

Assurance Report - NWL PR19 Enhancement Performance Commitments - Water Resilience

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Assurance Report - NWL PR19 Enhancement Performance Commitments - Water Resilience

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Jacobs U.K. Limited

1 City Walk
Leeds, West Yorkshire LS11 9DX
United Kingdom

T +44 (0)113 242 6771
F +44 (0)113 389 1389
www.jacobs.com

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Executive summary

Through the PR19 business planning process, Northumbrian Water Limited (NWL) was awarded funding for enhancement schemes requiring delivery in line with the scope described in the PR19 Performance Commitments document by 31st March 2025. NWL has commissioned Jacobs to supply third-party assurance to fulfil Ofwat requirements of independently assessing progress of the enhancement programmes for Water resilience (PR19NES_BES24) at the next price review (PR24). This stipulation is set out in the *PR19 Final Determinations: Northumbrian Water - Outcomes performance commitments appendix* document section 1.2.26.

The purpose of the assurance was to review the alignment in scope, benefit and completion date regarding NWL's submitted AMP 7 enhancement cases. Each constituent scheme that makes up PR19NES_BES24 was subject to review and challenge to assess the likelihood of an on-time delivery of a benefit equal to or greater to that given in *Appendix 3.2 Enhancement Business cases*.

The audits took place remotely and were all completed by the 13th of August 2024.

Based upon the presented method, each scheme was individually risk assessed. We conclude that:

1. 99.3% of the water resilience programme has been released for delivery.
2. 68.9% of the water resilience programme is due for delivery by the 31st of March 2025, with a further 30.3% due to be delivered by the 30th of April 2025
3. In terms of schedule risk, 99.3% of schemes have no material issues.
4. 92.9% of the Water Resilience programme is assessed to deliver on scope, with 3.7% (Central 3) not delivering on the proposed asset but nevertheless delivering on the outcome required, and 2.7% (Parts of TCTF) where additional clarification needs to be undertaken to demonstrate benefits of the selected resilience method.

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1. Introduction

This report holds the third-party assurance required by Ofwat to assess the progress of Water Resilience Enhancement programmes according to the requirements defined in the PR19 Final Determination document section 1.2.26 for Water (PR19NES_BES24) shown in Figure 1 below.

1.2.26 Delivery of water resilience enhanced programme				Unique Reference	PR19NES_BES24
Purpose: This performance commitment is designed to incentivise the company to reduce the risk of critical service failure affecting a large number of customers.					Completion is determined on full completion of the respective milestones when the measures are in operation and providing clear benefit to customers. The required scope of the milestones are as set out by the company in submissions to Ofwat in advance of draft determinations.
Benefits: This performance commitment protects customers from non-delivery of schemes in the company's water resilience enhanced programme. These schemes will deliver benefits to customers by reducing the number of events that results in customers not having water supplied over a sustained period of time.				Additional detail on measurement units	None
Performance commitment definition and parameters				Specific exclusions	None
Unique Reference	PR19NES_BES24			Reporting and assurance	The company will provide an assurance report at the next price review from an appropriately qualified third party to: <ul style="list-style-type: none"> confirm that the scope expected to be delivered for each milestone is equivalent or greater to the required scope confirm expected completion of each scheme and to assess any likely delay in any individual milestone beyond 31 March 2025.
Detailed definition of performance measure	This performance commitment measures the delivery of the company's water resilience enhancement programme. The relevant milestones are:			Measurement unit and decimal places	Percentage completion to one decimal place
	Estimated completion date	Milestone	Weight %	Measurement timing	Reporting year
	31 March 2025	Central	39.36%	Incentive form	Revenue
	31 March 2025	Essex	22.58%	Incentive type	Underperformance payments
	31 March 2025	Teeside	22.49%	Timing of underperformance and outperformance payments	End of period
	31 March 2025	Suffolk	9.68%	Price control allocation	100% water network plus
	31 March 2025	Tyne	0.46%	Frequency of reporting	Annual
	31 March 2025	Too critical to fail	5.43%	Any other relevant information	NA
				Links to relevant external documents	NA

Figure 1 Consolidated PR19NES_BES24 Performance Commitment

In particular, the assurance will focus on the following areas:

- Confirming the scope expected to be delivered for each milestone is equivalent or greater to the required scope.
- Confirming expected completion of each scheme and to assess any likely delay in any individual milestone beyond the 31st of March 2025.

1.1 Clarification of Success Criteria

Following Ofwat's Final Determination of the NWL PR19 business plan, NWL referred the outcome to the Competition and Markets Authority (CMA) for challenge. After their review, changes were made to the scope and funding of some of the initial PR19 programmes. Following these changes, NWL sought clarification from Ofwat of the Performance Commitment (PC) outcomes in July 2022 and again in June 2023. No official response was received until July 2024. In the absence of any substantive feedback from Ofwat, NWL took the decision to adopt revised PCs in which the success criteria were determined by the benefit to customers being fulfilled. These PCs were used as the basis for the previous assurance report completed by Jacobs in September 2023. The feedback received from Ofwat in July 2024 deemed that these revised PCs were not suitable and

that the success criteria should instead be based on **Outputs** rather than **Outcomes**. As such the below success criteria are taken from the document *Appendix 3.2 Enhancement Business cases*.

