)). As the PCD contains only a single scheme, the incentive is calculated solely on that scheme. This is a direct consequence of applying the FD methodology to a single-scheme PCD and is not the result of any alternative approach. This is shown in the accompanying Excel spreadsheet UUWLGS_P2S2_06 PCD workbook, tab "P_2 FFT proposed" line 17.

7.3.13 We propose a delivery profile for the PCD which is in line with the planned delivery of the specific Windermere schemes. Ofwat's PR24 FD applied a standardised delivery profile for storm overflow schemes in the timing incentive element of the storm overflow and FFT PCDs at PR24 FD (see table 6 and 7 in 9.6-PR24-final-determinations-Price-control-deliverables-appendix_Redacted-1.pdf). This used the assumption that companies should deliver about two thirds of capacity by the end of year 4 (2028-29) of the price control period. This assumption is not appropriate for Windermere, where schemes start later due to the gated process and are not part of the wider FD Storm Overflows and FFT PCD. A Windermere-specific delivery profile is therefore necessary to ensure deliverability while maintaining programme efficiency.

7.3.14 We have therefore proposed a delivery profile detailed in the accompanying Excel spreadsheet UUWLGS_P2S2_06 PCD workbook, tab "P_2 FFT proposed" line 20.

Phosphorus Removal

Approach to deliverable

7.3.15 The PCD proposed is in line with that applied in PR24 FD for similar areas of expenditure, related to achieving enhanced permits (consents) for phosphorus removal schemes (the relevant PR24 FD PCD is PCDWW10). The PCD will track delivery at the scheme level for the phosphorus projects (six in package one and two in package two) and claw back allowed investment in the event of non-delivery, in line with the payment calculations set out in the FD Price control deliverables appendix.

7.3.16 We have included the proposed cost allowance for each scheme in the PCD, on a separate line for each scheme, excluding any development allowance already included in the FD PCD for that scheme. The PCD will hold UUW to delivering the schemes included in packages one and two to meet tightened permit conditions (consents) for the enhanced permit of phosphorus removal schemes.

Flexibility across deliverables

7.3.17 We intend to deliver the proposed schemes. If we identify the need to substitute any of the agreed schemes, we will obtain the approval of the EA for this substitution and explain the reasons for any significant substitutions in our annual regulatory reporting. Regular programme updates will also be provided to Ofwat in our delivery plan submissions and quarterly large schemes meetings.

Time incentives

7.3.18 Consistent with Ofwat's PR24 FD, we propose time incentives for this PCD. We have applied the standard FD timing incentive calculation to the proposed Phosphorus PCD, i.e. applied on the profile of cumulative PE (population equivalent) served. As the PCD contains only eight schemes, the incentive is calculated solely on those schemes. This is a direct consequence of applying the FD methodology to a single-scheme PCD and is not the result of any alternative approach. This is shown in the accompanying Excel spreadsheet UUWLGS_P2S2_06 PCD workbook, tab "P_1+2 P proposed" line 17.

7.3.19 We propose a delivery profile for the PCD that reflects the planned timing of the Windermere schemes. For Hawkshead WwTW, we propose scheme delivery in 2028/29. This represents an ambitious programme, given the scale and complexity of the works and the fact that, as a large gated scheme, it will commence later than projects included in the FD.

7.3.20 We have phased the programme to maximise efficiencies across the AMP8 Windermere portfolio, and the proposed 2028/29 delivery represents the earliest credible option, while maintaining safe and compliant practices. The remaining delivery dates are proposed at 31 March 2030.

7.3.21 Ofwat's PR24 FD applied a standardised profile assuming around two-thirds of cumulative PE delivered by year 4 (2028/29). This assumption is not appropriate for Windermere, where schemes start later due to the gated process and are not part of the wider FD phosphorus PCD. A Windermere-specific delivery profile is therefore necessary to ensure deliverability while maintaining programme efficiency.

7.3.22 Accordingly, we propose a Windermere-specific delivery profile, detailed in the accompanying Excel spreadsheet UUWLGS_P2S2_06 PCD workbook, tab "P_1+2 P proposed" line 20.

