

Large Scheme Gated Submission 1 Hastings Resilience

1 October 2025

10-105995198-1



from
**Southern
Water** 

Contents

Glossary	4
1. Executive Summary	5
1.1 Overview	5
1.3 Key Facts	5
1.5 Key Risks and Mitigations	6
1.6 Options and Costs	6
1.7 Viability	6
1.8 Next Steps	7
2. Background and Objectives	7
3. Optioneering and Solution Design	10
3.1 Summary of Needs being addressed	10
3.2 Solution options	12
4. Solution Costs and Benefits	18
4.1 Solution Cost estimates	18
4.2 Costing methodology	18
4.3 Benchmarking	19
4.4 Change Log - Post PR24 FD	20
4.5 Best value appraisal	20
4.6 Allocation to base	22
5. Programme and Planning	22
5.1 Project Delivery Plan	22
5.2 Timeline to Submission 2	24
5.2 Planning and consenting route	27
5.3 Key risks and mitigation measures	27
5.4 Proposed Submission 2 activities and timelines.	28
6. Customer Protection	28
6.1 Proposed PCD Profile	28
7. Stakeholder and Customer Engagement	30

7.1 Overview	30
7.2 Customer Engagement	30
7.3 Regulators and Partner Organisations	31
7.5 Stakeholder engagement plan	31
8. Assurance	32
8.1 Our approach to assurance	32
8.2 Managing Risks and improvements	33
8.3 External Assurance findings [REDACTED]	33
9. Efficiency of Expenditure to Date	33
9.1 Costs to Submission 1 (1 April 2025 - 1 Oct 2025)	33
9.2 Forecast expenditure to Submission 2 (Oct to May 2026)	34
9.3 Comparison against the development allowance	35
10. Conclusions and Recommendations	36
11. Supporting Documentation	38
Annex C1 - Delivery Plan DPW4	38
Annex C2 - Risk Register	38
Annex D1 – Technical Assurance Report	43
Annex D2 – Commercial Assurance Report	43
Annex F1 - Expenditure Breakdown	43
Annex G1 – AMP7 Resilience improvements	43
Annex G2 – Detailed cost breakdown of delivery and development costs for Hastings resilience scope (unassured)	45

Glossary

Acronym	Full Term
AMP	Asset Management Period
Annex	Annex (Appendix/Attachment)
CFO	Chief Financial Officer
CPO	Compulsory Purchase Order
DAF	Dissolved Air Flotation
EIA	Environmental Impact Assessment
FEO	Future Enhancement Option
MD	Managing Director
ML/d	Megalitres per day
PLC	Programmable Logic Controller
RGF	Rapid Gravity Filter
RSK	Risk
SCO	Safe Control of Operations
SWR	Service Water Reservoir
SWS	Southern Water Services
UV	Ultraviolet
WSR	Water Storage Reservoir
WSW	Water Supply Works
WTW	Wastewater Treatment Works

1. Executive Summary

1.1 Overview

The Hastings Resilience Scheme addresses critical vulnerabilities in Southern Water's least resilient Water Resource Zone (WRZ), Hastings (according to our resilience assessment framework – see). Following a major supply incident in May 2024 and subsequent Drinking Water Inspectorate (DWI) notices, the scheme proposes a comprehensive set of interventions to improve raw water transport, treatment infrastructure, and operational resilience.

The original PR24 Hastings Resilience scheme focused on the resilience of the raw water supply system in Hastings. Following the PR24 submission, we have matured our approach to resilience in our Hastings zone, to incorporate resilience enhancements in the wider supply zone. The need for resilience interventions beyond the raw water network is currently supported by DWI notices.

On completion of our work to fully develop and finalise the wider network options, we will change the scope of the Hastings Resilience scheme to incorporate the wider resilience benefits. A summary of the key Scheme details is provided in Table 1.1 below:

Category	Hastings Resilience Scheme Details
WRZ	Hastings – standalone zone with no interconnectivity
Population Impacted	59,336 properties (c142,000 people)
Primary Assets	Beauport Water Supply Works (WSW), Brede WSW, Darwell Reservoir
Scope	Raw water system enhancements: - Darwell to Beauport main replacement - Darwell to Brede Aqueduct survey and targeted repairs - Darwell PS upgrades incl. surge suppression Treatment and treated water enhancements - Brede enhancements including Dissolved Air Flotation (DAF) refurbishment, RGF upgrades, chemical dosing upgrades - Beauport enhancements including DAF upgrades, RGF upgrades, wastewater stream upgrades, chemical dosing upgrades
Excluded Scope	Chlorine contact time upgrades, reservoir safety enhancements, WINEP improvements (Eel regs, INNS transfers)
Delivery Partners	M Group (raw water), GMES & Kier (treatment sites)
Estimated Development costs	
Regulatory Drivers	DWI notices, DWI Final Enforcement Orders (FEOs) expected
Programme Timeline	2025–2032 Asset Management Period (AMP) 9 and beyond

Table 1.1: Hastings Resilience Scheme Summary

1.3 Key Facts

- Hastings WRZ is Southern Water's least resilient zone, with poor asset condition and no redundancy between treatment works.

- The scheme is essential to mitigate future supply risks and enable compliance with regulatory requirements.
- Short-term resilience enhancement actions are underway or scoped; medium- and long-term actions are in development with maturing cost estimates.
- Strategic bundling of scope and delivery is expected to improve efficiency and reduce costs.

1.5 Key Risks and Mitigations

Risk	Description	Mitigation
Site Constraints	Limited space for offline construction at Brede	Holistic site review underway
Survey Challenges	Environmental, archaeological, and planning constraints	Early stakeholder engagement and planning
Operational Disruption	Intrusive works may impact supply	Robust Safe Control of Operations (SCO) planning and mitigation strategies

Table 1.2: Risk and Mitigations

1.6 Options and Costs

Raw Water Main (Darwell to Beauport):

- **Option 1:** Rehabilitation (liner) – High technical risk, operational constraints.
- **Option 2:** Replacement within existing easement – Significant constructability and environmental challenges.
- **Option 3:** Replacement via new route – **Preferred option** due to lower technical and environmental risks.

Treatment Enhancements:

- Brede WSW: Rapid Gravity Filter (RGF) rebuild, clear water tank isolation, high lift pump upgrades.
- Beauport WSW: DAF upgrades, chemical dosing improvements, site drainage upgrades.

High-Level Cost Estimates (preliminary and unassured):

Area	Cost Range (£m)
Raw water system enhancements	
Treatment & treated water enhancements	
Total (unassured)	

Table 1.3: High-Level Cost Estimates

It is critical to note that these costs are highly uncertain and indicative at this early stage of development and will be finalised ahead of Submission 2.

1.7 Viability

The scheme is viable and necessary, with short-term actions already progressing. While some elements (e.g., Darwell to Beauport main) carry uncertainty, the overall programme is aligned with regulatory timelines and strategic delivery frameworks. The scope of works vary significantly in complexity, uncertainty and criticality short-, medium- and long-term operational resilience of these sites. With that in mind, the delivery teams have already commenced critical resilience mitigations such as scope of works not requiring optioneering through GMES frameworks such as Brede & Beauport WSW treatment enhancements.

1.8 Next Steps

- Complete optioneering and design for major interventions (Darwell to Beauport main, Brede upgrades).
- Refine cost estimates and undertake benchmarking for Submission 2.
- Continue Ofwat and DWI stakeholder engagement and regulatory alignment.

2. Background and Objectives

Hastings is a standalone Water Resource Zone (WRZ) in the Southeast of our region. Hastings has no connectivity with our other WRZs. According to our resilience assessment framework, the Hastings WRZ is our least resilient Water Resource Zone (see Figure 1 for further details). Asset condition is poor throughout the Hastings zone, from the raw water transport system, through treatment and onto network storage.

Water Resource Zone	Resilience Score	Total Zone Score	Properties Served
Brighton	0.85	30566	205621.00
Sussex Worthing	0.77	22299	97791.00
IOW	0.74	22810	88328.00
Hampshire Winchester	0.58	16241	38470.00
Thanet	0.57	45977	107247.00
Kingsclere	0.56	3150	7221.00
Medway East	0.53	72564	153695.00
Medway West	0.45	44287	80703.00
Sussex North	0.44	73255	130151.00
Hampshire South West	0.43	43980	77633.00
Andover	0.36	23590	36738.00
Hampshire South East	0.28	140858	196660.00
Hampshire South Rural	0.24	11844	15579.00
Hastings	0.11	52686	59336.00

Figure 1: Supply Resilience at Water Resource Zone Level

The Hastings supply system is dependent on two Water Supply Works (WSWs), Beauport WSW and Brede WSW. Neither of these works has sufficient capacity to supply the entire Hastings zone on its own. Our Brede WSW is primarily fed by an underground raw water aqueduct from our Darwell Surface Water Reservoir (SWR). Sink holes have been observed close to the location of the aqueduct and the condition of the aqueduct is unknown. Our Brede WSW is also supplied by our Powdermill SWR. Our Beauport WSW is solely supplied by an 800mm diameter raw water pumping main from our Darwell SWR. A schematic showing the locations of these assets can be seen below in Figure 2.

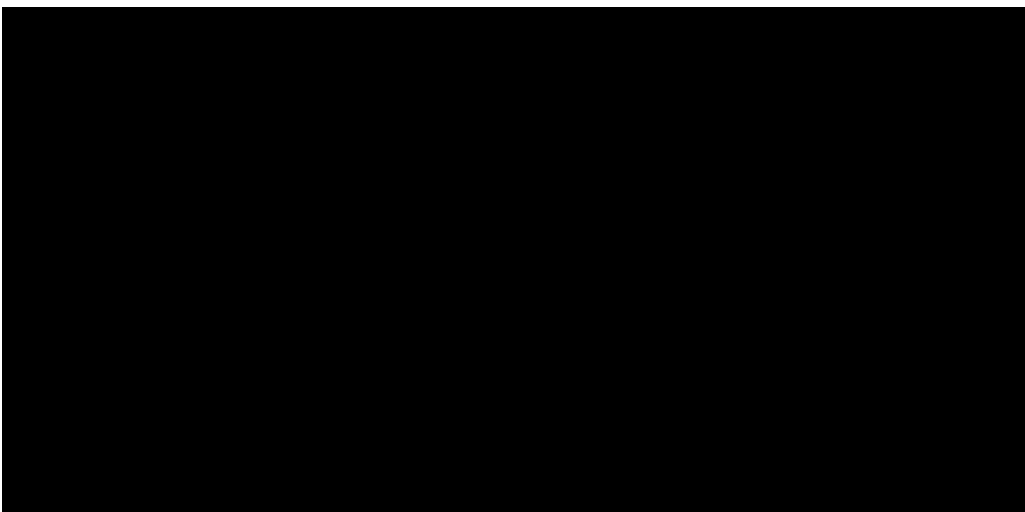


Figure 2: Hastings WRZ

In May 2024 a supply interruption impacted over 26,800 of our customers. The interruption was a result of a loss of raw water supply to Beauport WSW, due to a burst on the 800mm diameter raw water pumping main.

The Beauport incident revealed that accessing the raw water main for repair is technically challenging and time consuming, and that the failure mode leading to the burst, was likely to be present elsewhere on the main. Similarly, access to the Brede aqueduct would also be challenging during an incident.

During AMP7, Southern Water invested to improve resilience in the Hastings zone. Reservoirs, contact tanks and Clear Water Tanks (CWTs) were cleaned throughout the zone and a run to waste system was installed at Brede. A list of interventions are included below in Annex G1.

Following the submission of our Draft Determination Response in August 2024, the challenges in Hastings have been further intensified by Drinking Water Inspectorate (DWI) notices and heightened political interest. In response, commitments have been made to key stakeholders—including Hastings Borough Council (HBC) and MPs from the Environment, Food and Rural Affairs Committee (EFRA)—to complete the necessary works. These commitments also include investment in assets and measures to enhance resilience, ensuring long-term improvements for the community.

Based on a combination of known risks held in our Asset Risk Management (ARM) system and SME knowledge we have identified assets which will improve the resilience of our Hastings supply system. The areas where we need to intervene to improve the resilience of water supplies in Hastings are as follows:

- Raw Water System
- Darwell SWR and Pumping Station
- Brede WSW
- Beauport WSW

The benefits of each intervention will be determined using two measures:

- Water Quality Risk Reduction, and
- Resilience Improvement.

Resilience improvement will be assessed using our Resilience assessment framework. Our Resilience methodology frames resilience within a risk and controls environment and is implemented in four key stages. This embeds the risk calculations to create a one-to-one relationship between the four risk elements and the corresponding resilience control factors. It enables us to better understand the risk drivers, such as scale of impact, duration, likelihood or vulnerability, and target appropriate resilience response, i.e. redundancy, response & recovery, resistance or reliability (see Figure 3 below).

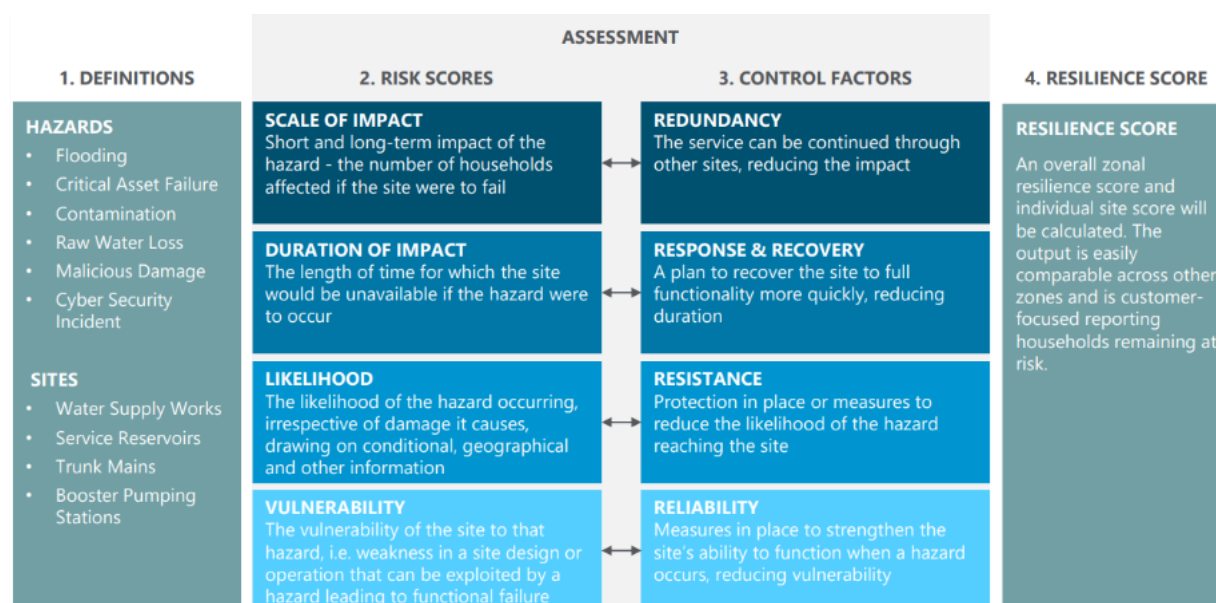


Figure 3: Outline of the Southern Water Resilience Framework

In addition to the resilience improvement interventions identified for this Hastings Resilience Scheme investment, work is also being carried out in the Hastings WRZ during AMP8 to improve Disinfection provision at Beauport and Brede as well as WINEP projects to install Eel screens at Brede and to install a reservoir bypass at Darwell to remove an INNS risk. These will be funded outside of this resilience scheme.