Table 1 PR19NES_BES24 Output Success Criteria

Supply area with % regional milestone	Original Scheme Description	% of Water Resilience Programme	FD Costs Scheme Basis (£m)	Output assessed against
Central (39.35%)	Springwell Main (7km from Springwell to Pikes Hole + EOY) (Central 1)	15.57%	12.774	Lay 7km of 1000mm water main from Springwell to Pikes Hole
	New Service Reservoir at Springwell (Central 2)	16.98%	13.926	Construct 42.75ML Service Reservoir at Springwell
	Provide link from Tees to Central Area via new WPS at Shildon SR (Central 3)	3.66%	3.002	Install new 55ML Water Pumping Station to provide a link from Teesside to the central area
	1.5km of main from Carr Hill Link to Springwell SR (Central 4)	3.14%	2.579	Lay 1.5km of 600mm water main to link Carr Hill and Springwell SR
Essex (22.60%)	Abberton to Hanningfield Raw Water Transfer Main (Essex 5) (Now called Layer to Langford)	22.33%	18.315	Lay 18.5km raw water main between Abberton and Hanningfield
	Connecting Main at Herongate Service Reservoir (Essex 6)	0.27%	0.219	Lay 30m of 900mm connecting water main at Herongate Service Reservoir
Teesside (22.48%)	Whorley to Shildon Main (Tees 7)	22.24%	18.240	Lay 16km of new 800mm water main to allow connection between Whorley Service Reservoir (Tees) to Shildon Service Reservoir (Central)

	Cross Connection into Darlington (C60/60a) (Tees 8)	0.24%	0.200	Install cross connections into C60/C60a for Darlington
Suffolk (9.68%)	Barsham SR/WPS Scheme (Suffolk 9)	9.68%	7.934	Construct a new treated water storage reservoir and install a new Water Pumping Station
Tyne (0.46%)	Duplicate Main at Chirton Service Reservoir Outlet (Tyne 10)	0.46%	0.380	Lay 30m of 900mm Water main at Herongate Service Reservoir
TCTF (5.43%)	Resilience Improvements at 'Too Critical to Fail' Sites	5.43%	4.456	Increase Resilience across a number of sites (See Table 2)

Table 2 Too Critical to Fail Mitigation Breakdown

Site	Overall Site Risk	Specific Risks (M/H)	FD Costs (£m) for Individual Schemes assuming equal % contribution
Birney Hill PS	High	Flooding (H) Loss of Power (M)	0.318
Broken Scar PS	Moderate	Flooding (M) Loss of Power (M)	0.318
Broken Scar River Intake Pumps	High	Flooding (H) Loss of Power (M)	0.318
Broken Scar TW	High	Loss of Power (M)	0.318
Ormesby PS	High	Flooding (H)	0.318
Barsham Final Contact tank	High	Flooding (H)	0.318
Barsham PS1	Moderate	Flooding (M)	0.318
Chigwell Raw Water PS	High	Flooding (M)	0.318
Chigwell Treated Water PS	High	Flooding (M)	0.318
Hanningfield Layer	High	Flooding (H)	0.318
Layer High Lift	High	Flooding (H)	0.318
Lower Hall PS	High	Loss of Power (M)	0.318
Ormesby Paterson Stream	High	Flooding (H)	0.318

2. Methodology

Our approach taken to investigate scope alignment, delivery and projected delays considered evidence from the following sources:

1. The specification of the scheme as set out in the NWL document *Appendix 3.2 Enhancement Business cases*.
2. The detail post-decision from the Competition Markets Authority within the document *Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations Final report*.
3. Progress and scope discussions with the Project and Programme Managers associated with each scheme.
4. Scheme risk registers.
5. Project Gantt charts

For each scheme we have considered the evidence and risk-assessed the information supplied to determine the risk of achieving the outcomes currently being reported and the delivery date currently being forecast.

NOTE – These may differ from the original PR19 customers protected figures and delivery dates.