Sanitary parameters

Approach to deliverable

7.3.23 The proposed PCD is in line with that applied in the PR24 FD for similar areas of expenditure, related to delivery of sanitary parameters enhancement schemes (the relevant PR24 FD PCD is PCDWW12). The PCD will track delivery at the scheme level for the six sanitary projects (four in package one and two in package two) and claw back allowed investment in the event of non-delivery, in line with the payment calculations set out in the FD Price control deliverables appendix.

7.3.24 We have included the proposed cost allowance for each scheme in the PCD, on a separate line for each scheme, excluding any development allowance already included in the FD PCD for that scheme. The PCD will hold UUW to delivering the schemes included in packages one and two to tightened permit conditions for one or more sanitary parameters.

7.3.25 Development allowances for three of the schemes are already included in the FD PCD PCDWW12 (Excel cells I37, I40 and I41). As noted by Ofwat in the "PR24 final determinations: Price control deliverables appendix", this PCD is for tracking delivery of schemes. It does not track the delivery of the parameters in those schemes, unlike other PCDs, such as the Phosphorus Removal PCD. The schemes and the individual scheme parameters are therefore listed in both the FD PCD and this proposed PCD. However, the FD PCD is tracking delivery of the development allowance of the three schemes only. This proposed PCD is tracking delivery of the scheme itself.

Flexibility across deliverables

7.3.26 We intend to deliver all the proposed schemes. If we identify the need to substitute any of the agreed schemes, we will obtain the approval of the EA for this substitution and explain the reasons for any significant substitutions in our annual regulatory reporting. Regular programme updates will also be provided to Ofwat in our Delivery Plan submissions and quarterly large schemes meetings.

Time incentives

7.3.27 We do not propose time incentives for these schemes. This is in line with the comparable FD PCD, PCDWW12.

8. Procurement and operation model

8.1 Introduction

8.1.1 This section sets out the procurement strategy, contractors identified for the package two schemes and their capability and capacity. The assets will be operated by UUW as part of its wider operations.

8.2 Overview of procurement strategy

8.2.1 UUW refreshed its project delivery model and commercial contracts for AMP8 to include several "runways" and is using the “Enterprise” model for the Windermere programme.[26] Runways are different approaches to delivery including design and build, or build only, with delivery partners selected to suit projects of different complexity and size. The "Enterprise" forms one runway: it brought together eight industry-leading partners to deliver crucial environmental and infrastructure projects as part of AMP8. Enterprise partners work with UUW as one team, bringing together expertise in design, engineering, and construction to deliver projects safely, efficiently, and sustainably. This approach allows UUW to manage capacity in the allocation of work to Enterprise partners.

8.2.2 We selected the Enterprise runway to allow the Windermere gated programme to be managed holistically, to ensure a consistent approach to project delivery and stakeholder management. We estimate that this has potentially generated a range of efficiencies, reflected in current cost estimates:

- Firstly, using the Enterprise model has allowed a range of technical experts, including contractors, to be engaged throughout the design process;
- Using a single contract and delivery partner for Glebe Road and Hawkshead has allowed efficiencies, for example in shaft construction techniques through use of the same sub-contractor. Subject to being able to align the timing of the schemes (which is a function of external factors including planning), there is also a potential opportunity to batch activities, apply collaborative planning, apply lessons learned to improve utilisation of shared resources (i.e. piling teams), and enable common procurement, coordinated staffing and improved delivery efficiency across projects. This has been reflected as a £0.3m opportunity in the cost estimate;
- Finally, the use of C2V at Langdale has allowed efficiencies to be realised as C2V is also delivering the Elterwater project which, while not part of the gated scheme, is closely linked to Langdale as set out in section 3.

8.3 Identification of contractor

8.3.1 Through its Enterprise runway process described above, UUW has selected Costain to deliver the Hawkshead and Glebe Road schemes. Costain has over 20 years’ experience of delivering multi-million-pound programmes for the water sector covering strategic planning, solution optioneering, design and

[26] For further details see UUW (2023), “UUW47 Deliverability – Capital Delivery and Supply Chain” and UUW (2024), “UUWR_82 – Area of representation: Other – Deliverability (Capital Delivery and Supply Chain”

construction. Programmes include CSOs, reservoirs and critical distribution assets, complex water treatment and rapid gravity filter programmes, and capital maintenance works.