Our PR24 Draft Determination Response (DDR) submission included interventions to improve the resilience of water supplies in Hastings. Since the Final Determination we have continued to work on these interventions and on alternative interventions to improve resilience. The scale of the resilience enhancement interventions being considered for Hastings have increased significantly since DDR because we are now considering improvements throughout the Hastings water supply system rather than just the raw water transport assets.

The Hastings Resilience scheme will address DWI regulations 4, 26, 28, and the requirements of the Badenoch and Bouchier reports outlined in the following Notices: Brede and Beauport WSW SRN-2020-00007; Brede Harland Tank Enabling Works SRN-2024-00010; Hastings Loss of Supply SRN-2024-00015. In addition, the DWI will shortly be issuing FEOs covering the replacement of the High lift pumps to Rye, Fairlight and Baldslow, primary RGFs including backwash pumps, and the Harland Tank, at Brede, and a new notice covering the repair or refurbishment of chemical dosing equipment and monitoring, including Sodium Hydroxide and Poly Aluminium Chloride, Rapid Gravity Filters, DAF clarifiers and Ultraviolet (UV) disinfection stream at Beauport.

3. Optioneering and Solution Design

The solutions proposed in this submission represent our current view of the best available options. These will be further refined, detailed and assessed in line with our processes to present a robust solution, design and cost estimate at Submission 2. Furthermore, granular resilience assessments will also be carried out for Submission 2.

The resilience interventions required fall into two categories: short-term and medium- and long-term enhancements. The short-term resilience enhancements are generally smaller, less complex and obvious interventions where there are little to no alternative options for delivery. These short-term enhancements are underway or scoped. The medium- and long-term actions are larger, more complex scope items and will be subject to optioneering. We are in the process of mobilising our Strategic Delivery Partner to commence work on these enhancements. Optioneering and feasibility assessments are yet to commence for these medium- and long-term actions but will be complete for Submission 2.

3.1 Summary of Needs being addressed

A range of resilience enhancement interventions have been identified as being vital to improving the resilience of Hastings area. The full scope of these enhancements is directly linked to regulatory compliance requirements, legal instruments currently in place and resilience risk reduction. A number of mitigations have already been completed in AMP7.

The long list of critical AMP8 resilience enhancement scope has been summarised into three defined areas covering raw water enhancements, treatment enhancements & treated network enhancements, mapped to specific assets in the Hastings zone. An overview of each enhancement category is shown in the diagrams below.

Raw Water System Enhancements

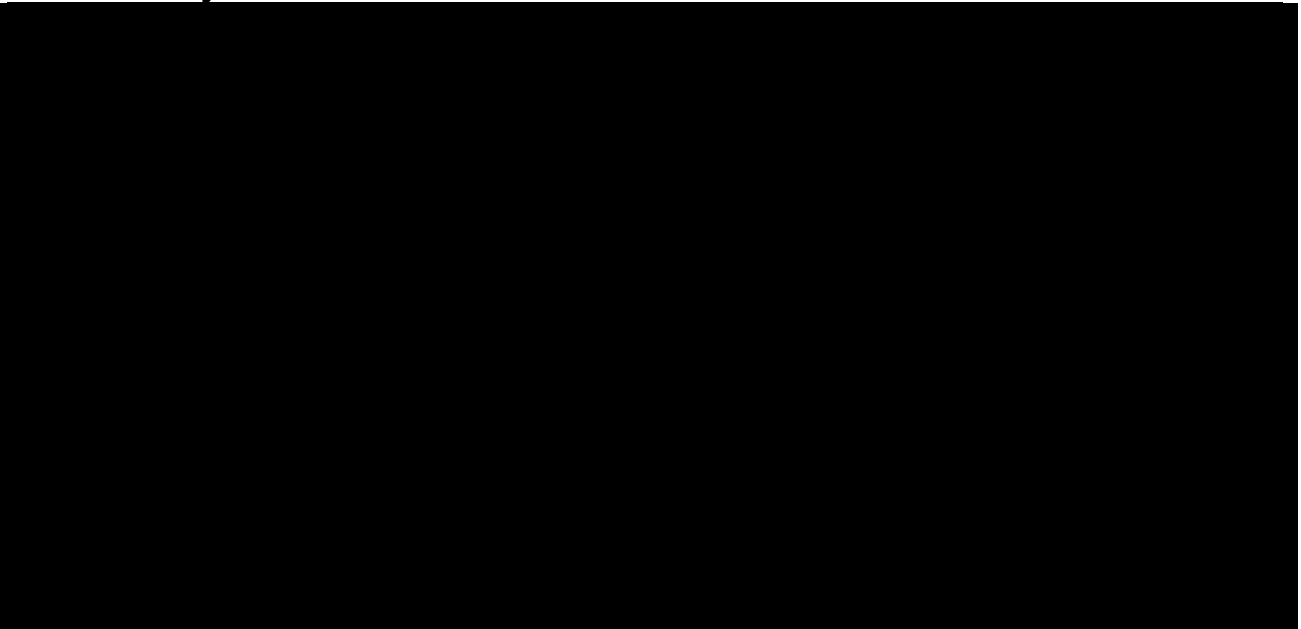


Figure 4: Raw Water System Enhancements

Treatment Enhancements

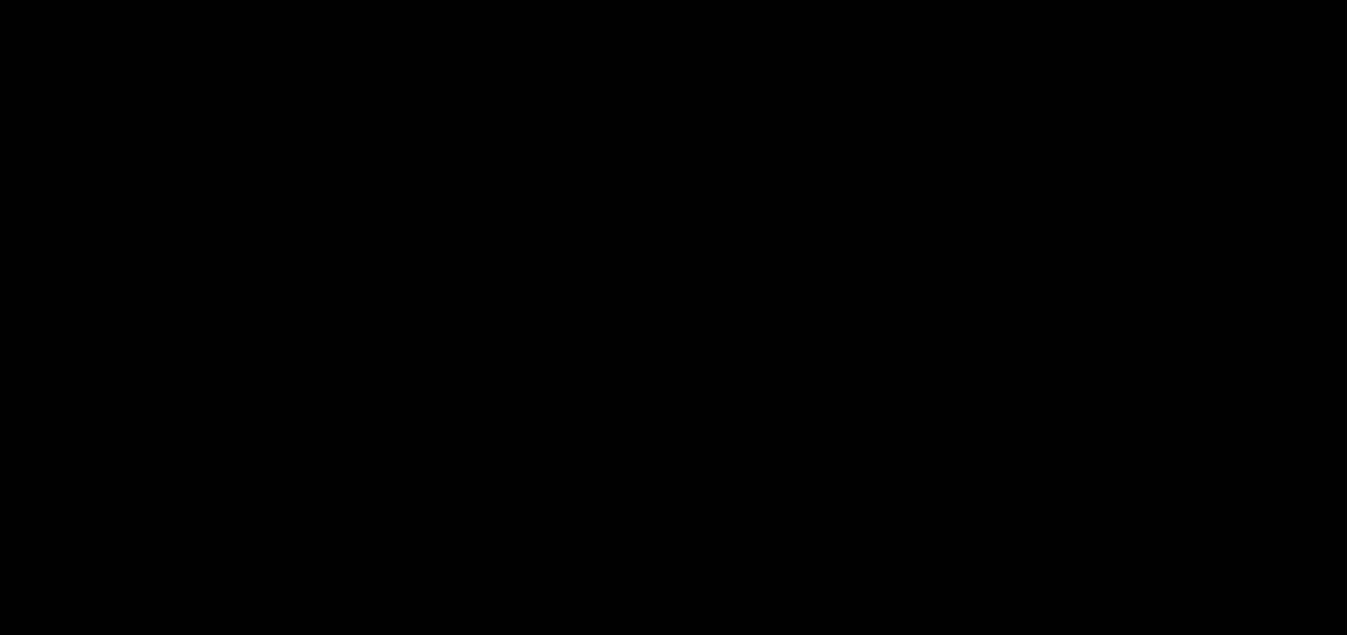


Figure 5: Treatment Enhancements

Treatment Water Network Enhancements

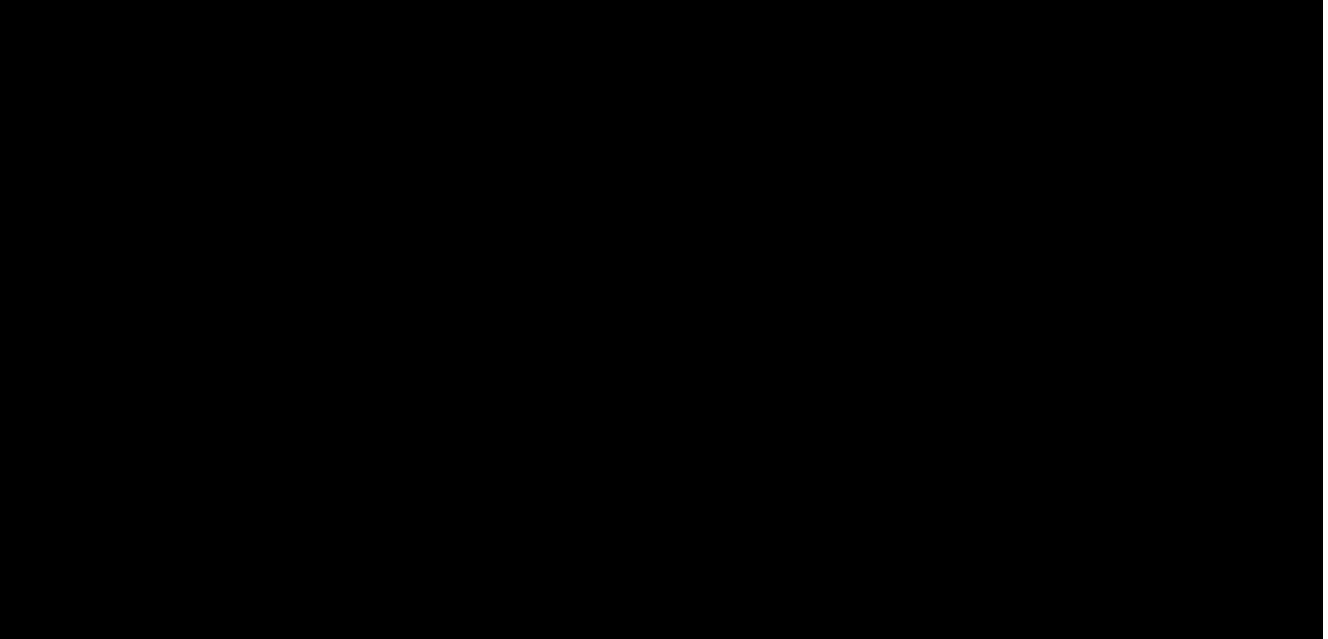


Figure 6: Treatment Water Network Enhancements

A number of the AMP8 resilience enhancement interventions outlined in this submission will be delivered through Southern Water's General Mechanical and Electrical Services (GMES) framework, with some critical scope items already in delivery. These interventions require little to no optioneering, such as "like for like" replacements. An overview of these interventions is shown in table 3.1 below.

Beauport WSW	Brede WSW	Darwell	Fairlight Old 2 WSR
- DAF saturator replacement - Repair or refurbish caustic soda dosing skid - Repair or refurbish aluminium monitor - Repair or refurbish PACL lines - Repair or refurbish poly aluminium chloride skids - DAF flocc tank stirrer VSD software upgrade - Pneumatic ring main refurbishment - Polyacrylamide dosing system improvements - Survey and commission RGFs to ensure operation is compliant with Badenoch and Bouchier standards	- Inlet flow control valve replacement - On Site Electrolytic Chlorination (Chemical dosing assets repair/refurbishment) - Repair or refurbish Sodium hydroxide dosing equipment - Refurbish hypochlorite skid and lines - Refurbish poly aluminium chloride dosing skid - DAF refurbishment - Auto coagulant dosing system replacement - Replace leaking RGF outlet valve - Repair primary filter building roof - Survey hypo bulk tank suspected leak - Replace PACI dosing lines to be made MED compliant - Repair GAC conditioning pump 2 panel - Survey, refurbish & commission existing filter structures and media to optimise performance of the plant. Ensure filters operations is in compliance with Badenoch and Bouchier - Survey, refurbish & commission filter backwash pumps to ensure compliance with Badenoch and Bouchier - Design an interim solution to enable the Harland tank be taken offline for cleaning by the agreed FEO milestone 31/03/2026 - Develop a long-term solution to enable the Harland tank be taken offline as and when required	- Install pressure vessels on the Darwell to Beauport Main mitigation - Deliver Darwell SWR new generator - Repair or refurbish 3 pumps 3 & 4 transformers - Repair Darwell SWR aqueduct to Brede WSW valve - Replace pumps and drives	Deliver: mitigations to return reservoir to service

Table 3.1: GMES scope currently in delivery

A number of resilience enhancement interventions will still require optioneering and development. These will be delivered through Southern Water's Strategic Delivery Partner framework. A summary of these interventions can be seen in table 3.2 below.