We have used the below risk scale for this assessment:

Table 3 Risk Assessment Matrix

A	B	C	D
<p>No issues identified (low risk)</p> <p>Appendix A. The benefit/delivery date is fully supported by all the evidence provided, which is robust and compelling.</p> <p>Appendix B. Evidence appears clear, relevant and of good quality.</p> <p>Appendix C. Low level risks with appropriate plan to remedy.</p> <p>Appendix D. Appropriate assumptions</p> <p>Appendix E. Solution offers described resilience enhancement</p>	<p>Non-material issues identified (low to medium risk)</p> <ul style="list-style-type: none"> • Like A, but with some uncertainties. • Evidence is not as conclusive, but work is ongoing to mitigate the risk. • Medium risk areas but with appropriate plans to remedy. • Solution offers some resilience enhancement 	<p>Material issues identified (medium to high risk)</p> <ul style="list-style-type: none"> • Material areas of deficiency in the evidence provided. • Many areas are incomplete and no clear or realistic plans to remedy. • High-risk areas but with appropriate plans to remedy. • Evidence does not support the figures presented. • Solution offers little resilience enhancement 	<p>Significant material issues identified (high risk)</p> <ul style="list-style-type: none"> • Significant gaps, incoherent, no plans to remedy deficiencies etc. • No evidence to justify the figures. • High risk areas with no appropriate plan to remedy. • Solution offers no resilience enhancement

3. Findings

The risk assessment against the document *Appendix 3.2 Enhancement Business cases* is shown in Table 4 below.

Table 4 Assessment of each scheme against Scope and Schedule

Supply Area	Original Scheme Description	% of Water Resilience Programme	Scheme Scope Assessed Against	Scope Adherence	Forecast Asset in Use Date	Schedule Risk
				RAG		RAG
Central (39.35%)	Springwell Main (7km from Springwell to Pikes Hole + EOV) (Central 1)	15.57%	Lay 7km of 1000mm water main from Springwell to Pikes Hole	B	01/02/2025	A
	New Service Reservoir at Springwell (Central 2)	16.98%	Construct 42.75ML Service Reservoir at Springwell	A	30/04/2025	B
	Provide link from Tees to Central Area via new WPS at Shildon SR (Central 3)	3.66%	Install new 55ML Water Pumping Station to provide a link from Teesside to the central area	C	30/04/2025	B
	1.5km of main from Carr Hill Link to Springwell SR (Central 4)	3.14%	Lay 1.5km of 600mm water main to link Carr Hill and Springwell SR	A	28/02/2025	A
Essex (22.60%)	Abberton to Hanningfield Raw Water Transfer Main (Essex 5) (Now called Layer to Langford)	22.33%	Lay 18.5km raw water main between Abberton and Hanningfield	A	28/02/2025	A
	Connecting Main at Herongate Service Reservoir (Essex 6)	0.27%	Lay 30m of 900mm connecting water main at Herongate	A	31/01/2025	A

			Service Reservoir			
Teesside (22.48%)	Whorley to Shildon Main (Tees 7)	22.24%	Lay 16km of new 800mm water main to allow connection between Whorley Service Reservoir (Tees) to Shildon Service Reservoir (Central)	A	14/02/2025	A
	Cross Connection into Darlington (C60/60a) (Tees 8)	0.24%	Install cross connections into C60/C60a for Darlington	N/A Scheme Not Released		
Suffolk (9.68%)	Barsham SR/WPS Scheme (Suffolk 9)	9.68%	Construct a new treated water storage reservoir and install a new Water Pumping Station	A	28/04/2025	B
Tyne (0.46%)	Duplicate Main at Chirton Service Reservoir Outlet (Tyne 10)	0.46%	Lay 30m of 900mm Water main at Herongate Service Reservoir	N/A Scheme Not Released		
TCTF (5.43%)	Resilience Improvements at 'Too Critical to Fail' Sites	5.43%	Increase Resilience across a number of sites (See Table 2)	C	28/02/2025	A

3.1 Central 1

3.1.1 Scope

The Output to be achieved by the Central 1 scheme was to install 7km of 1000mm water main between Springwell and Pikes Hole, north of Washington and provide additional strategic transfer to the Wearside network. NWL have stated that as the project has progressed, the initially envisaged 7km route has been modified to avoid a river crossing and is planned to be approximately 5.5km in length. This will still provide the same outcome of linking Springwell to Pikes Hole. Based on the above we have given a B rating on scope adherence.

3.1.2 Programme Status

The NWL team have reported that the Central 1 pipe laying work will be completed by the start of February 2025. The physical laying of pipework is well underway with important crossings being made in August 2024.

3.1.3 Risk

The programme is considered to have a suitable risk register, no risks pushing the programme beyond the Ofwat set date of 31st March 2025 have been raised. This proposed delivery date has led us to award an A rating on delivery date.

3.2 Central 2

3.2.1 Scope

The Output to be achieved by the Central 2 scheme is to construct a new 42.75ML service reservoir at Springwell. This was to provide 72h of strategic storage in the region. NWL have reported that the scope they are currently working to will provide a new 43ML service reservoir. On this basis we have awarded the scheme an A for adherence to scope.

3.2.2 Programme Status

The NWL team have reported that the Central 2 reservoir at Springwell is currently under construction and roof slab installation is underway. Once constructed the reservoir will need to be filled and leak tested.

3.2.3 Risk

The programme is considered to have a suitable risk register, no risk affected programme plan was shared, however, NWL did raise the issue of substantial amounts of the DWI reg 31 product list expiring. These products need recertifying before they can be installed and could cause a delay to the project. The proposed completion date is reported to be the 30th of April 2025, approximately one month behind the Ofwat set date. Considering the above factors we award this scheme a B rating on delivery date.