8.3.2 Costain's heritage in complex project construction means it has the knowledge and expertise to ensure that UK water infrastructure is fit for the future, helping to tackle the critical challenges of population growth, regulatory changes, and climate change. It also has flexible capacity available to deliver its projects, including three design partners for AMP8 and strategic tier two suppliers already identified for both the Glebe Road and Hawkshead schemes.

8.3.3 C2V will deliver the Langdale scheme, providing a high level of capacity and capability. C2V brings the combined strength of Jacobs and VolkerStevin, backed by more than 700 specialists in the northwest and direct access to a wider global workforce. It has delivered over £600 million of capital works for UUW across AMP6 and AMP7, demonstrating consistent performance in complex water and wastewater projects. Its team includes more than 70 mechanical electrical instrumentation control, and automation (MEICA,) process and commissioning engineers, supported by a large multidisciplinary design capability covering civil, mechanical, electrical, instrumentation control, and automation (ICA) and process engineering, as well as geotechnical, environmental and carbon expertise. This depth of technical resource allows C2V to manage full design-and-build delivery, from early optioneering through to system integration and optimisation at takeover.

8.3.4 As an appointed AMP8 Enterprise Partner, this capability has already been externally verified through UUW's rigorous procurement process. C2V brings proven experience in treatment process upgrades, network resilience, pumping systems, bioresources, storage and energy schemes, underpinned by strong digital engineering, Building Information Modelling (BIM) and whole-life asset thinking. Its track record includes the successful deployment of innovative solutions such as Nereda, integrated fixed-film activated sludge (IFAS), moving bed biofilm reactor (MBBR), UV treatment and modular construction to reduce cost, carbon and programme risk. This combination of specialist resource, mature delivery systems and long-standing performance for UUW gives confidence in C2V's ability to deliver the Langdale scheme efficiently and safely.

9. Stakeholder and customer engagement

9.1 Introduction

9.1.1 This section describes engagement with relevant statutory bodies, the latest status of planning applications and discussions with the EA and our wider stakeholder and customer engagement approach. This reflects a high level of engagement with all relevant stakeholders, underpinned by regular engagement between stakeholder and project teams to ensure accurate communications and timely flow of information. We provide the Customer and Stakeholder Engagement Plan (CSEP) as a supporting document (UUWLGS_P2S2_07).

9.2 Pre-planning investigations and planning applications

9.2.1 The need for planning permission has not changed since submission one with planning permission being required for the works at Langdale WwTW and Glebe Road PS and a single Planning Application will be submitted to cover the schemes at Hawkshead. A further planning application at Langdale will however need to be made in relation to a temporary remote construction compound.

9.2.2 All package two schemes have been reviewed by the Lake District National Park Authority (LDNPA), the local planning authority, and our current view of the planning permissions which are required is included in Table 12 and reflected in the programmes set out in section 6. Pre-application advice from the LDNPA has been received for Langdale WwTW, Hawkshead WwTW and for Glebe Road PS which has endorsed our approach to the designs and assessments:

- The response for Hawkshead PS confirmed that an above ground tank would not be suitable at this location but raised no concerns regarding a below ground tank.
- Pre-application advice from the LDNPA for an above ground storage option at Glebe Road PS confirmed that this would not be acceptable. Further advice on the below ground tank identified a number of design mitigations that should be adopted. These included suggestions around the detailed siting and design of the building and the access arrangements.
- The temporary compound at Langdale has not been subject of a formal pre-application enquiry but has been discussed with LDNPA Planners who did not raise any concerns with the use of this site.
- Pre-application advice has been received from Westmorland and Furness Council providing feedback from a highways and flood risk perspective at Hawkshead and Glebe Road PS. The pre application advice has not raised any concerns with our approach and has clarified the information and detail that they would require as part of the planning application.