Beauport WSW	Brede WSW	Darwell
- Deliver rapid gravity survey mitigation - Deliver improvements to discharge dechlorination system - Survey and deliver improvement to site process waste drainage (including Kalsep).*	- Replace: Brede WSW to Rye WSR high lift pumps - Refurbish or replace: Brede WSW to Fairlight high lift pumps. - Refurbish or replace: Brede WSW to Baldslow WSR high lift pumps - Deliver: Discharge dechlorination system - Replacement of filters at Brede - Deliver: The Harland tank long term solution	- Conduct air valve survey along Darwell to Beauport main to understand condition of the main, risks of isolation and drain down - Replace Darwell to Beauport main incl clearing of easement & access points - Survey Darwell to Brede Aqueduct to investigate the causes and contributing factors of elevated turbidity - Deliver targeted refurbishment of the Darwell to Brede aqueduct - Darwell SWR strainers modification to increase Beauport WSW output by an additional 2Ml/d. - Removal of zebra mussels

Table 3.2: SDP scope not yet started (in development)

*Currently, sewer capacity reduced by outputs from customer properties risking property flooding when discharging. There is a need to discharge into water course, with a controlled dose of liquid bisulphite to mitigate risk to discharge permit.

3.2 Solution options

Raw water – Darwell to Beauport main

Three options have been considered for replacement of the Raw water main from Darwell to Beauport:-

Option 1 - Rehabilitation (liner)

Option 2 - Replacement Within Existing Easement

Option 3 - Replacement new route

The 3 drawings below illustrate the options considered to tackle the need statement.

Option 1: Darwell to Beauport Rehabilitation (liner)

The pipeline failure modes have been due to external corrosion, thought to be associated with the soil composition and concrete structural degradation over time. This results in exposure of the internal steel reinforcing components to corrosion and subsequent loss of containment. Therefore, an internal liner will need to be fully structural without the need of a host pipe being necessary due to the continued deterioration of the pipe. Internal pressures have been recorded at >18bar.

It may be possible to identify sections of the existing asset which are structurally sound and therefore suitable for continued use via explorative survey technology, such as Smart-Ball and drone heat-mapping. The output of which may generate a 4th hybrid option of part lined, part retained.

Due to the time constraints and capacity at the Beauport treatment works result in an 18-hour operational window. The operational sequence for rehabilitation with a liner is not achievable within this time period. Multiple windows of 18hrs is not practicable due to the increased operational burden as well as the resilience risk of working by potentially fragile pipe; the likely risk to customers experiencing an outage is likely to be higher than tolerable.

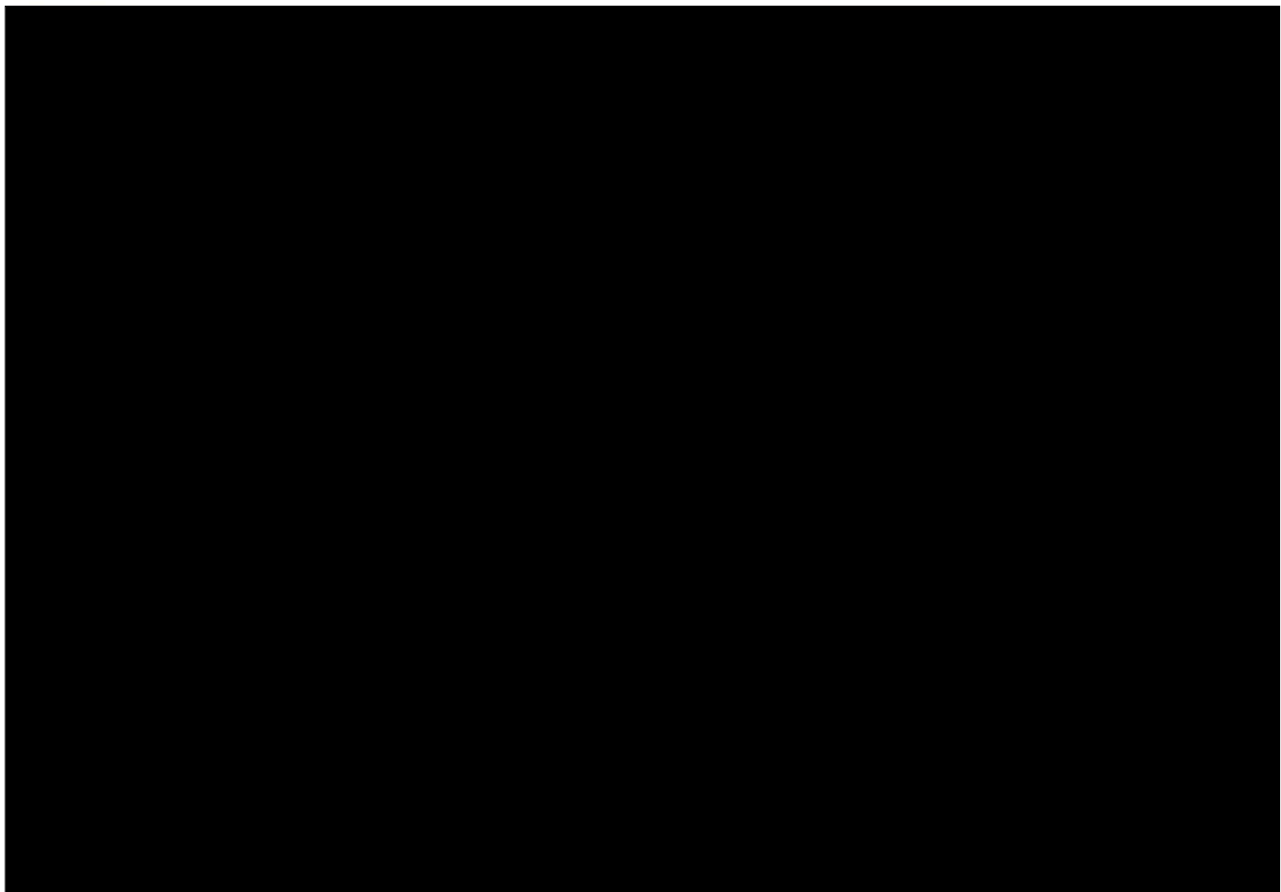


Figure 7: Option 1 Darwell to Beauport rehabilitation of mains

Option 2: Darwell to Beauport Replacement (Within Existing Easement)

If an internal liner cannot be identified and utilised for the required pressure rating (>18bar), those structures deemed not suitable for continued use, will require to be replaced conventionally alongside existing location on receipt of the smart technology investigation studies.

Engagement with suppliers has commenced to establish the suitable material selection for each of the scenarios.

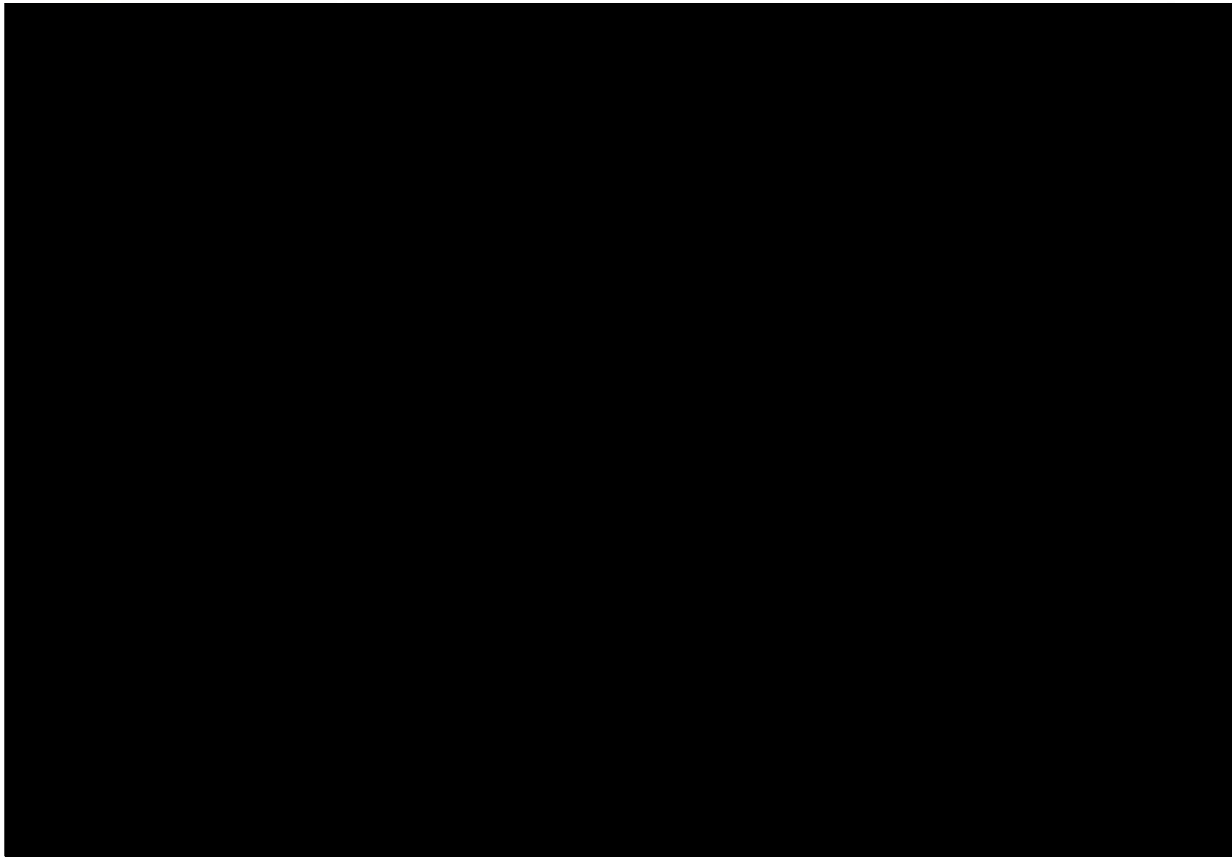


Figure 8: Option 2 Darwell to Beauport mains replacement

Option 3: Darwell to Beauport Replacement New Route

With the constructability and operating window restriction present on the existing asset, the exploration of this option alleviates this challenge. Environmentally, the existing asset is heavily constrained. Access was significantly restricted during recent pipeline failure events either by foot or machinery. This proposed route eliminates the aforementioned restrictions as it is mainly agricultural land use.

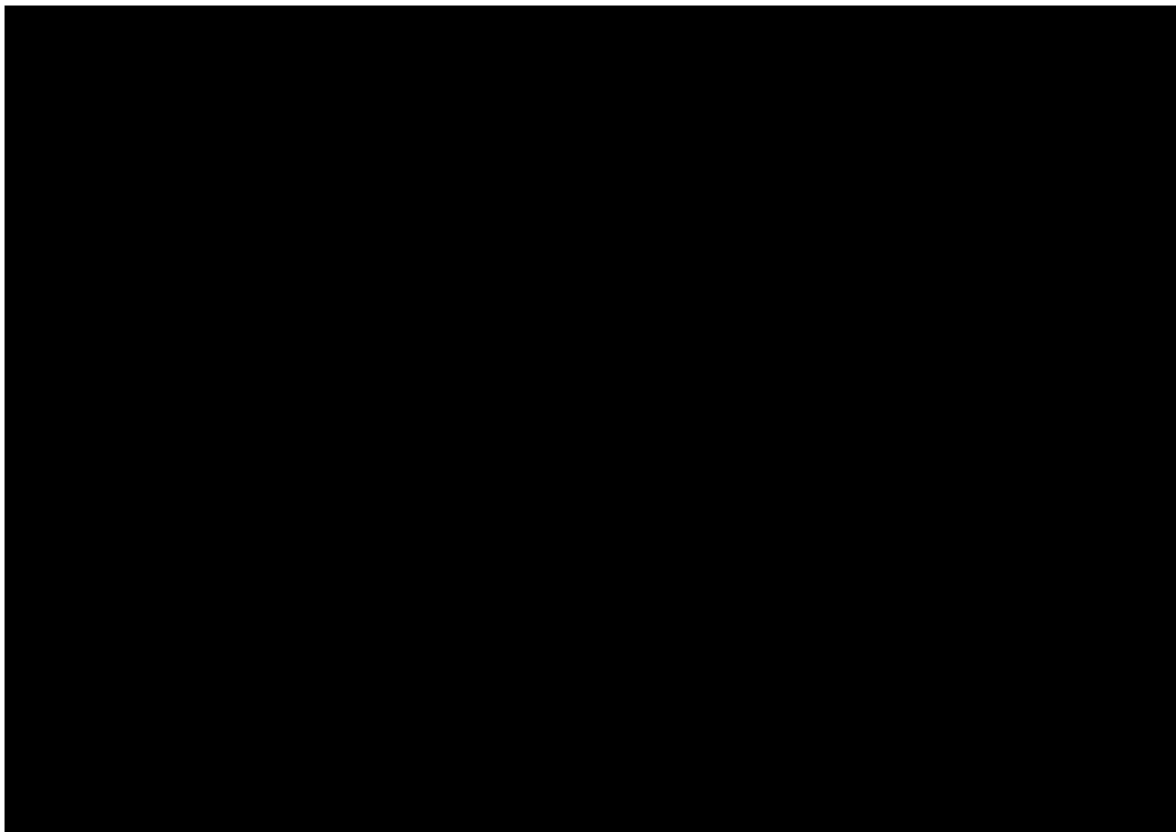


Figure 9: Option 3 Darwell to Beauport replacement

A risk table detailing further the potential risk and challenges identified on each of the options at this early stage of the project can be found in the Annex C2. These form the basis of project risk register which is dynamic and developing as the project progresses.

Treatment enhancements – Beauport and Brede upgrades

Brede WSW RGFs Rebuild

The current filtration plant on site does not meet the latest industry standards and the assets are failing due to age. The action is to replace the filters and bring the process up to latest industry standard. Southern Water is expecting a DWI FEO for this action.

Options considered are described below:

Option 1: Refurbishment then new construction

This option includes the refurbishment of the current primary filters on site and offline construction of 3 additional filters, adjacent to the existing assets. This would be phased to initially build the offline group of filters and commission them, with the refurbished filters then taken out-of-service, replaced and commissioned. All 6 filters would subsequently be integrated into the current site.