3.3 Central 3

3.3.1 Scope

The original proposed Output for Central 3 was to construct a new 55ML Water Pumping Station (WPS) at Shildon Service Reservoir (SR). However, following the PR19 submission and more detailed investigation/solutions development, it was understood that the resilience of supply could be enhanced through an alternate solution of installing automated valves and reversing flows on existing systems in a loss of supply event. The WPS was considered redundant as there was enough existing system pressure to service

customers in the same areas, without the need for additional boosting, in fact, upon detailed investigation NWL deemed that installing a new PS on the existing pipe network would pose a significant risk of pipe breaks and leakage. Challenge was given around the operability of this solution; however reversing flows is a common maintenance practice. We note that more turbidity monitoring is also planned to be installed as a safeguard. The planned valve reconfiguration solution will achieve the same Outcome as was planned for the scheme by delivering water to the Mosswood supply zone. It slightly exceeds the 70,404-population benefit stated in the PR19 PC Annex 1 document, with the scheme expected to deliver benefit to 72,000, however, it does not meet the specified Output of installing a new pumping station that was submitted in the document *Appendix 3.2 Enhancement Business cases*. Based on the above, we have given a C rating for the Scope adherence for this Output.

3.3.2 Programme Status

The NWL team have reported that the Central 3 project valving work will be in place by March 2025 and will be able to be manually manipulated to provide water to the Mosswood supply zone, but that the system will not be commissioned to run remotely until the 30th of April 2025.

3.3.3 Risk

The programme is considered to have a suitable risk register, no risk impacted programme plan was shared at interview, however, the PM stated that commissioning of the fully automated system will not meet the Ofwat deadline of 31st March 2025 and will instead be delivered approximately 1 month late. This delay has led us to assign a B rating to the scheme schedule.

3.4 Central 4

3.4.1 Scope

The Output to be achieved by the Central 4 scheme is to lay 1.5km of 600mm water main to connect the Derwent North strategic main to the new Springwell service reservoir (Central 2). NWL have reported that the scope they are currently working to exactly mirrors that set out in *Appendix 3.2 Enhancement Business cases* and will provide a 1.5km connection to the new 43ML service reservoir. On this basis we have awarded the scheme an A for adherence to scope.

3.4.2 Programme Status

The NWL team have reported that the pipework and associated crossings will be in place by the end of August 2024. The pipeline then needs to be connected to the network and commissioned. NWL have stated that this work will be completed no later than 28th February 2025.

3.4.3 Risk

The programme is considered to have a suitable risk register, no risks pushing the programme beyond the Ofwat set date of 31st March 2025 have been raised. This proposed delivery date has led us to award an A rating on delivery date.

3.5 Essex 5

3.5.1 Scope

The successful Output of Essex 5 will be to lay 18.5km of raw water pipeline from Abberton to Lanford with a capacity of 50ML/d. This project was originally referred to as Abberton to Hanningfield but is now called Layer to Langford, primarily due to the perceived difficulties this might bring in the planning stage, as Abberton has a high public amenity value, even though the work to be conducted would not directly affect this area. We believe the scope being delivered matches the PC with the evidence supplied and have therefore assigned an A rating.

3.5.2 Programme Status

The NWL team have reported that the works are due to be fully commissioned and delivered by the 28th of February 2025, which is in line with the target set by Ofwat. As of the interview date all the complex crossings on the route have been completed and the pipework will be able to receive flows by the 23rd of December 2024. A chemical dosing rig to prevent the spread of invasive non-native species has been installed.

3.5.3 Risk

There were risks highlighted in the last assurance report submitted by Jacobs in September 2023 concerning potential archaeological sites along the pipework route. These risks were investigated and revealed 19 sites where additional mitigation was required. This mitigation has been completed and the residual risks are no greater than any other standard construction project. This result combined with the proposed delivery date within Ofwat's target has led us to assign an A rating on the scheme schedule.

3.6 Essex 6

3.6.1 Scope

The Output to be achieved by the Essex 6 scheme is to install a new 30m section of 900mm connecting water main at Herongate service reservoir. This section is a duplicate main and would remove a single point of failure for approximately 110,000 customers. The scope of this scheme is in line with that set out in *Appendix 3.2 business case* and therefore we have given this scheme an A rating on scope.

3.6.2 Programme Status

The NWL team reported that the programme of works is due to deliver functional completion on 31st January 2025, which is in line with the target set by Ofwat.

3.6.3 Risk

Our review found the programme has a suitable risk register that has highlighted necessary risks to both delivery times and budget. NWL are currently undertaking ecology surveys in the area as evidence of badger setts have been identified. The outcome of this survey may require some mitigation to be put in place, but it is our opinion that this should not materially affect the programme schedule. We believe this scheme will deliver before the end of the AMP and as such have given it an A rating for delivering on time.