Table 12: Package two projects planning permission summary

Project	Planning permission summary
Langdale WwTW	Planning permission is required for an extended WwTW as well as ground level changes, fencing,[✂]and a remote compound which will be subject to a separate planning application. Pre-application advice has been received for the works at the WwTW and the design minimises impacts on adjacent ancient woodland which was the key consideration.
Hawkshead WwTW	Planning permission is required for an extended WwTW, relocated landscaped mound, fencing, ground level changes and[✂]. A single application will be submitted with Hawkshead PS given the proximity of schemes and use of the same compound and access routes. Pre-application advice has been received for the combined application supporting the design approach.
Hawkshead PS LAK0107SO	Planning permission is required for temporary / permanent highway access junctions, control building and potential ground level changes. A Flood Risk Assessment is being prepared to support the planning application given location in Flood Zones 2 and 3. A Habitats Regulations Assessment is also required. The pre-application advice confirmed the need for storage to be underground.
Glebe Road PS LAK0045SO	Planning permission is required for temporary / permanent highway access junctions / amendments, control building and pressure relief column. Pre-application advice has been received on the proposed below ground storage solution.

Source: UUW summary

9.2.3 At Langdale WwTW the National Trust is a key stakeholder and design review meetings have been held to secure its inputs, in particular from a land and forestry perspective given the need to extend the boundary of the existing WwTW.

9.2.4 As outlined in Section 4.2 all schemes have been discussed with Natural England through our programme wide Discretionary Advice Service Agreement. This has informed the design and assessment process. A HRA will accompany the planning application at Hawkshead PS and WwTW.

9.2.5 In addition to the formal pre-application process, we have engaged with local communities, parish councils and groups such as Friends of the Lake District as outlined in section 9.4. Wider public consultation, including parish council engagement and public consultation events, is planned in conjunction with the Stakeholder and Customer team and is detailed in the CSEP.

9.3 Environment Agency engagement

9.3.1 As with our approach to package one projects, we have maintained our engagement with the EA, meeting with the Integrated Environment Planning Team approximately fortnightly to provide updates on solution development and finalise key areas. Through this engagement we have shared and discussed key information for package two projects, including single solution papers for all sites.

9.3.2 Our engagement with the EA has covered the full Windermere gated programme, including later package three projects, to ensure a robust and efficient outcome regarding solutions and sign off.

9.3.3 As set out in UUWLGS_P2S2_12, single solution papers have been shared with the EA through our engagement and the EA is supportive of the works planned to achieve improvements. We will continue to engage the EA regularly as we progress through future packages and into scheme delivery.

9.4 Stakeholder and customer engagement

9.4.1 United Utilities has a clear stakeholder and community engagement plan and dedicated resources within the community to execute that engagement across the Windermere catchment with the objective of being a trusted partner, demonstrating it is delivering on the community's priorities, understands the community's needs and expectations and keeping them informed. The objective is to work effectively and constructively with others to mitigate the impact of any activities, support and undertake the necessary consultation as part of the planning process and help ensure the feedback from that engagement is reflected to avoid objections and delays. This engagement plan has been in place prior to business plan submission and will underpin delivery throughout AMP8.

9.4.2 This section outlines the approach to stakeholder and customer engagement for the Windermere programme. In support of the overview provided in this section, a detailed list of the interactions across customer, stakeholder, third party liaison and alignment with the planning process are captured in this plan. The CSEP has been updated since submission one and is set out in UUWLGS_P2S2_07.

Principles for engagement

9.4.3 Customers across the North West supported UUW's PR24 business plan proposals and where it had strengthened its commitments on issues of high concern, such as pollution. Notwithstanding that support and its importance to delivering on those improvements in Windermere for communities and visitors, it is important we can deliver on those commitments in a way which minimises the disruption to the daily lives of all who live, work or visit the catchment. Demonstrating progress against those plans and benefits being realised is also key. Therefore, core principles which underpin the engagement strategy overall and through the lifecycle of each project include:

- Raising awareness of what we are planning and are doing among the community, how this will support their priorities in terms of the service they expect and pay for from UUW and how improvements will contribute to the broader health and wellbeing of Windermere;
- Undertaking pre-application discussions with statutory bodies, such as Lake District National Park, Natural England, the EA and Westmorland and Furness Council's Highways team and building their requirements into our designs from an early stage;
- Supporting those customers and communities throughout the lifecycle of a project with help and information and opportunities for them to raise their concerns and issues directly with us;
- Proactive programme of contact with key stakeholders, community campaigners and the local MP;
- Being visible among the community, through our physical presence with an information centre in Windermere, at community events and through open access for them to come and see for themselves how we treat and manage wastewater at our site; and

- Gathering feedback to adapt and improve what we do and how we do it, underpinned by a Windermere specific brand survey conducted on a quarterly basis with households and businesses in the catchment to track and measure sentiment.