Option 2: Replacement (upgrade)

This option requires the clear water tank replacement and high lift pump upgrade to allow 6 new filters to be constructed offline, adjacent to the current site. This would involve pipework modifications from the inlet and clarification process, along with consideration of the downstream processes' effectiveness.

Brede / Beauport WSW Dechlorination

Both sites lack a robust dechlorination dosing system for the discharge to environment processes. The action is to upgrade the dechlorination systems on these sites to allow for controlled dechlorination dosing and monitoring.

Options considered are described below:

Option 1 – Replacement

This would require the introduction of the chlorine monitoring and dechlorination dosing system upstream of the discharge point, along with chlorine monitoring at the discharge point. Consideration of the potential introduction of a holding tank in the case of excess flow/ process failure would be required.

Beauport WSW – Site Process Waste Drainage

The site waste drainage system is overwhelmed due to the increase of volume from the surrounding residential areas. The action is to deliver a solution to improve the waste drainage system.

Options considered are described below:

Option 1 - Connection of System directly to Hastings Wastewater Treatment Works (WTW).

This option would include connecting the on-site waste drainage system to feed directly to the Hastings WTW (waste treatment works). This would include surveying and installation in the network from site to the WTW.

Treated water network enhancements

Brede WSW Clear Water Tank

The tank holds the final water from Brede and consists of 3 inter-joined cells (North, Harland and South) and has an issue of isolation for regular inspection, maintenance and cleaning. This is due to having the RGF backwash pumps in the central (Harland) tank, and the location of the high lift pumps as well as the isolation valves not fully closing. Southern is expecting a DWI FEO for this action.

The action is to deliver a long-term solution to allow for the clear water tank to be isolated for regular maintenance.

Options have been considered indicated below:

Option 1: Refurbishment

The Harland tank cannot be isolated due to failing isolation valves, affecting the isolation of both the North and South tank. An option to install temporary pipework and backwash pumps from the Harland tank to enable the isolation valves to be serviced/replaced has been considered. This will enable isolation of each individual cell and allow for maintenance and refurbishment of the tank and associated pumps. We (Southern Water) expect a DWI FEO to resolve this issue.

Option 2: Replacement

An option to build a more suitable clear water tank offline has been considered. In this scenario, the tank would be constructed offline, in a suitable location, with the ability to allow for the tank to be taken out of service via correct isolation arrangements and the introduction of a 2 cell system to avoid any impact on site output. This option requires the backwash pumps to be moved to a suitable location for the RGFs, and the high lift pumps to be integrated into the decision to allow for pumping of the final water to the network.

Brede WSW High Lift Pumps (Rye, Fairlight, Baldslow)

These sets of pumps are in the clear water tank. The action is to replace/refurbish the pumps. Southern is expecting a DWI FEO for this action.

Options considered are described below:

Option 1: Refurbishment

This option considers the refurbishment of the pumps in situ, where each pump would undergo an overhaul and operate under the current control philosophy with the current clear water tank in situ.

Option 2: Replacement

This option includes the replacement of the pumps with larger sized, duty/standby pumps (2 per stream). This would require modifications to the current set up of the pumps and the installation of variable speed drives to better control the output of water into the network.

Option 3: Replacement (upgrade)

This option includes the clear water tank replacement to allow for the introduction of a high lift pump sump from the proposed new clear water tank, with the introduction of 2x duty/standby VSD pumps per stream (Fairlight, Rye, Baldslow).

We are looking at reusing redundant structures in available areas of site where possible for example replacing original RGFs and adding three new RGFs, exploring opportunity to use existing backwash tank as the new RGF backwash tank. In addition, we will be looking to optimally use the constrained space on site.

4. Solution Costs and Benefits

The original PR24 baseline scope & costs included only Darwell to Beauport raw water main replacement with an estimated cost of ~£35m (excluding OPEX). As part of the ongoing development of the Hastings Project, the Cost Intelligence Team (CIT)'s Estimating Team has produced cost estimate to support the proposed scheme. The cost estimate is based on scope information and data derived from the PR19/PR24 submissions, alongside updated design and technical inputs provided by SWS' Design Team (including ETS).

The scope information was provided by SWS Design Team, initially and an updated scope was subsequently resubmitted reflecting the refinements and clarifications to the original scope submission.

The cost build-up is in-line with SWS' PR24 Methodology entitled "SRN15 Cost and Option Methodology". CIT has undertaken reviews on the scope items to ensure that relevant yardstick and sizing information is available and correctly presented. CIT reviewed that scope items matched the associated curves and models. Queries were sent out to ensure that the areas of mismatch and/or gaps were addressed from SWS Design Team.

Relevant scope and design information has been provided by SWS Design Team. There have been no detailed drawings on scope or design information. CIT is not responsible for the scope and associated yardstick or sizing information, as well as any gaps in scope or design information. CIT has not undertaken a scope validation exercise, but a high level review of the scope and raised queries to address any anomalies and/or gaps. As part of the cost estimation work, there has been no take offs from drawings by CIT.

The cost models and generated costs were validated and a sense check was applied to the outputs to address any further anomalies. Any further gaps were raised and doubled checked, as well as addressed with SWS Design Team.

4.1 Solution Cost estimates

Item	Cost
Blended Total Project Estimated Cost (Inc Corp OH for Price Review (PR) Only)	
Corporate OH (11.7% of blended total)	
Blended Total Project Estimated Cost (Exc. Corp OH)	
Total Indirect Costs	
Contractor & Client Indirect Costs	
Sites Specifics and TtOR	
Net Direct Works Costs	

Table 4.1: Solution Cost Estimates (Class 5)

4.2 Costing methodology

Net Direct Works

The base cost of the project includes all direct construction and delivery activities, such as:

- Civil, mechanical, and electrical works
- Installation of pipelines, treatment facilities, or infrastructure
- Materials, labour, and subcontractor costs
- Site preparation and enabling works

These components collectively form the Total Net Direct Works, which represents the base cost of the project, i.e., Cost Models and Bottom-Up Estimates and Quotations (inflated to 2022/23) undertaken by SWS CIT.

Contractor and Client Indirect Costs

Indirect Costs are applied to the Net Direct Works to account for:

- Site management and supervision
- Temporary works and facilities
- Design and engineering support
- Project controls and administration

These have been applied as a percentage uplift of 76.50% to the Net Direct Works.

Blended Project Total

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

Risk Allowance

A contingency or risk allowance is added to cover estimating and scope uncertainty. This has been calculated as 9.80% of the Blended Project Total, as per SWS' PR24 Methodology (as detailed above).

Total (Excluding Corporate Overheads)

This subtotal includes all costs required to deliver the project, excluding corporate-level costs.

- Net Direct Works
- Contractor & Client Indirect Costs
- Risk Allowance

Corporate Overheads

Corporate overheads are applied to cover:

- Head office support
- Governance and assurance
- Legal, finance, and HR functions
- Strategic management

Total Project Cost

The Total Project Cost includes all components:

- Net Direct Works
- Contractor & Client Indirect Costs
- Risk Allowance
- Corporate Overheads

This figure represents the full financial commitment required to deliver the project.

This estimate has been classified as being at Class 5. The percentage level of current cost confidence is based upon the current scope / design maturity which underpins the estimate.

4.3 Benchmarking

As part of Submission 2 development, we plan to conduct the necessary cost benchmarking assessment using SW internal Cost Intelligence Team (CIT) who will apply a series of benchmarking tools to ensure consistent alignment of benchmark sources across individual assets and models. This will provide assurance that maturing cost estimates are in line with expected industry and market ranges. This will be shared with Ofwat when it is available, ahead of Submission 2.

4.4 Change Log - Post PR24 FD

The additional options for Hastings Resilience are not sufficiently mature to be adopted as a formal change at this stage, therefore there have been no material changes to the scope, benefits, site location, route, programme or costs on this project since the PR24 Final Determination in December 2024 (based on Ofwat's PR24 criteria of change). As a result, no change log is included in this submission.

The additional treatment, network and raw water options will continue to be developed and appraised and will be recorded, once selected, in the Change Log at Submission 2. It is anticipated that at Submission 2, the overall resilience improvement will be greater than it was forecast to be in the PR24 submission.

4.5 Best value appraisal

The original PR24 baseline scope & costs included only Darwell to Beauport raw water main replacement with an estimated cost of [REDACTED] (excluding OPEX). However, following the submission of our Draft Determination Response in August 2024, the challenges in Hastings have been further intensified by Drinking Water Inspectorate (DWI) notices and heightened political interest. In response, we have identified interventions beyond the raw water supply system which will improve the resilience of our Hastings supply system as a whole. The areas are as follows:

- Raw Water System
- Darwell SWR and Pumping Station
- Brede WSW
- Beauport WSW

Based on the spectrum of scope criticality & complexity outlined above, there are significant benefits to be obtained in the overall resilience scope and post investment risk exposure as outlined below (based on initial or indicative resilience scores).

Area	High level scope outline	PR24 submission	High level Cost Estimate (unassured)* (£m)	Pre-Investment Risk (£m)	Post-investment Risk (£m)	Initial Pre-Investment Resilience Score	Initial Post-investment Resilience Score
Raw water system enhancements	- Darwell to Beauport main replacement	~35m	60 - 100	137.8	4.1	0.272	0.573
	- Darwell to Brede Aqueduct survey and targeted repairs	n/a					
	- Darwell PS upgrades incl surge suppression	n/a					
Treatment and treated water enhancements	- Brede enhancements including DAF refurbishment, RGF upgrades, chemical dosing upgrades, HLPs, contact tank, CWT	n/a	56 – 76				
	- Beauport enhancements including DAF upgrades, RGF upgrades, wastewater stream upgrades, chemical dosing upgrades.	n/a					

Table 4.2: Resilience benefit scores

*The costs are highly indicative and unassured at this early stage of development. We plan to finalise the cost estimates based on preferred solution and design for Submission 2.

The indicative cost breakdown structure for Hastings resilience & FEO scope is outlined in Annex G2 (combination of known costs and estimates based on previous projects of similar size). There is a high degree of uncertainty in these estimates at this moment in time and they are likely to change as preferred option is defined and design is developed to Submission 2. We plan to go through appropriate cost estimation, assurance and benchmarking to provide greater confidence by Submission 2.

With regards to Darwell to Beauport main route replacement option a high level (unassured cost estimate) has emerged at this early stage of development. This estimate is the latest position from our delivery partner - M group based on initial route replacement & diversion options outlined above (avoiding ancient woodland, railway crossing and A21). The assumptions include a unit cost of [REDACTED] (construction costs alone) constituting an upper estimate range [REDACTED] given the high degree of uncertainty in design and delivery risks along the proposed route. At this stage, this cost estimate has not been assured or benchmarked by CIT. We plan to mature the options & design to provide greater confidence in cost estimate for assurance and benchmarking at Submission 2.

Item	Cost (£m)	Length (M)	Tunnels (NR)
Diversion 1 – Millham Wood	11.8	2200	1
Diversion 2 – Little Crabden Wood	12.1	2300	1
Diversion 3 – Watlington Village	5.0	1445	0
Diversion 4 – Petley Wood	12.4	2300	1
Main Route (Field)	45.3	5294	3
Total	86.4	13539	6

Table 4.3: Darwell to Beauport mains replacement options

We are currently in contract with [REDACTED] to provide options, preferred solution, surveys and design. We expect to have the options sufficiently matured by October 2025 in order to progress to preferred solution and design.

For the non-GMES scope mentioned above that requires option definition, we will adhere to our current cost estimating and cost benchmarking methodology. As options, preferred solutions and designs mature in line with Submission 2 deadlines, we plan to conduct the necessary cost estimating and benchmarking assessment for the whole of Hastings zone scope. These will also be consistent with Southern Water's corporate value framework for Cost Benefit Appraisal in line with the approach taken for PR24. This will include items of immediate priority that are in delivery or shortly to be let through GMES framework [REDACTED] all of which are of critical importance to mitigate the resilience risk.

At the time of the PR24 Final Determination submission, the resilience schemes were not sufficiently developed to allow the best value appraisal to be carried out. It was therefore proposed that they were put into the 'Delivery Mechanism' Process, which would allow scope and costs to be assessed in AMP. Ofwat determined that they should be delivered through the 'Large Scheme Gated' Process to protect customers.

The best value appraisal has not been undertaken at this stage and is planned for the early stages of the Submission 2 programme. This activity will be undertaken once the planned work has been completed to resolve identified uncertainties and issues for the current feasible options. The best value appraisal will then be applied to the remaining feasible options.

The approach to best value appraisal will be informed by:

- Southern Water's corporate value framework for Cost Benefit Appraisal¹ and Risk and Value process. This includes consideration of embodied carbon, operational carbon and natural and social capital value. Example natural and social capital measures include:
 - Waterbodies regulated by the Water Framework Directive and potential changes to their status²;
 - Designated bathing waters and potential changes to the expected level of bathing water quality;
 - Land use change (informed by the type of asset being proposed);
 - Global climate regulation (carbon sequestration);
 - Natural hazard regulation (flooding and erosion);
 - Impacts on biodiversity;
 - The level of public trust / institutional support;
 - Engagement, networks and partnerships.
- Ofwat's Public Value Principles², which set out expectations that companies should seek to create further social and environmental value in the course of delivering their core services.

4.6 Allocation to base

To ensure that we are not double counting any base funding that we have received. For Submission 2 we will account for base funding using the following two methods:

Method 1 – Implicit allowance: Use the methodology outlined in query response OFW-OBQ-SRN-219 to calculate the whole AMP implicit allowance for the area. Determine when 50% (TBC) of the resilience asset interventions will have been implemented. Calculate the implicit allowance for the time after 50% (TBC) of the asset interventions have been implemented.

Method 2 – Deterioration Modelling: Use Southern Water's Pioneer deterioration model to predict how much investment would be required to maintain stable service in the area in AMP8. Determine when 50%(TBC) of the resilience asset interventions will have been implemented. Using the deterioration model output, determine the value of interventions required after 50% (TBC) of the asset interventions have been implemented.

We will then average the results of the above two methods and subtract that amount from our resilience enhancement funding request.

5. Programme and Planning

5.1 Project Delivery Plan

The following delivery plan has been developed in line with regulatory requirements and DWI notices due dates. Note, we are currently awaiting an FEO at Brede WSW which include the delivery of mitigations prescribed in sections above.