3.7 Tees 7

3.7.1 Scope

The Output of the Tees 7 scheme to be achieved is to lay 16km of new 800mm water main to allow connection between Whorley Service Reservoir (Tees) to Shildon Service Reservoir (Central). This would allow transfer of water from the Teesside network to support the less abundant supplies in the Central network. NWL report that the scheme being delivered exactly mirrors that set out in *Appendix 3.2 Enhancement Business cases* and therefore we award this scheme an A rating for adherence to scope.

3.7.2 Programme Status

The NWL team reported that the programme of work is due to deliver functional completion by the middle of February 2025. The pipeline itself should be delivered by October 2024, with connections and commissioning making up the remainder of the programme.

3.7.3 Risk

Our review found the programme has a suitable risk register that has highlighted necessary risks to both delivery times and budget. No threats greater than 14 days were registered against the programme. We believe this programme is likely to deliver for 31st of March 2025 and have given an A rating.

3.8 Tees 8

Unable to assess – Scheme not released.

3.9 Suffolk 9

3.9.1 Scope

The successful Output of Suffolk 9 is to construct a new treated water storage reservoir and install a new water pumping station next to Barsham WTW. This enhancement work will be conducted in conjunction with a base funded project to build a new treatment works close to the existing NWL site at Barsham WTW. The projects have been merged into a single programme of works to benefit from increased control and efficiencies. NWL report that the scope being delivered is to install a 20ML reservoir, 2x 1.6ML contact tanks and a pumping station consisting of five sets of two pumps (Duty/Standby) to transfer this water. On this basis we have awarded the scheme an A rating for adherence to scope.

3.9.2 Programme Status

The NWL team have reported that the reservoir and two of the five pump sets will be operational by 31st March 2025, however the remaining three pumps sets will not be delivered until April 2025. NWL have said it may be possible to bring the date forward to meet the Ofwat date but that this would require significant resource to do so.

3.9.3 Risk

Our review found the programme has a suitable risk register that has highlighted necessary risks to both delivery times and budget. The planned programme completion date of 30th April 2025 is approximately 1 month behind the date set by Ofwat for completion. This has led us to award a B rating for adherence to schedule.

3.10 Tyne 10

Unable to assess – Scheme not released.

3.11 Too Critical to Fail (TCTF)

3.11.1 Scope

The successful Output for the Too Critical to Fail scheme was to increase resilience to flooding or loss of power on a number of locations across NWL assets. Fourteen locations across eight sites were initially identified as posing a Medium or High risk to one or both incidents (see Table 2 above). As the AMP progressed a number of these sites were dropped from the scope for several reasons (see Table 5 below) leaving nine locations to be mitigated. For the power resilience sites, a decision was taken to discount fixed generation in favour of supplying site-specific generator cables and enabling generator connection MCC access and/or sockets. Whilst this approach may appear to make logical sense, we have seen no clear methodology that proves the resilience enhancement Output from this activity compared to a “do nothing” option. For this reason and the removal of certain sites from the scope, we have rated this as C.

Table 5 Too Critical to Fail Scope

Site	Specific Risks (M/H)	Status	Completion Date
Birney Hill PS	Flooding (H) Loss of Power (M)	Dropped due to replacement of entire PS including modern resilience for flooding and loss of power	N/A
Broken Scar PS	Flooding (M) Loss of Power (M)	Seal, ducts and sump pumps installed, awaiting panel installation for generator	24/12/2024
Broken Scar River Intake Pumps	Flooding (H) Loss of Power (M)	Seal, ducts and sump pumps installed, awaiting panel installation for generator	24/12/2024
Broken Scar TW	Loss of Power (M)	Seal, ducts and sump pumps installed, awaiting panel installation for generator	24/12/2024
Ormesby PS	Flooding (H)	Still two pumps to be raised above flooding level	30/09/2024
Barsham Final Contact tank	Flooding (H)	Almost complete but one borehole needs mitigating after peak period ends	31/10/2024
Barsham PS1	Flooding (M)	Almost complete but one borehole needs mitigating after peak period ends	31/10/2024
Chigwell Raw Water PS	Flooding (M)	No flood risk identified	N/A
Chigwell Treated Water PS	Flooding (M)	No flood risk identified	N/A

Hanningfield	Flooding (H)	No work required	N/A
Layer	Flooding (H)	Little work remaining but dosing rig needs relocating	28/02/2025
Layer High Lift	Flooding (H)	Little work remaining but dosing rig needs relocating	28/02/2025
Lower Hall PS	Loss of Power (M)	PS built above flood level – no flood risk	N/A
Ormesby Paterson Stream	Flooding (H)	Still two pumps to be raised above flooding level	30/09/2024

3.11.2 Programme Status

NWL states that functional completion of the nine sites should be completed by 28th February 2025 with only a few actions remaining at the time of writing.