9.4.4 The team leading that engagement includes a dedicated area engagement lead who manages stakeholder relationships with key local authorities, MPs and other strategic bodies across Cumbria and in Windermere, a Windermere specific catchment manager responsible for the liaison and consultation with regulators, and a third party and communications team who work within the local communities where we are making the investment and carrying out the work to consult, inform, support and help mitigate any risks caused by that work. This team works closely with broader colleagues accountable for planning and land management and the capital delivery and construction teams to ensure there is a cohesive and proactive programme of engagement. When it comes to executing our engagement with those affected by site specific plans and activity, more detailed stakeholder mapping is undertaken to ensure we are liaising with all those affected or interested in a particular location. This includes reaching out to existing stakeholders and community groups to confirm we are including everyone that will have an interest. That engagement is helping us to shape and adapt our plans and mitigate the impact on the community or sensitive locations.

9.4.5 The below reflects examples of the most recent engagement in relation to each of the schemes in package two and is an update of similar information provided in submission one.

Langdale WwTW

9.4.6 We have continued to engage the broader community and stakeholders on United Utilities' wider catchment wide investment and its contribution to improving water quality in Windermere. At Langdale WwTW, the site where UU deployed its trial with MOB, we have been able to host visits for stakeholders and interested parties to see how innovation is helping improve treatment standards. This has also included engaging the regional media to see for themselves how this work supports the aims for Windermere in terms of further improvement to water quality across the catchment.

9.4.7 More specifically on the details of the scheme, the main stakeholder engagement to date has been with the National Trust as the landowner. In addition to the formal pre-application process from a planning perspective, we have engaged other interested groups, such as Friends of the Lake District. The main issues to manage to minimise the impact on the landscape and community relate to the location of the treatment works, its proximity to ancient woodland and the tightness of the site and its access for any vehicle movements.

9.4.8 While the number of residents close to the treatment works is minimal, there is a scout hut close by and so we will be working with them to understand their needs for access ahead of any work beginning. Wider consultation is planned and details are included in the supporting CSEP documents.

Hawkshead WwTW and PS

9.4.9 In relation to Hawkshead, our broader engagement has focused on engaging the community on the plans for the WwTW and PS so they can understand what outcomes the combined upgrade will deliver and also what impact it may have on the village during construction and once reinstated from a land management perspective.

9.4.10 We most recently attended the parish council meeting on 17 March to outline the plans. The council were understanding and supportive of the need for the work to be undertaken the fact there would be an underground storage tank and its benefits when completed.

9.4.11 Given the sensitive landscape and narrow lanes in and out of the village, which attracts many visitors, we shared a visual view of what it would like during construction and once construction was complete in terms of restoration. We also discussed how we were proposing a temporary access track between two fields to help reduce volume of traffic through the main access routes. A wider public event to share the plans is being held on 6 May.

Glebe Road PS

9.4.12 The detailed stakeholder and community engagement on the plans for Glebe Road begin in earnest from April, this includes a series of updates to the parish councils and Windermere Town Council who may be impacted by the construction of the underground tank in a community and tourism hotspot but also by some councils and communities where they could see an increase in traffic movements to and from the site through neighbouring roads and communities.

9.4.13 Wider public events are scheduled for June. In advance of this, we have kept stakeholders updated about the overall aims of the work and when they could see the visible groundwork investigations taking place. This timing relates to the outcomes of the pre-application process and feedback from the local authority and highways to ensure our information shared with the wider community incorporates this feedback.

9.4.14 More specific engagement to date has been directly with the National Trust, as the landowner, their tenants and others living close to the site and its groundwork activities.

9.5 Engaging our communities

9.5.1 In terms of wider community stakeholder engagement there is an ongoing schedule of updates and meetings held with key organisations, elected members and officials and the local MP where we can consult on and discuss the investment plan, its intended outcomes and its proposed solutions and timelines.