We have ensured that this submission is fully aligned with our DPW4 delivery plan table, including all key milestones and expenditure details. The relevant table is provided in the Annex C1. This replaces our August delivery plan submission as the most up to date baseline, there is likely to be limited change as part of our

¹ Southern Water. SRM15 Cost and Option Methodology: Technical Annex (October 2023). Available at: https://www.southernwater.co.uk/media/mjyp0of4/srn15-cost-and-option-methodology_redacted.pdf

² Ofwat. Ofwat's Final Public Value Principles (March 2022). Available at <https://www.ofwat.gov.uk/about-us/our-strategy/ofwats-public-value-principles/>

November 7th delivery plan update to the delivery plan. As part of Submission 2 there may be further changes to the delivery plan baseline.

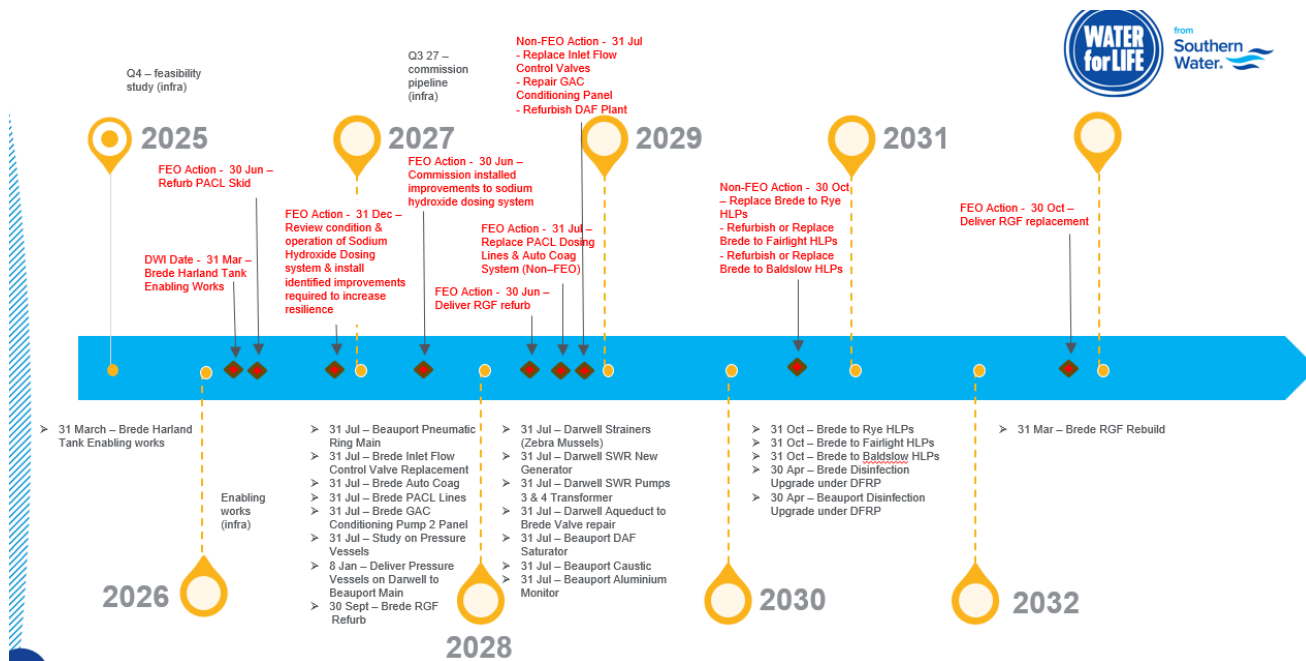


Figure 11: Hastings Project Delivery Plan

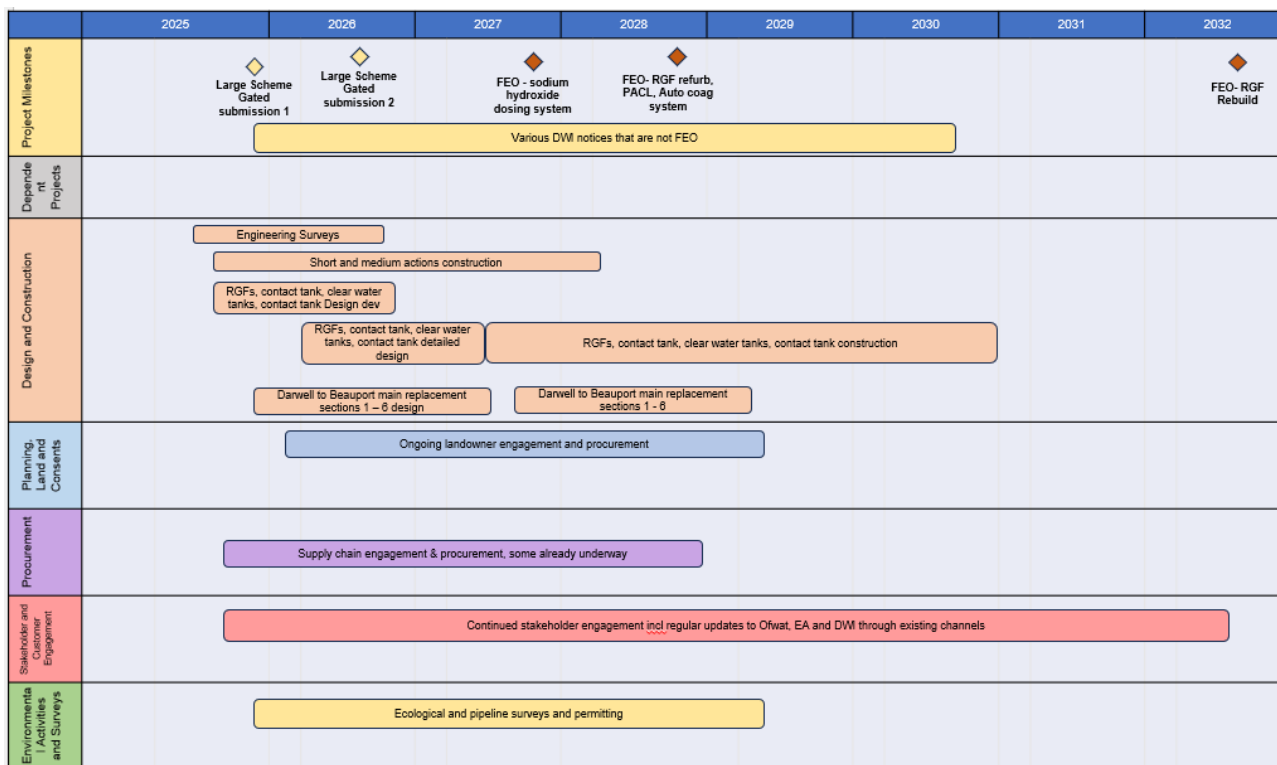


Figure 12: Timeline for Hastings

As a number of those items are critical to sustaining operation at Brede and Beauport we are engaging with supply chain delivery partners including GMES to proceed with delivery and completion. Of the 56 AMP 8

activities outlined in this submission Southern Water are forecasting to have 27 complete, 10 in delivery and 16 with a preferred solution, outline design and cost certainty at the time of Submission 2.

5.2 Timeline to Submission 2

With regards to development and delivery activities associated with Submission 2 in Apr/May '26, the following roadmap outlines our anticipated timelines and progression. While critical, enabling delivery activity will be progressing on site, we do not plan to bring forward Submission 2 development activities.

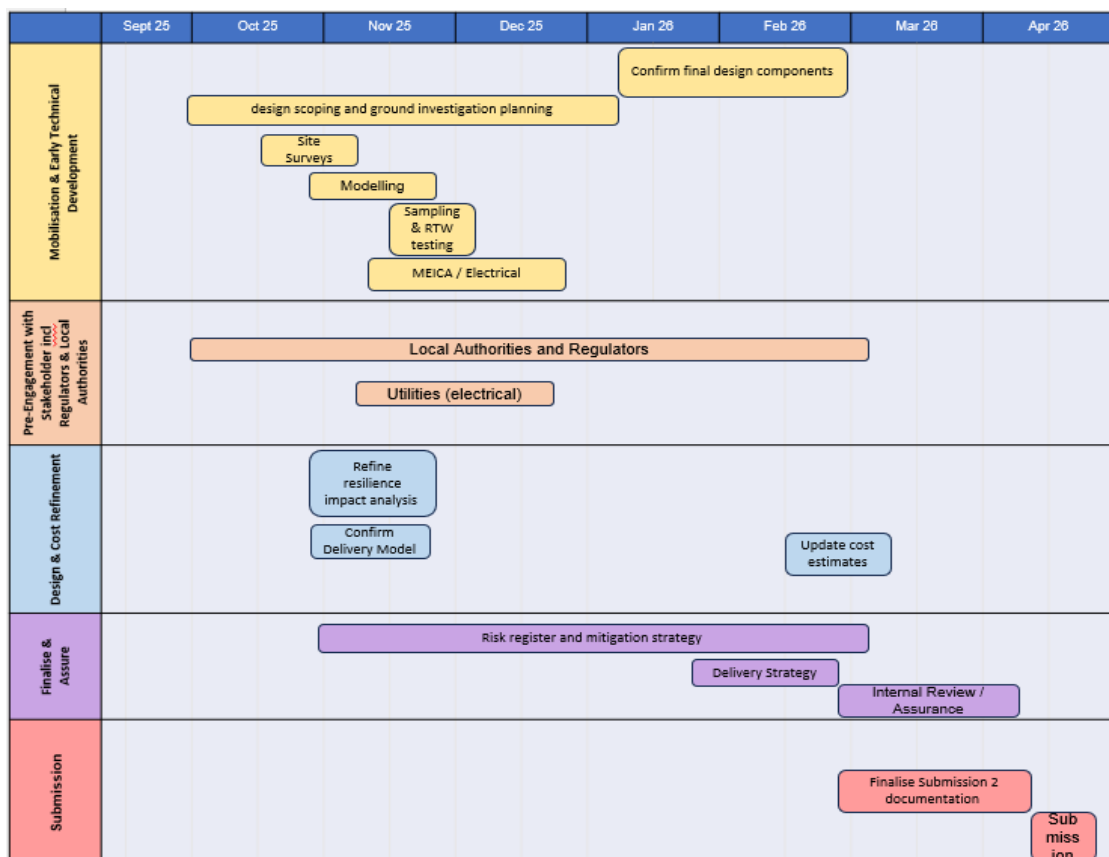


Figure 13: Timeline to Sub 2

Based on the plan above, we anticipate the short to medium term construction activities detailed in the table below, will be completed by Submission 2. As outlined above, these activities all relate to DWI notices and escalated legal instruments and thereby must be urgently addressed. Detailed programs have been worked through with our delivery partners to provide the above high level plan.

Delivery scope to be completed by Submission 2

#	Site	Area	Notice Activity Description
1	Beauport WSW	Treatment Enhancements	DAF saturator replacement
2	Beauport WSW	Treatment Enhancements	Aluminium monitor (Chemical dosing assets repair/refurbishment)
3	Beauport WSW	Treatment Enhancements	PACL lines (Chemical dosing assets repair/refurbishment)

4	Beauport WSW	Treatment Enhancements	Poly aluminium chloride skids (Chemical dosing assets repair/refurbishment)
5	Beauport WSW	Treatment Enhancements	DAF floc tank stirrer VSD software upgrade
6	Beauport WSW	Treatment Enhancements	Polyacrylamide dosing system - commission required improvements to polyacrylamide dosing system.
7	Beauport WSW	Treatment Enhancements	Operation of the RGFs and compliance with Badenoch and Bouchier (Review operation of the RGFs and implement improvements to ensure that their operation is compliant with Badenoch and Bouchier)
8	Beauport WSW	Treatment Enhancements	Operation of the RGFs and compliance with Badenoch and Bouchier (Commission the implemented improvements to ensure that the operation of the RGFs is compliant with Badenoch and Bouchier)
9	Brede WSW	Raw water system enhancements	Inlet flow control valve replacement
10	Brede WSW	Treatment Enhancements	On Site Electrolytic Chlorination (Chemical dosing assets repair/refurbishment)
11	Brede WSW	Treatment Enhancements	Sodium hydroxide (Chemical dosing assets repair/refurbishment)
12	Brede WSW	Treatment Enhancements	Hypochlorite skid and lines (Chemical dosing assets repair/refurbishment)
13	Brede WSW	Treatment Enhancements	Poly aluminium chloride (Chemical dosing assets repair/refurbishment)
14	Brede WSW	Treatment Enhancements	RGF outlet valve replacement (leaking)
15	Brede WSW	Treatment Enhancements	Primary Filter building roof repairs
16	Brede WSW	Treatment Enhancements	Hypo bulk tank suspected leak - investigate and address Survey
17	Brede WSW	Treatment Enhancements	Conditioning pump 2 panel repairs
18	Brede WSW	Treatment Enhancements	Filter structures and media - Review the condition of the filter structures and media.
19	Brede WSW	Treatment Enhancements	Operation of the filters and compliance with Badenoch and Bouchier - Implement pipework and control modifications to ensure that operation of the filters complies with Badenoch and Bouchier.
20	Brede WSW	Treatment Enhancements	Operation of the filters and compliance with Badenoch and Bouchier - Commission pipework and control modifications of the filters to ensure their operation complies with Badenoch and Bouchier.
21	Brede WSW	Treatment Enhancements	Filter backwash pumps compliance with Badenoch and Bouchier - Review current operation of filter backwash pumps and implement improvements identified to meet Badenoch and Bouchier.
22	Brede WSW	Treatment Enhancements	Filter backwash pumps compliance with Badenoch and Bouchier - Commission implemented improvements on filter backwash pumps to meet Badenoch and Bouchier.
23	Brede WSW	Treated water network enhancements	Plan and undertake enabling works to remove the Brede Harland Tank from supply for inspection and flood testing.
24	Brede WSW	Treated water network enhancements	Confirm the outcome of the short term works and proposed next steps with dates (removal for inspection and flood testing or progressing straight to long term works)
25	Darwell	Raw water system enhancements	Pumps 3 & 4 transformer (Repair/refurbishment)

26	Darwell	Raw water system enhancements	Darwell Aqueduct to Brede WSW valve (Repair)
27	Darwell	Raw water system enhancements	Pumps and drives replacement

Table 5.1: Delivery Scope expected by Submission 2

The following scope will be “in flight” but not completed by Submission 2.