3.11.3 Risk

Our review found the programme has a suitable risk register that has highlighted necessary risks to both delivery times and budget. The PM highlighted a risk of delay at the Layer site due to the possibility of needing to move an operational dosing rig from the basement on site, though they believe it will be possible to mitigate without the need to relocate. There is also a risk that the budget does not meet the required Output and that the solution will not be accepted by Ofwat. Regardless of the scope risk we are confident that the scheme will deliver before the date set by Ofwat and as such award this scheme an A for adherence to schedule.

4. Conclusion

4.1 Water resilience

The water resilience programme is made up of eleven constituent projects which have an Output measured by adherence to specific asset plans put forward in the document *Appendix 3.2 Enhancement Business cases*. All eleven projects have a 31st March 2025 completion date set by Ofwat. Details of our findings at the scheme level are provided within this report.

4.1.1 Scope

This study has sought to confirm that the scope of the water resilience enhancement programme is equivalent or greater to the required scope set out in the document *Appendix 3.2 Enhancement Business cases*.

92.9% of the Water Resilience programme is assessed to deliver on scope, with 3.7% (Central 3) not delivering on the proposed asset but nevertheless delivering on the outcome required, and 2.7% (Parts of TCTF) where additional clarification needs to be undertaken to demonstrate benefits of the selected resilience method.

This is specifically in relation to the substitution of onsite fixed generators with onsite generator connection points.

4.1.2 Programme delivery

This study has sought to confirm that the water resilience enhancement programme is expected to be completed as set out in the PR19 PC annex 1 document.

Our assessment of the evidence supplied leads us to conclude that 68.9% of the water resilience programme is due for delivery by 31st March 2025, with a further 30.3% due to be delivered by 30th April 2025.

99.3% of schemes are in delivery, with 0.7% awaiting release.

In terms of schedule risk, 99% of water schemes have no material issues.

Appendix A. Additional information

A.1 Calculation of Scope Adherence for Too Critical to Fail

In feedback from Ofwat (see Appendix A.2) a proposal was made to split the total 5.43% contribution TCTF has to the overall programme equally between the fourteen locations submitted for resilience mitigation. By this logic, each location contributes 0.39% to the overall programme. There are three locations that have both flooding and power supply risks to be mitigated, so we have split the 0.39% for each of these locations in half. We have assessed that the flooding mitigation work adheres to the Output scope, but that the power supply mitigation does not increase resilience and therefore does not meet the Output. We have also counted those sites that no longer require additional mitigation, either through other work or a re-assessment of risk, as not adhering to the scope. The calculation is summarised in Table 6 below.

Table 6 Breakdown of % Adherence to TCTF Scope

Location	Risk	Contribution to Programme	Adherence to Scope	% Meeting Scope
Birney Hill PS	Flooding (H)	0.19%	N	0.00%
	Loss of Power (M)	0.19%	N	0.00%
Broken Scar PS	Flooding (M)	0.19%	Y	0.19%
	Loss of Power (M)	0.19%	N	0.00%
Broken Scar River Intake Pumps	Flooding (H)	0.19%	Y	0.19%
	Loss of Power (M)	0.19%	N	0.00%
Broken Scar TW	Loss of Power (M)	0.39%	N	0.00%
Ormesby PS	Flooding (H)	0.39%	Y	0.39%
Barsham Final Contact tank	Flooding (H)	0.39%	Y	0.39%
Barsham PS1	Flooding (M)	0.39%	Y	0.39%
Chigwell Raw Water PS	Flooding (M)	0.39%	N	0.00%
Chigwell Treated Water PS	Flooding (M)	0.39%	N	0.00%
Hanningfield	Flooding (H)	0.39%	N	0.00%
Layer	Flooding (H)	0.39%	Y	0.39%
Layer High Lift	Flooding (H)	0.39%	Y	0.39%
Lower Hall PS	Loss of Power (M)	0.39%	N	0.00%
Ormesby Paterson Stream	Flooding (H)	0.39%	Y	0.39%
Total		5.43		2.72%

A.2 Feedback from Ofwat

This performance commitment applies to underperformance payments only, which are calculated by multiplying the ODI rate by the % completion that remains undelivered. It protects customers from non-delivery of schemes in the company's water resilience enhanced programme. The purpose of these schemes is to deliver benefits to customers by reducing the number of events that result in customers not having water supplied over a sustained period.

In its PR24 business plan ODI models, Northumbrian Water forecasts performance of 99.8% against the performance commitment level by 2024-25. It has included an underperformance payment of £0.042 million as an override, to reflect an estimated delay of 2.67 years in the completion date for the scheme Cross Connection into Darlington - C60/60a. The company has calculated this underperformance payment based on its view of how the performance commitment operates.

This performance commitment is intended to operate on an output basis. This means the number of schemes proposed within the company's PR19 business plan and subsequent submissions ahead of the PR19 draft determination should be delivered and, where that does not happen, the amount of funding allowed for the scheme(s) should be returned to customers.