9.5.2 Engagement also extends to interested community bodies and campaigning groups, such as Love Windermere (of which UUW is a member), Save Windermere and Ambleside Action for a Future and groups like the Lake District Hoteliers Association and a business sub-group of the Love Windermere partnership with whom we have had regular meetings.

10. Assurance

10.1.1 This section summarises UUW's approach to assuring this submission and the outcomes of the third party assurance. It is supported by UUWLGS_P2S2_02 Technical Assurance Report and UUWLGS_P2S2_03 Commercial Assurance Report, our third party assurance reports.

10.1.2 Ofwat requires gated submissions to include a third-party assurance report in line with the requirements set out in PR24 FD: Expenditure allowances - assurance requirements for delivery of enhancement schemes appendix. This includes technical and commercial assurance across the content of the gated submission, including assurance of material change included in the change log.

10.1.3 Since confirmation of the gated submission requirements in the June 2025 large schemes guidance (refined in August 2025), UUW has developed an approach to meeting these requirements and assuring each element of the submission. This includes risk assessing each chapter and supporting document to determine assurance requirements. We are following our standard three lines of assurance approach to produce, review and sign off each element of the gated submission. The third line assurance has been provided by Jacobs in line with Ofwat's requirement for a third party assurance report.

10.1.4 Jacobs has provided technical and commercial reports, with no material issues. Key findings include:

- Technical assurance: Jacobs considers that the completed designs continue to address the risks identified at PR24, the risk register sufficiently sets out risks to scope, programme and costs, and that an appropriate PCD has been designed.
- Commercial assurance: Jacobs concludes that the final scheme costs are appropriate and the costs for the selected solutions are efficient.

10.1.5 Further details of Jacobs' approach and findings can be found in UUWLGS_P2S2_02 Technical Assurance Report and UUWLGS_P2S2_03 Commercial Assurance Report.

11. Efficiency of expenditure to date

11.1 Introduction

11.1.1 This section sets out a breakdown of costs incurred in respect of package two, split between submission one and two. We provide an aggregated view of cost across all four package two projects to date and a forecast of the development costs we will incur before commencement of scheme delivery. We then compare this expenditure to the development allowance for package two.

11.2 Actual and forecast expenditure

11.2.1 Table 13 shows our development costs for package two, disaggregated to show submission one, submission two and forecast costs to the end of the definition phase. We have ensured no overlap between the reported costs for submission one and submission two, given submission one was a progress update on the same workstreams that have fed in to submission two. All expenditure prior to August 2025 month end is recorded against submission one, and all expenditure during September 2025 and February 2026 is recorded against package two. Expenditure between March 2026 and the start of the delivery phase is recorded in the forecast.

Table 13: Actual and forecast development costs aggregated across all four package two projects (£m, 2022-23 CPIH prices)

Ref	Scope description	Submission 1 costs	Submission 2 costs	Forecast costs	Total
1	Programme and Project Management (including assurance)	0.44	0.71	0.81	1.97
2	Engineering, Design and Site Investigations	0.32	0.83	2.75	3.90
Total		**0.76**	**1.54**	**3.57**	**5.87**

Source: Actuals - UUW finance data, forecasts - UUW estimating data. Note that submission one costs have been remapped against the categorisation in the new Ofwat table for development costs.

11.3 Comparison against development allowance

11.3.1 UUW's costs for package two development up to submission two of £2.30 million (£0.76 million for submission one and £1.54 million for submission two) are significantly below the development allowance for package two of £8.20 million. Forecast costs to the end of the development phase also remain well below the development allowance. This reflects that there is a fixed element of project development costs that does not vary with the size of the project, and package two projects are large relative to the smaller package one projects.

Table 14: Development costs: comparison to allowance – packages one and two (£m, 2022-23 CPIH prices)

Package	6% Development Allowance	Forecast costs to the end of the development phase	Variance
Package 1	0.81	2.07	-1.26
Package 2	8.20	5.87	2.33
Total	**9.01**	**7.94**	**1.06**

11.3.2 Taken together with the total forecast development costs for package one, development costs total £7.94 million against a total package one and two development allowance of £9.01 million.