#	Site	Area	Notice Activity Description
1	Beauport WSW	Treatment Enhancements	Caustic soda dosing skid (Repair/refurbishment)
2	Beauport WSW	Treatment Enhancements	Pneumatic ring main refurbishment
3	Brede WSW	Treatment Enhancements	DAF refurbishment
4	Brede WSW	Treatment Enhancements	Auto coagulant replacement
5	Brede WSW	Treatment Enhancements	PACI dosing lines to be made MED compliant
6	Brede WSW	Treatment Enhancements	Filter structures and media - Refurbish/ Renew the filter structures and media.
7	Brede WSW	Treatment Enhancements	Filter structures and media - Commission the refurbished/renewed filter structures and media.
8	Darwell to Beauport Main	Raw water system enhancements	Study on the pressure vessels on the Darwell to Beauport Main - Deliver mitigation
9	Darwell	Raw water system enhancements	New generator
10	Fairlight Old 2 Water Storage Reservoir (WSR)	Treated water network enhancements	Mitigations to return reservoir to service

Table 5.2: Inflight activities for Submission 2

In “Design” phase by Submission 2

We anticipate the following scope items with highest level of complexity requiring optioneering and preferred solution definition, will be in design phase at Submission 2. These items currently have the highest level of cost and programme uncertainty.

#	Site	Area	Notice Activity Description
1	Beauport WSW	Treatment Enhancements	Rapid Gravity Filter Conditional survey and delivery
2	Beauport WSW	Treatment enhancements	Improvements to discharge dechlorination system
3	Beauport WSW	Treatment Enhancements	Improvement to site process waste drainage (including Kalsep)
4	Brede WSW	Treated water network enhancements	Brede WSW to Rye WSR high lift pumps (Repair/refurbishment)
5	Brede WSW	Treated water network enhancements	Brede WSW to Fairlight high lift pumps (Repair/refurbishment)
6	Brede WSW	Treated water network enhancements	Brede WSW to Baldslow WSR high lift pumps (Repair/refurbishment)
7	Brede WSW	Treatment Enhancements	Improvements to discharge dechlorination system
8	Brede WSW	Treatment Enhancements	Hypo bulk tank suspected leak - investigate and address Deliver
9	Brede WSW	Treatment Enhancements	Filter structures and media - Replace RGFs
10	Darwell to Beauport Main	Raw water system enhancements	Replacement of the main
11	Darwell to Beauport Main	Raw water system enhancements	Clear the easement / access points
12	Darwell to Beauport Main	Raw water system enhancements	Study (including view of air valve) to risks of isolation and drain down, condition of main

13	Darwell to Brede Aqueduct	Raw water system enhancements	Darwell to Brede aqueduct condition assessment & engineering
14	Darwell to Brede Aqueduct	Raw water system enhancements	Deliver targeted refurbishment of the Darwell to Brede aqueduct
15	Darwell SWR	Raw water system enhancements	Removal of zebra mussels: strainers modification to increase Beauport WSW output by an additional 2Ml/d.
16	Brede WSW	Treated water network enhancements	Plan and undertake long term works to allow the removal of the clear water tanks from supply for maintenance.

Table 5.3: In design activities for Submission 2

5.2 Planning and consenting route

At this stage due to the focus being on viability of options, planning support has been light touch. Therefore, this will be developed through Submission 2 as we confirm our solutions and beyond. However, there are several known issues that will arise due to the nature of the scheme. These are associated with installation of new pipelines near to environmentally sensitive and high amenity areas as well as known space issues on site. Once the preferred solution has matured, we plan to undertake the following activities to achieve the required planning & consenting outputs:

- Request plans from statutory undertakers (e.g., utility companies) to identify infrastructure conflicts or requirements.
- Submit the Initial Enquiry Questionnaire to Network Rail for approvals (BAPA process).
- Engage with Network Rail to address project requirements and secure BAPA consent.
- Conduct GS6 surveys to ensure compliance with safe working practices near overhead power lines.
- Engage with archaeologists to conduct surveys and assess potential impacts.
- Coordinate archaeological and environmental studies to ensure compliance with regulatory guidelines.
- Engage a Town & Country Planning consultant to oversee planning-related tasks and provide expert guidance.
- Seek early guidance from the Local Authority to understand planning requirements and ensure alignment with regulatory expectations.
- To ascertain land ownership through title searches, boundary verification and consultation with land registries to confirm legal rights and avoid disputes.

5.3 Key risks and mitigation measures

Risk identification and evaluation activities were completed in line with SWS's risk management framework. The SWS risk management framework defines a process that all capital projects must follow for risk identification, evaluation, mitigation, and review, and is fully aligned with ISO31000 requirements. Following this process, the key risks to achieving the project objectives have been identified, scored, and mitigation measures developed. The risks have been allocated to Darwell to Beauport main replacement scope specifically as well as for the overall Hastings resilience scope.

Based on the key risks described in Annex C2, the preferred option to be progressed is an offline replacement of the existing asset:

- To reduce the length of time the asset is out of service
- To avoid impacting on Ancient Woodland and engagement with Natural England
- Allows for current high-risk areas to be replaced to reduce potential further bursts and resilience of national infrastructure
- Ease of constructability through agricultural land use

- Reduction of topographical gradients therefore reducing the hydraulic fluctuations and surge events impacting the integrity of the new asset
- Location of new asset supports future maintenance and improved accessibility

In parallel to the refinement and progression of the preferred option, the investigation and implantation of smart technologies will be utilised to ascertain asset health and integrity for the pre-stressed concrete asset as well as the other influencing parts of the network to support a wider Hastings resilience. This will establish a more accurate failure event prediction with vegetation clearance implemented in readiness, should an event occur.

A number of risks have been identified to the overall Hastings resilience scope (excluding Darwell to Beauport main). While a several of those have been highlighted to Ofwat in earlier, preliminary conversations, a detailed summary is outlined in Annex C2.

5.4 Proposed Submission 2 activities and timelines.

Mobilisation & Early Technical Development

- Confirm preferred option(s) based on Submission 1 feedback and optioneering outcomes
- Begin design scoping and ground investigation planning
- Refine hydraulic modelling and risk reduction modelling as solutions develop

Pre-Engagement with Stakeholder incl. Regulators & Local Authorities

- Early engagement with Local Authorities & Regulators (EA, Natural England) to clarify permitting pathways
- Initiate communication with stakeholders to identify risks and gather necessary approvals.
- Engage a Town & Country Planning consultant to oversee planning-related tasks and provide expert guidance.

Design & Cost Refinement

- Refine resilience impact analysis
- Update cost estimates (e.g., using contractor input and market research)
- Confirm delivery model and programme logic
- Engagement with supply chain to validate cost assumption and delivery programme
- Cost intelligence benchmarking & refinement

Finalise & Assure:

- Scope and cost breakdown
- Risk register and mitigation strategy
- Delivery strategy and programme
- Internal review and governance assurance

Submission

- Finalise Submission 2 documentation
- Submit to Ofwat by agreed deadline

6. Customer Protection

6.1 Proposed PCD Profile

As part of this scheme we recognise the importance of ensuring our customers are protected and so we have proposed a price control deliverable (PCD), this is in addition to our current PCDW16a on the water resilience and the upgrade of our water supply works.

This PCD follows the same conditions as set out in section 8.1.2 of [PR24-final-determinations-Price-control-deliverables-appendix-REDACTED.pdf](#)

The unit rate is currently derived from the total value of the project at the FD this will be updated for Submission 2 once we have final values of the project.

Table 6.1: PCD information

Company	SRN
Enhancement area	Resilience
PCD No.	PCDW16d

Common requirements	See Section 8.1.2 of Price control deliverable appendix
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Additional company specific requirements	
Description	Upgrade works at SRN water treatment works [REDACTED] Hastings and upgrade to Isle of Sheppey resilience
Output measurement and reporting	The company should report the % earned value (EV) delivered against the scope of works specified within each of the Submission 2s. The company must annually report delivery progress of all interventions and must deliver all of these interventions by 31st March 2030 or non-delivery payments apply.
Assurance	Companies should provide assurance on the reported data as per the common requirements.
Conditions on scheme	No further conditions

Non-delivery PCD rate	Unit	Under-performance
[REDACTED]	[REDACTED]	[REDACTED]
Hastings	£m per 1% of earned value of project not delivered	0.35
Isle of Sheppey	£m per 1% of earned value of project not delivered	0.15

PCD outputs (cumulative)	Unit	2023 -24	2024 -25	2025 -26	2026 -27	2027 -28	2028 -29	2029 -30	2030 -31	2031 -32	2032 -33	2033 -34	2034 -35
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Hastings	%	0	0	0	0	0	0	100 %	100 %	100 %	100 %	100 %	100 %
Isle of Sheppey	%	0	0	0	0	0	0	100 %	100 %	100 %	100 %	100 %	100 %

7. Stakeholder and Customer Engagement

7.1 Overview

Southern Water has engaged proactively with key stakeholders throughout the development of the Hastings Resilience Scheme:

- **Drinking Water Inspectorate (DWI):** Engagement has been ongoing following notices and anticipated Final Enforcement Orders (FEOs) for Beauport and Brede Water Supply Works. The scheme directly addresses DWI concerns around asset condition, treatment performance, and operational resilience.
- **Environment Agency (EA):** Coordination has focused on environmental constraints and planning considerations, particularly around raw water infrastructure and aqueduct refurbishment. Early-stage environmental impact assessments (EIAs) and planning reviews are underway.
- **Local Authorities:** Hastings Borough Council and East Sussex County Council have been engaged during incident response and resilience planning. Feedback from local representatives during the May 2024 incident has informed improvements in bottled water logistics and traffic management.
- **Emergency Services and Kent Resilience Forum:** These bodies were involved during the May 2024 incident and are being consulted for future scenario planning and emergency coordination.

7.2 Customer Engagement

Customer engagement has been extensive, particularly following the significant supply disruption in May 2024, which affected over 32,500 households in Hastings and St Leonards-on-Sea.

Incident Response Insights

- **Communication Channels:** SMS was the most effective and preferred method of communication, with 80% of customers receiving updates via Southern Water channels. Satisfaction with incident communication reached 6.4/10, with 27% scoring it a perfect 10.
- **Understanding and Transparency:** 87% of customers understood the cause of the incident (burst pipe), and over half felt Southern Water kept them informed.
- **Customer Sentiment:** Despite improved communication, many customers felt the incident could have been prevented through earlier infrastructure investment. There is a strong call for proactive maintenance and transparency around compensation.

Service Provision

- **Bottled Water Stations:** Two-thirds of customers rated the stations as well-run, though traffic and queue management were highlighted as areas for improvement.
- **Priority Services Register (PSR):** 17% of Hastings customers are on the PSR. While 73% of those who requested water received it, delays and insufficient supply were common. Feedback has driven a review of PSR delivery protocols.

Regional Customer Insights (Sussex)

Insights from the Sussex regional customer data reinforce the need for targeted engagement and investment in Hastings:

- **Hastings:**
 - Lower-than-average social grade and higher vulnerability index.
 - Strong community identity and reliance on the sea for leisure and income.
 - Low operational reputation due to repeated outages and environmental concerns.
 - High expectations for clean bathing waters and environmental protection.
 - 35% of residents are aged 65+, with 17% on the PSR.
- **Neighbouring Areas (Brighton, Worthing, North Sussex):**
 - Brighton and Worthing show higher satisfaction scores and more neutral or indifferent views of Southern Water.
 - North Sussex stakeholders express concern about water neutrality and infrastructure strain due to housing growth.
 - Regional themes include demand for cleaner bathing waters, affordable bills, and visible environmental stewardship.

- **Evidence of Support and Issues for Further Investigation:**
 - There is clear customer support for resilience improvements, particularly those that prevent future outages and environmental harm.
 - Satisfaction with incident handling (6.3/10) and explanation (6.5/10) were the highest recorded across recent incidents.

Overall, the **customers** have stressed the following **priorities**:

- Addressing ageing infrastructure, population growth, climate change.
- Long-term, sustainable solutions, not short-term fixes.
- There's a strong preference for nature-based and partnership approaches, balanced with traditional infrastructure.
- Customers expect affordable solutions that support future growth.

7.3 Regulators and Partner Organisations

The challenges in Hastings area have been further intensified by Drinking Water Inspectorate (DWI) notices and heightened political interest. In response, commitments have been made to key stakeholders—including Hastings Borough Council (HBC) and MPs. These commitments also include investment in assets and measures to enhance resilience, ensuring long-term improvements for the community.

7.4 Issues Identified for Further Investigation

- **Compensation Clarity:** Customers expressed confusion and dissatisfaction regarding compensation eligibility and process.
- **PSR Delivery Gaps:** Some PSR customers received water late or not at all, indicating a need for improved logistics and tracking.
- **Infrastructure Expectations:** Customers expect proactive investment, not reactive fixes. This sentiment must be addressed in future communications and planning.

7.5 Stakeholder engagement plan

We have developed a Stakeholder engagement plan to ensure effective, transparent, and inclusive engagement with stakeholders and customers throughout the lifecycle of the Hastings Resilience Scheme, supporting regulatory compliance, community trust, and successful delivery. We will continue to engage Ofwat in quarterly meetings to provide update on progress and risks, and plan to pursue wider stakeholder engagement plans as outlined below, targeting our key engagement groups with high level updates whilst we confirm the detail of the preferred solution.

1. Stakeholder Identification

Stakeholder Group	Role/Interest	Engagement Priority
Drinking Water Inspectorate (DWI)	Regulatory oversight; FEOs issued	High
Environment Agency (EA)	Environmental compliance and planning	High
Hastings Borough Council & East Sussex County Council	Local governance and planning	High
Southern Water customers (Hastings WRZ)	Service recipients and impacted residents	High
Sussex Resilience Forum & Emergency Services	Emergency coordination and response	Medium
Local MPs and elected officials	Political advocacy and community representation	Medium
Community organisations & charities	Support for vulnerable groups	Medium

Table 7.1: Key Stakeholders

2. Engagement Objectives

- Address regulatory concerns and align with FEO timelines.
- Build trust with customers following repeated service disruptions.
- Ensure vulnerable customers (PSR) are prioritised in planning and delivery.
- Incorporate local authority and community feedback into scheme design.
- Communicate clearly and frequently about progress, risks, and benefits.