During the period, Northumbrian Water made submissions to us¹ asking us to clarify the wording of this performance commitment definition, as it considered this was open to interpretation. These clarifications sought to:

- alter the success criteria for the delivery of these water resilience enhancement program schemes to the number of customers benefitting.
- calculate the measurement of performance by breaking milestones down to a scheme basis contributing to program level allowances, instead of by regional milestones.
- alter how the non-delivery underperformance payments should be calculated; and
- introduce late delivery underperformance payments.

We reviewed Northumbrian Water's submissions during 2020-25 and in its PR24 business plan. We note that the company reported its performance in its PR24 business plan based on its view of how this performance commitment should work, namely on a scheme rather than regional milestone basis and using success criteria measured solely on the basis of the number of customers benefitting from activities delivered instead of delivering specified outputs. It has also obtained external assurance over its performance, reported on this basis. Its external assurer² notes that this is a significant departure from the PR19 performance commitment definition, from the company's PR19 business plan submission prior to draft determination and from the performance commitment post-redetermination by the Competition and Markets Authority.

We also reviewed relevant information from PR19 when the performance commitment was set. We address the company's proposed clarifications and provide our assessment of this performance commitment below.

Altering the success criteria for the delivery of schemes

In its proposed clarification, Northumbrian Water stated that the PR19 Outcomes appendix³ does not specify individual success criteria which would be used to determine that each scheme has been completed. The company considered success criteria to have been defined in terms of the customer benefit or outcome associated with the scheme and that it would be sufficient for ODI purposes for the schemes to deliver benefit of a minimum of 90% of the proposed number of customers to allow some flexibility should customer numbers change slightly. It stated that this was the original intention as described in the PR19 query response included in Annex 5 in the company submission. That is not correct. The final performance commitment definition (the drafting of which the company did not comment on at PR19 draft determinations) is clear that success is "on full completion of the respective milestones". This is because this specific performance commitment is intentionally drafted to deliver outputs rather than outcomes. This is a point which Northumbrian Water acknowledged in its post Initial Assessment of Plans (IAP) response during PR19⁴, where it said, "The performance commitment best suited to monitor the enhanced resilience outcome is an **output-based measure** (emphasis added) which tracks the % delivery of each scheme."

This performance commitment, as drafted, has six regional milestones which represent groups of schemes rather than individual schemes. These groups are aligned with the company's PR19 proposals and the Competition and Markets Authority's redetermination, which uses the % of completion as success criteria. This % criterion is used to calculate the ODI payments in 2024-25 and the ODI rate is calibrated based on the TOTEX allowance for all water resilience enhancement schemes included in this performance commitment and converted to a % completion rate. Therefore, changing success criteria against which scheme completion will be assessed would require a recalibration of the ODI rates because the cost allowances for individual schemes are not proportional to the number of benefiting customers. Additionally, using the number of customers as a success criterion is not consistent with assessing underperformance payments for non-delivery or late delivery.

The external assurer notes that the company considers that a scheme in the company's Central region (55 ML WPS at Shildon SR) is no longer needed and that the same level of resilience is being provided by an alternative solution that the company has included as counting towards the performance of this performance commitment. As noted above, the success criteria for this performance commitment are outputs based: completion is determined on full completion of the respective milestones and the delivery is to be assessed against the business plan 2019 defined outputs. There are no provisions for scheme substitution or alternative solutions in the definition of the performance commitment. This means an underperformance payment equivalent to the allowed funding for the specified PR19 output of 55 ML water pumping station at Shildon service reservoir will be applicable as this defined output is not being delivered. We will apply this underperformance payment in our final determination, when we have an external assurance report over the company's performance reported in line with the performance commitment definition, including the clarifications we set out here.

Measuring delivery on a scheme-by-scheme basis instead of regional milestones

The performance commitment definition states that "...The required scope of the milestones are as set out by the company in submissions to Ofwat in advance of draft determinations. Completion is determined on full completion of the respective milestones when the measures are in operation and providing clear benefit to customers." The performance commitment definition describes the % of the Water Resilience Programme attributed to each region, but not the individual schemes. This means that non-delivery of a single scheme within the package of schemes that constitute the regional milestone would mean the regional milestone would not be delivered and that the company would incur large under performance payments (including for schemes that will be delivered on time).

We agree with the company that it is appropriate to assess performance based on completion of those schemes that were set out by the company ahead of PR19 draft determinations. This retains the incentives on the company to deliver all individual schemes in each region. Sheet BES24 Costs verification in this model lists the

schemes against which the company's performance should be assessed. As performance is to be assessed on an individual scheme basis this requires disaggregation of the group of schemes included in the company's clarification request and requires setting out each individual scheme to be assessed against the performance and expenditure allowance made in the determination.

It also means that the final determination allowance needs to be apportioned to each of the individual schemes. Northumbrian Water's clarification request broke down the final determination cost allowance for most of the programme to a scheme level except for the Central region (where three sub-regions, namely Central 1, Central 2, and Central 4, are grouped together) and the "Too critical to fail category". In sheet BES24 Costs verification, we have included our assessments of the PR19 final determination / the Competition and Markets Authority's cost allowance for these schemes disaggregated from regional milestones to individual schemes. We would welcome the company's view on these cost assessments, supported by appropriate evidence including external assurance, should it consider that different costs allocations are appropriate for the schemes included in the tables in sheet BES24 Costs verification.