12. Conclusion and recommendations

12.1.1 This submission proposes a solution delivery plan for the four package two projects based on a final outline design for each scheme. The schemes at Hawkshead WwTW and Langdale WwTW address a mixture of phosphorus and sanitary determinands, with the projects at Glebe Road PS and Hawkshead PS accelerating the delivery of storm overflows improvements from the dates set out within the AMP8 WINEP.

12.1.2 These designs are based upon mature risk registers and have considered solution resilience, access, maintenance, commissioning, handover and operability of the new assets. We have also used these designs to develop detailed delivery programmes and robust cost estimates.

12.1.3 The costs of the schemes required to address phosphorus and sanitary determinands are below modelled costs for this type of work, although the costs for the projects to accelerate the delivery of storm overflows improvements are higher than modelled costs. We have provided supporting deep dive documents with additional detailed evidence to support our view of efficient costs for these schemes.

12.1.4 The schemes at Hawkshead and Langdale are demonstrably cost beneficial and although, based upon the directly quantified benefits, the scheme at Glebe Road is not cost beneficial, we have demonstrated that we have selected the most cost beneficial solution for the statutory driver.

12.1.5 To protect customers from non-delivery, we have proposed Windermere-specific PCDs following Ofwat feedback on submission one.

12.1.6 We have worked to mitigate risks as far as possible, and the most significant remaining risks relate to outstanding planning permissions, weather and construction:

- **Planning** – we are engaging regularly with the planning authority to mitigate the risk of delay in achieving planning permission or that planning conditions are imposed which are more onerous than we currently anticipate;
- **Weather** – given the location of the sites, there is a risk that adverse weather conditions delay or extend construction and lead to additional costs. We are addressing these risks by planning ground works for drier months; and
- **Construction** – unforeseen ground conditions also generate a risk of programme delay and additional costs; we have worked to mitigate this risk as far as possible through use of ground investigation data to refine construction methodologies.

12.1.7 The delivery programmes used for submission one were based upon the delivery phase starting in January 2027, following the conclusion of the cost change process in December 2026. The current delivery programmes are based upon starting the delivery phase in advance of the final decisions, to ensure that we can deliver the benefits as early as possible. The scheme at Langdale is now to start on site in October 2026 with the schemes at Glebe Road and Hawkshead planned to start on site early in 2027, following final planning approvals.

12.1.8 There continues to be a wider strategic risk around the political and campaign focus on Windermere, and the potential for longer term goals to distract from the short-term benefits being delivered by these projects. UUW is committed to the government's "only rainwater" vision. However, given this will take significantly longer to deliver than the more immediate improvements described in this submission we strongly believe the package two schemes need to go ahead as quickly as possible. This will maximise benefits for residents, businesses and visitors to Windermere while longer term plans are formed.

13. Supporting Documentation

13.1.1 To support this submission, we are providing several documents as indicated in the chapters above.

- A glossary (UUWLGS_P2S2_08 Glossary of terms);
- Schemes included within package two (UUWLGS_P2S2_09 Included Schemes);
- An EA letter of support (UUWLGS_P2S2_12 EA Letter of support);
- Change log covering all package two projects (UUWLGS_P2S2_05 Change Log);
- A set of data tables (UUWLGS_P2S2_10 Data tables); comprising:
  - Large gated schemes cost tables (including CWW19 and ADD20) and ADD17; and
  - Final delivery plan (DPWW4) covering all package two projects.
- A data tables commentary (UUWLGS_P2S2_11_Data table commentary).
- PCD workbook covering package two (UUWLGS_P2S2_06 PCD workbook);
- Customer and stakeholder engagement plan (UUWLGS_P2S2_07 Engagement Plan);
- Third party assurance reports (UUWLGS_P2S2_02 Technical Assurance Report, UUWLGS_P2S2_03 Commercial Assurance Report and letter of reliance (UUWLGW_P2S2_04 Letter of reliance); and
- A package of site-specific documents for each scheme (Langdale WwTW (UUWLGS_P2S2_13), Hawkshead WwTW and PS (UUWLGS_P2S2_14) and Glebe Road PS (UUWLGS_P2S2_15)) comprising:
  - Single solution paper;
  - Risk register;
  - P6 programme; and
  - Cost deep dive (Glebe Road and Hawkshead only).

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