3. Engagement Activities

Activity	Audience	Frequency	Purpose
Regulatory briefings and updates	DWI, EA	Quarterly or as required	Compliance and alignment
Local authority workshops	Councils, MPs	Bi-annually	Planning input and coordination
Incident debrief and planning sessions	Kent Resilience Forum, Emergency Services	Post-incident and annually	Emergency preparedness
Community forums and listening events	Residents, charities	Quarterly	Feedback and co-design
PSR customer outreach	Vulnerable customers	Monthly	Needs assessment and service assurance
Multi-channel communications (SMS, website, social media)	All customers	Ongoing	Updates, education, and transparency

Table 7.2: Stakeholder engagement activities

4. Engagement Tools and Channels

- **SMS alerts and updates** – preferred by Hastings customers.
- **Website incident pages and FAQs** – for real-time updates.
- **Social media** – for broader reach and community dialogue.
- **Local press and radio** – for accessibility and awareness.
- **Face-to-face events** – for trust-building and detailed feedback.
- **Stakeholder newsletters** – for consistent updates and milestones.

5. Key Messages

- Southern Water is investing in long-term resilience for Hastings area.
- The scheme responds directly to customer feedback and regulatory requirements.
- Vulnerable customers are a priority in planning and delivery.
- We are committed to transparency, accountability, and continuous improvement.

8. Assurance

8.1 Our approach to assurance

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

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

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

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

8.2 Managing Risks and improvements

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

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

8.3 External Assurance findings ([REDACTED])

Annexes D1 and D2 contain the external assurance findings from our independent advisors (both technical and commercial). These findings have been reviewed by our Assurance teams, the respective MDs and our CFO as part of our signoff governance process.

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

9. Efficiency of Expenditure to Date

9.1 Costs to Submission 1 (1 April 2025 - 1 Oct 2025)

Submission 1 has been developed by SWS in house engineering team. Due to the financial systems SWS use, there are delays between recording spend (or time), and that data appearing on financial reports. Therefore, the costs set out in this section are a mixture of actual (Apr – Aug '25) and forecast cost (Sept '25 – May '25).

For this stage of the project, costs are reported from the following sources:

Internal Staff (including staff obtained via Resource Augmentation)

- Costs for internal SWS staff to the end of Aug comes from financial reports
- Costs for internal SWS staff for August and September are calculated by hours spent on the project and administrative systems where hours have been allocated to the project

No early Submission 2 costs have been incurred at this stage of the project.

Hastings Forecast Submission 1&2	Submission 1 costs			
	Actual costs Apr - Aug '25 (25/26 base)	Actual costs Apr - Aug '25 (deflated to 22/23 base)	Sept '25 forecast (25/26 base)	Sept '25 forecast (deflated to 22/23 base)
Hastings resilience & FEO scope (Excl Darwell main)				
Project + Programme Management (internal & external)				
Design (internal)				
Design (external)				
PMO (internal)				
Asset Integration team (internal)				
Enabling (internal team)				
SDP (external)				
GMES Enabling (external)				
SWS Overheads 11.2%				
Risk 10%				
Hastings resilience & FEO Total				
Darwell Main - 835226				
Project + Programme Management (internal & external)				
Design (internal)				
PMO (internal)				
Asset Integration team (internal)				
Enabling (internal team)				
M Group as SDP (external)				
Operations (internal team)				
SWS Overheads 11.2%				
Risk 10%				
Darwell Main- Total				
Hastings overall total				
Sub 1 total costs (25/26)				
Sub 1 total costs (22/23)				

Table 9.1: Submission 1 costs

While Hastings Resilience & FEO activity has been active since the start of the AMP, the engagement with M group has started in July which is when Darwell to Beauport Main optioneering & design phase actual costs started to incur.

9.2 Forecast expenditure to Submission 2 (Oct to May 2026)

Based on the costs & progress to date outlined above, we anticipated the following development expenditure to May '26 that will include critical Submission 2 activities (outlined in Annex F1).

	Submission 1 costs (£m)		Submission 2 costs (£m)	
Hastings Forecast Submission 1&2	2025/26 price base	2022/23 price base	2025/26 price base	2022/23 price base
Hastings resilience & FEO scope (Excl Darwell main)				
Project + Programme Management (internal & external)				
Design (internal)				
Design (external)				
PMO (internal)				
Asset Integration team (internal)				
Enabling (internal team)				
SDP (external)				
GMES Enabling (external)				
SWS Overheads 11.2%				
Risk 10% (of sub 2 costs)				
Hastings resilience & FEO Total				
Darwell Main - 835226				
Project + Programme Management (internal & external)				
Design (internal)				
PMO (internal)				
Asset Integration team (internal)				
Enabling (internal team)				
M Group as SDP (external)				
Operations (internal team)				
SWS Overheads 11.2%				
Risk 10% (of sub 2 costs)				
Darwell Main- Total				
Hastings overall total				

Table 9.2: Forecast to Submission 2

Hastings Resilience and FEO costs exclude construction costs but include enabling works such as early procurement of pumps at Darwell, Brede Harland tank surveys, Sodium hydroxide dosing equipment upgrades, land rights requirements where relevant.

Hastings Resilience and FEO SDP forecast is largely driven by our assumed cost estimates for maturing activity entering stage 1 contract costs/CTC1 in Autumn '25. The cost assumptions have been extrapolated from other projects of similar size & complexity. The forecast is aligned to agreed scope of work (outlined earlier in the document in Plan to Submission 2) and has been validated by relevant SPMs in the Capital Delivery function.

Darwell to Beauport Main forecast is largely driven by enabling work such as land entry agreements, extensive external/internal surveys that have started in Sept, project management and other critical functions as well SW operations involvement to support this activity on a live main. The forecast is aligned our delivery partners program and has been approved by relevant SPMs in the Capital Delivery function.

9.3 Comparison against the development allowance

Hastings and Isle of Sheppey joint development allowance was allocated at £3m for both schemes.

Company	Area	Category	Name of scheme	Development funding allowance (AMP8)	Contingent allowance	Total scheme cost
Southern Water	Water	Network resilience	Hastings & Isle of Sheppey			

Table 9.3: PR24 Development allowance (22/23 prices)

Project	Components	AMP8 development funding allowance	AMP8 development spend to Submission 2 (£M)	AMP 8 development funding variance (£M)
Hastings Resilience Scheme	Darwell to Beauport main			
	Hastings Resilience & FEO			

Table 9.4: Development allowance comparison (£M in 22/23 prices)

The overall scope including Hastings Resilience & FEO enhancements will exceed the development allowance largely due to:

- Growth in scope across multiple assets in Hastings driving higher development costs.
- Critical resilience mitigations at Brede & Beauport as well as complexity of Darwell to Beauport main development will require more extensive surveying and design activities

SW are therefore undergoing development phase at risk, which demonstrates our commitment to customer outcomes and avoids delays.

10. Conclusions and Recommendations

- Considering the significant pressure from Regulatory requirements, the Hastings Resilience Scheme is confirmed as essential and viable.
- Hastings WRZ remains Southern Water's least resilient zone, with no interconnectivity and poor asset condition across raw water, treatment, and network systems.
- The scheme is essential to address regulatory obligations (DWI notices and anticipated FEOs) and mitigate significant supply risks.
- Short-term resilience actions are in delivery; medium- and long-term interventions require further optioneering, design, and cost assurance.
- The preferred approach for the Darwell–Beauport main is **Option 3: Replacement via a new route**, due to lower technical and environmental risks and improved constructability.
- Treatment and network enhancements at Brede and Beauport WSWs are critical to achieving compliance and operational resilience.

We recommend progressing the scheme to Submission 2 and mature the following options:

- **Darwell–Beauport main:** Develop Option 3 (new route) to detailed design and cost assurance.
- **Treatment upgrades:** Advance Brede WSW RGF rebuild, clear water tank isolation, and high-lift pump upgrades; Beauport WSW DAF and chemical dosing improvements.
- **Network resilience:** Implement surge protection and interconnectivity improvements.

A number of risks have been identified that exacerbate the high level of uncertainty. Key highlights of risk mitigation actions include:

- Conduct holistic site reviews to address space constraints for offline construction.
- Accelerate environmental, archaeological, and planning assessments to de-risk consenting.
- Implement robust SCO planning to minimise operational disruption during intrusive works.
- Maintain proactive engagement with regulators and local authorities to secure timely approvals.
- Deploy smart condition monitoring to inform asset health and prioritise interventions.

Our project plan in Section 5 confirms a full scheme completion (based on PR24 scope) is possible, provided currently identified risks and issues can be mitigated with continued key stakeholder support. Critical short term actions are underway with medium to longer term options maturing as we progress towards Submission 2. Our activities to Submission 2 will confirm our preferred solution and will provide an updated forward plan for completion. Any significant changes will be notified to Ofwat.

11. Supporting Documentation

Annex C1 - Delivery Plan DPW4

(See attached)

Annex C2 - Risk Register

Hasting Resilience scope & FEO (excluding Darwell to Beauport main)

Green	No risks and progress is going to plan
Amber	There is a risk that is impeding/could impede progress but there is a plan to manage it
Red	There is a risk that is impeding/could impede the progress of the scheme, and there is no plan to manage this

Table 11.1: RAG Risk Description

Risk Category (and ID)	Risk Description	Pre-mitigation Score	Mitigation Action	Residual Score
RSK001	Constrained space onsite potentially impact delivery programme and ability to deliver the optimal solution in the long term		Due to the RGFs, clear water tanks, contact tanks and associated infrastructure needing to be built offline to maintain supply to the Hastings area, there is a concern that space on site and surrounding areas may not be large enough. We are beginning our holistic site review to identify locations.	
RSK002	Poor/unclear state of below ground assets providing uncertainty in surveys/assessment effort required		Mitigations include planning for & executing tasks related to: EIA / Planning Environmental Constraints Highway Constraints Archaeology Land Entry External Stakeholders Weather Pipe Procurement	
RSK003	Operational constraints & site shutdowns		Several of the actions are linked to key processes onsite and will be very intrusive. Good SCO planning and robust mitigation plans will reduce risk. As resilience improves, through completion of key activities, shutdowns will be fewer and less severe and SCO planning/availability will improve.	

Risk Category (and ID)	Risk Description	Pre-mitigation Score	Mitigation Action	Residual Score
RSK004	Damaged confidence & dissatisfaction in the community		Poor trust in the community may lead to resistance in consultations and hinder delivery. Proactive community engagement, transparent consultation & visible progress will help to rebuild customer confidence. Heavy stakeholder engagement will be required.	
RSK005	Climate driven events		Extreme weather conditions or significant weather events can threaten continuity of service, our ability to provide a reliable supply of water to our customers and complicate project delivery. Ensure delivery of resilience activities is planned with this in mind.	
RSK006	Interaction/ conflicts with other projects		Requires careful coordination with other ongoing projects to minimise delays or disruption to programme. (i.e. Reservoir clean & inspection programme)	
RSK007	Changes to regulatory limits during delivery		If regulatory requirements/ limits change during delivery of the programme, e.g. higher water quality standards, it could have serious implications for the project such as designed solution non-compliance with new standards, unplanned additional capex and delays to commissioning. Regular consultations should be held with our regulators to gain insight and be able to anticipate likely future changes. Design should include headroom for treatment capacity, pipe sizing etc which could be adapted to higher standards.	
RSK008	Supply chain disruption		Potential delays to programme or cost escalations caused due to procurement issues for pipes, valves, plant & treatment equipment. Ensure long lead items are procured in advance of critical path and early involvement with supply chain generally.	
RSK009	Land access		Raw water transfer mains; Darwell to Beauport and Darwell to Brede, cross third party land. Solution to RSK001 could require land purchase. Opposition or denied access would lead to cost escalation due to prolonged negotiations/ compensation. Multiple land owners engagement & negotiations will be required (link to RSK004)	
RSK010	Legal delays		Easement access and compulsory purchase order (CPO) would lead to cost escalation in legal fees and prolonged negotiations/ compensation.	
RSK011	Funding constraints		Working closely with Ofwat to complete LSG Submissions 1 & 2 with sufficient detail to provide confidence to grant funding.	
RSK012	Unknown condition of existing process assets e.g. pumps, dosing equipment etc.		Potential for Scope creep and delay to occur if other existing equipment issues are discovered. Thorough surveys and investigations of key assets.	
RSK013	Integration of new assets		Bringing new assets online on a live site, without interruption to existing treatment processes or capacity will require seamless integration. Poor integration could lead to misaligned control, incorrect sequencing or hydraulic failure of processes.	

Risk Category (and ID)	Risk Description	Pre-mitigation Score	Mitigation Action	Residual Score
RSK014	Undefined scope		Due to immaturity, understanding of Scope of works may be incomplete. Request for funding may be insufficient at present. Define scope as quickly as possible.	
RSK015	Increase in water demand		Population growth or incorrect demand forecasting could lead to a higher customer water demand. Requires good confidence in future demand forecasting. Consider design to include headroom for treatment capacity, pipe sizing etc which could be adapted to higher output.	
RSK016	Current Programmable Logic Controller (PLC) upgrades at Brede, Beauport & Darwell		Careful planning & coordination with other ongoing site projects, such as the PLC Upgrade works, will be required to minimise delays or disruption to programme.	
RSK017	Multi AMP project		Funding continuity could be a risk transitioning between AMP's.	
RSK018	Water quality		Potential Impact to water quality during construction & commissioning activities if modifications to existing plant or integration of new plant do not adhere to WQRA mitigation and compliance & commissioning plans.	
RSK019	Lack of current optioneering/solution development		Due to project in its infancy, lack of or incomplete optioneering & solution development detailed in Ofwat Submission 1 could mean request for funding is inaccurate at this stage.	
RSK020	Undefined cost		Lack of detail and cost certainty may hinder funding request.	
RSK021	Further failure of existing assets		If further equipment failure is experienced, additional cost could be incurred to resolve, in order for project to progress. Linked to RSK013 mitigation.	

Table 11.2: Key Scheme Risks

Darwell to Beauport main

Option risk assessment (pre-mitigation position) used by M group to assess the risks of three Darwell to Beauport main options outlined in section 3.

Risk (Weighting Red=3 Amber =2 Green =1)	Rehabilitati on (liner)	Replaceme nt - in situ	Replaceme nt - new route
Technical			
Existing easement width is 8m and only allows for laying and maintaining- no replacement to 'replace' or 'renew'. The width of which is insufficient to replace the pipe within existing Easement. A valid construction width of this diameter would typically be 30m. New water main installations of this diameter have a mandatory permanent easement of 16m.	3	3	1
Working in close proximity to a known fragile pressurised system would require an operational watching brief and potential decommissioning of the pipeline asset to mitigate risk of component failure from ground movement caused by heavy machinery.	3	3	2
Constructability of replacing insitu has significant topographical gradient changes which brings operational challenges for replacement with plant and machinery stability.	3	3	1
Constructability of replacing insitu has significant topographical gradient changes as understood through historical hydraulic and transient events throughout the pipelines lifespan.	3	3	1
18 hour window of operation before Beauport runs out of supply.	3	3	2
Network has no existing isolation valves to enable sectional drain-down to extend the operating window for construction.	3	3	1
Each pressurisation and depressurisation has the potential to create a surge event- known to be one of the causes for the degradation of the pipe condition.	3	3	1
Any proposed liner is required to be structural due to the inherent instability of the pipe.	3	1	1
Structural Liner capacity restriction- will naturally reduce the throughput to Beauport impacting on the resilience of Hastings.	3	1	1
Commissioning of 13.6km of pipeline and associated water discharge to environment.	3	3	1
Pipeline Condition- Asset is proven to be in poor condition externally due to aggressive geology and soil resistivity against the parent material.	3	1	1
Significant trenchless crossings requiring GI and suitable conditions.	1	2	2
Significant GI to mitigate fluctuating ground water levels known in the area potential for seasonal work or extensive dewatering.	1	2	2

Extensive temporary works required for deep excavation, thrust and soil stability.	2	3	3
Identification and procurement of long lead items.	2	2	2
Environmental			
Existing route access to pipeline is heavily restricted environmentally and will require extensive vegetation clearance and access roads constructed to mobilise plant machinery and materials to location.	3	3	1
Consideration of the ancient woodland protected status and the soil separation requirements which could contribute to a full EIA and subsequent planning agreements.	3	3	1
If planning permission required BNG will apply due to the scale of the project any potential land bank purchase is expected to be significant.	1	1	3
Existing pipeline easement width has been compromised with 'ancient woodland designation' and other self-seeding flora and species.	3	3	1
Proposed route access to pipeline is still restricted environmentally and will require extensive vegetation clearance and access roads constructed to mobilise plant machinery and materials to location.	3	3	1
Known archaeological sensitive areas (1066 Battle of Hastings)	1	1	3
Known UXO sensitive areas	1	1	3
Stakeholder			
Key strategic crossings i.e Rail, River & Road requires consent from relevant authorities.	3	3	3
Significant loss of revenue and disruption to golf courses.	2	3	3
Significant agricultural crop loss and settlement required.	1	1	3
New easements to be negotiated with landowners and stakeholders.	3	3	2
Construction welfare, access and laydown areas to be negotiated for large volumes of machinery, materials and plant.	3	3	3
TOTAL	66	64	49

Table 11.3: Darwell to Beauport Options Risks

Annex D1 – Technical Assurance Report

(See attached)

Annex D2 – Commercial Assurance Report

(See attached)

Annex F1 - Expenditure Breakdown

(See attached)

Annex G1 – AMP7 Resilience improvements

Site	AMP7 risk mitigation	4R's
Brede WSW	Installation of backflow prevention on clear water tank, to maintain optimal treatment conditions.	Reliability Resistance Response & Recovery Redundancy
Brede WSW	Replacement of turbidity monitoring, to maintain optimal treatment conditions.	Reliability Resistance Response & Recovery Redundancy
Brede WSW	Upgrade run to waste facility to prevent any non-compliant water from entering the distribution network, reinforcing water quality assurance.	Reliability Resistance Response & Recovery Redundancy
Brede WSW	Refurbishment of low lift pumps, to improve overall system resilience.	Reliability Resistance Response & Recovery Redundancy
Brede WSW	Refurbishment of dirty washwater pumps, to improve overall system resilience.	Reliability Resistance Response & Recovery Redundancy
Beauport WSW	Replacement auto coagulation units, to maintain optimal treatment conditions.	Reliability Resistance Response & Recovery Redundancy
Beauport WSW	Permanent disconnection of Filsham UGS rising main is disconnection from raw water main, to maintain optimal treatment conditions.	Reliability Resistance Response & Recovery Redundancy
Beauport WSW	Returned to service UV stream 2, to improve overall system resilience.	Reliability Resistance Response & Recovery Redundancy
Beauport WSW	Clean Dissolve AIR Flotation (DAF), to maintain optimal treatment conditions.	Reliability Resistance

		Response & Recovery Redundancy
Beauport WSW	Replacement of Caustic soda dosing lines, to maintain optimal treatment conditions.	Reliability Resistance Response & Recovery Redundancy
Darwell SWR	Replacement of coarse strainers, to improve overall system resilience.	Reliability Resistance Response & Recovery Redundancy
Udimor WSW outlet main	Replacement of 2x 9" mains beneath the railway to improve overall system resilience.	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	BALDSLOW WSR	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	BEAUPORT Contact Tanks	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	BREDE Clear Water Tank	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	BREDE Contact Tank	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	BREDE HARLAND TANK	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	FAIRLIGHT ORE NEW WSR	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	MAZE HILL ST LEONARDS WSR	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	NEWGATE HASTINGS WSR	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	RYE HILL TOWER WSR	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	UDIMORE WSR	Reliability Resistance Response & Recovery Redundancy
Hastings Reservoirs Cleans	WARREN FAIRLIGHT WSR	Reliability Resistance Response & Recovery Redundancy

Table 11.5: AMP7 Resilience Improvements

Annex G2 – Detailed cost breakdown of delivery and development costs for Hastings resilience scope (unassured)

Site	Area	Notice Description	Total Cost Estimate (AMP 8 only, unassured)	Category (delivery, development)	Activity to Submission 2
Darwell	Raw water system enhancements	Original notice requirement: Darwell SWR strainers modification to increase Beauport WSW output by an additional 2MI/d. Removal of zebra mussels		Development	Preferred solution.
Darwell	Raw water system enhancements	Darwell SWR New generator		Delivery	To be in delivery.
Darwell	Raw water system enhancements	Darwell SWR Pumps 3 & 4 transformer (Repair/refurbishment)		Delivery	Activity to be completed .
Darwell	Raw water system enhancements	Pumps and drives replacement		Delivery	Activity to be completed .
Darwell	Raw water system enhancements	Darwell SWR aqueduct to Brede WSW valve (Repair)		Delivery	Activity to be completed .
Beauport WSW	Treatment Enhancements	DAF saturator replacement		Delivery	Activity to be completed .
Beauport WSW	Treatment Enhancements	Beauport WSW Caustic soda dosing skid (Repair/refurbishment)		Delivery	To be in delivery.
Beauport WSW	Treatment Enhancements	Beauport WSW aluminium monitor (Chemical dosing assets repair/refurbishment)		Delivery	Activity to be completed .
Beauport WSW	Treatment Enhancements	Beauport WSW PACL lines (Chemical dosing assets repair/refurbishment)		Delivery	Activity to be completed .
Beauport WSW	Treatment Enhancements	Beauport WSW Poly aluminium chloride skids (Chemical dosing assets repair/refurbishment)			
Beauport WSW	Treatment Enhancements	DAF flocc tank stirrer VSD software upgrade		Delivery	Activity to be completed .
Beauport WSW	Treatment Enhancements	Pneumatic ring main refurbishment		Delivery	To be in delivery.
Beauport WSW	Treatment Enhancements	Beauport WSW Rapid Gravity Filter Conditional survey - Deliver		Delivery	Activity to be completed .
Brede WSW	Raw water system enhancements	Inlet flow control valve replacement		Delivery	Activity to be completed .

Brede WSW	Treatment Enhancements	Brede WSW On Site Electrolytic Chlorination (Chemical dosing assets repair/refurbishment)		Delivery	Activity to be completed .
Brede WSW	Treatment Enhancements	Brede WSW Sodium hydroxide (Chemical dosing assets repair/refurbishment)		Delivery	Activity to be completed .
Brede WSW	Treatment Enhancements	Brede WSW Hypochlorite skid and lines (Chemical dosing assets repair/refurbishment)		Delivery	Activity to be completed .
Brede WSW	Treatment Enhancements	Brede WSW Poly aluminium chloride (Chemical dosing assets repair/refurbishment)		Delivery	Activity to be completed .
Brede WSW	Treatment Enhancements	DAF refurbishment		Delivery	To be in delivery.
Brede WSW	Treatment Enhancements	Auto coagulant replacement		Delivery	To be in delivery.
Brede WSW	Treatment Enhancements	RGF outlet valve replacement (leaking)		Delivery	Activity to be completed .
Brede WSW	Treatment Enhancements	Primary Filter building roof repairs		Delivery	Activity to be completed .
Brede WSW	Treatment Enhancements	Hypo bulk tank suspected leak - investigate and address Survey		Development	Activity to be completed .
Brede WSW	Treatment Enhancements	Hypo bulk tank suspected leak - investigate and address Deliver			Preferred solution.
Brede WSW	Treatment Enhancements	PACI dosing lines to be made MED compliant		Delivery	To be in delivery.
Brede WSW	Treatment Enhancements	Conditioning pump 2 panel repairs		Delivery	Activity to be completed .
Darwell to Brede Aqueduct	Raw water system enhancements	Darwell to Brede aqueduct condition assessment. Engineering involvement.		Development	Preferred solution.
Darwell to Beauport Main	Raw water system enhancements	Replacement of the main			
Darwell to Beauport Main	Raw water system enhancements	Clear the easement / access points			
Darwell to Brede Aqueduct	Raw water system enhancements	Deliver targeted refurbishment of the Darwell to Brede aqueduct			
Darwell to Beauport Main	Raw water system enhancements	Study - including view of air valve, risks of isolation and drain down, condition of main			
Darwell to Beauport Main	Raw water system enhancements	Original notice requirement: Study - including view of air valve, risks of isolation and drain down, condition of main			

Darwell to Beauport Main	Raw water system enhancements	Original notice requirement: Study - including view of air valve, risks of isolation and drain down, condition of main			
Darwell to Beauport Main	Raw water system enhancements	Study on the pressure vessels on the Darwell to Beauport Main - Deliver mitigation		Delivery	To be in delivery.
Beauport WSW	Treatment Enhancements	Beauport WSW Polyacrylamide dosing system. b) Commission required improvements to polyacrylamide dosing system.			Activity to be completed .
Beauport WSW	Treatment Enhancements	Beauport WSW Operation of the RGFs and compliance with Badenoch and Bouchier a) Review operation of the RGFs and implement improvements to ensure that their operation is compliant with Badenoch and Bouchier.		Delivery	Activity to be completed .
Beauport WSW	Treatment Enhancements	Beauport WSW Operation of the RGFs and compliance with Badenoch and Bouchier b) Commission the implemented improvements to ensure that the operation of the RGFs is compliant with Badenoch and Bouchier.			
Brede WSW	Treatment Enhancements	Brede WSW: Filter structures and media a) Review the condition of the filter structures and media.		Delivery	To be in delivery.
Brede WSW	Treatment Enhancements	Brede WSW: Filter structures and media b) Refurbish/ Renew the filter structures and media.			
Brede WSW	Treatment Enhancements	Brede WSW: Filter structures and media c) Commission the refurbished/renewed filter structures and media.			
Brede WSW	Treatment Enhancements	Brede WSW: Filter structures and media - Replace RGFs		Development	Preferred solution.
Brede WSW	Treated water network enhancements	Brede WSW: Plan and undertake long term works to allow the removal of the clear water tanks from supply for maintenance.			
Brede WSW	Treated water network enhancements	Brede WSW to Rye WSR high lift pumps (Repair/refurbishment)			
Brede WSW	Treated water network enhancements	Brede WSW to Fairlight high lift pumps (Repair/refurbishment)			

Brede WSW	Treated water network enhancements	Brede WSW to Baldslow WSR high lift pumps (Repair/refurbishment)			
Brede WSW	Treatment Enhancements	Improvements to discharge dechlorination system			
Beauport WSW	Treatment enhancements	Improvements to discharge dechlorination system			
Beauport WSW	Treatment Enhancements	Improvement to site process waste drainage (including Kalsep)			
Beauport WSW	Treatment Enhancements	Improvement to site process waste drainage (including Kalsep)		Development	Preferred solution.
Brede WSW	Treatment Enhancements	Brede WSW: Operation of the filters and compliance with Badenoch and Bouchier a) Implement pipework and control modifications to ensure that operation of the filters complies with Badenoch and Bouchier.			
Brede WSW	Treatment Enhancements	Brede WSW: Operation of the filters and compliance with Badenoch and Bouchier b) Commission pipework and control modifications of the filters to ensure their operation complies with Badenoch and Bouchier.		Delivery	Activity to be completed .
Brede WSW	Treatment Enhancements	Brede WSW: Filter backwash pumps compliance with Badenoch and Bouchier a) Review current operation of filter backwash pumps and implement improvements identified to meet Badenoch and Bouchier.			
Brede WSW	Treatment Enhancements	Brede WSW: Filter backwash pumps compliance with Badenoch and Bouchier b) Commission implemented improvements on filter backwash pumps to meet Badenoch and Bouchier.		Delivery	Activity to be completed .
Brede WSW	Treated water network enhancements	Brede WSW: b.1 Plan and undertake enabling works to remove the Brede Harland Tank from supply for inspection and flood testing.		Delivery	Activity to be completed .

Brede WSW	Treated water network enhancements	Brede WSW: Confirm the outcome of the short term works and proposed next steps with dates (removal for inspection and flood testing or progressing straight to long term works)			
Fairlight Old 2 WSR	Treated water network enhancements	Delivery: Mitigation to return reservoir to service		Delivery	To be in delivery.

Table 11.6: Detailed cost breakdown of delivery and development costs