Calculating non-delivery under performance payments

In its submissions, Northumbrian Water also explained how it intends to apply ODI payments for non-delivery. It proposed using the ODI rate (as set out in the Competition and Markets Authority's redetermination) of £0.369 million per unit to be applied on a % completion scheme basis. This is consistent with our PR19 final determinations: Delivering outcomes for customers policy appendix⁵ and the Competition and Markets Authority's redetermination. As explained above, this should be applied at a scheme rather than regional basis.

Company's preferred option on the late delivery underperformance payments calculations

In its correspondence, Northumbrian Water also clarified how it intends to apply ODI payments for any late delivery. It presented two options:

1. an independent in-the-round engineering assessment of scheme progress including an assessment of elapsed vs remaining timeline and delivered vs remaining expenditure. The underperformance rate of £0.369 million per unit would apply to any shortfall as per: $(100\% - \text{Scheme \% complete at regulatory deadline}) \times £0.369 \text{ million per \%}$; or
2. the independent assurance report, required under the terms of the ODI, would determine the expected completion date for any scheme expected to overrun. Consistent with Ofwat's documented policy for calculating late delivery incentives at PR19, late delivery payments would then be calculated based on: Allowed funding for the scheme X length of delay X time value of money (WACC + RCV Run-off rate)⁶

Northumbrian Water preferred the second option for the late delivery, stating that it aligns more closely with what was originally intended by both Ofwat and Northumbrian Water for the calculation of this ODI and is also more economically robust.

We agree that the performance commitment does not state how the ODI mechanism operates if the company delivers schemes late as opposed to not delivering them at all. We consider that clawing back all the funding for a scheme through a non-delivery ODI underperformance payment, where a scheme will be delivered but delivery is late, is not proportionate and may not retain appropriate incentives on the company to deliver.

We note that the company is forecasting to deliver late on one of its schemes and has reported an underperformance payment of £0.042 million, based on its view of how this performance commitment operates. For the purposes of the draft determination, we have retained this payment in the ODI performance model for 2024-25. However, we recognise that this figure will change at final determination, once the company has reflected on our draft decision in its draft determination response submission and provided an

updated assessment of its performance against on this performance commitment, in line with the requirements we set out here, and supported by external assurance.

If Northumbrian Water's response to our PR24 draft determinations (supported by appropriate assurance) demonstrates that there will be delays to the schemes included in this performance commitment (but that they will still be delivered), we would expect to intervene in the operation of the performance commitment so that underperformance payments do not apply to such schemes. Instead, we would expect to include a price control deliverable in our PR24 final determination in line with our policy set out in section 3.2 of the 'PR24 draft determinations: Accounting for past delivery' document. Our price control deliverable would have a time incentive rate in addition to the non-delivery rate. The time incentive rate would be calculated in line with PR24 policy on price control deliverables⁷ as this performance commitment does not have a PR19 late delivery ODI rate. This means that we would apply late delivery underperformance payments for this performance commitment at PR29 (in 2022-23 price base) rather than at PR24. There are no additional funding provisions available at PR24 for completion of this scheme.

How we require the company to report performance on this performance commitment

When reporting against this performance commitment in its draft determination consultation response, the company should report on the basis of the performance commitment defined in the PR19 final determination, as redetermined by the Competition and Markets Authority redetermination, and taking into account the clarifications set out here. The company should also obtain external assurance over its reporting on this basis.

In summary, the company should report its performance on the following basis:

- Using success criteria to determine if each scheme has been completed based on full completion of the respective milestones (not on customer benefit) as this is an outputs-based performance commitment.
- Calculating the measurement of performance by breaking milestones down to an individual scheme basis contributing to program level allowances, instead of by regional milestones.
- Not including any scheme substitution or alternative solutions. There are no provisions for this in the performance commitment definition as this is an outputs-based performance commitment meaning that delivery is assessed against the 2019 business plan defined outputs.
- For non-delivery using the ODI rate, as redetermined by the Competition and Markets Authority, of £0.369 million per unit to be used on a % completion scheme basis; and
- For late delivery, clearly reporting the schemes which are forecast to be delivered late and the number of months delivery is expected to be late on each of these schemes. We will then create a price control deliverable with a time incentive rate for late delivery (calculated as per footnote 7) and a non-delivery rate for non-delivery (£0.369 million per unit in 2022-23 prices). As stated above, any underperformance payments for late delivery would not apply until PR29.

¹ Proposed Clarification Regarding the Application of NWL's "Water Resilience Enhancement Programme" Performance Commitment (BES24) (2022)

² Assurance report - NWL PR19 Enhancement performance commitments – Water and Wastewater resilience

³ [Consolidated PR19 final determinations Outcomes performance commitment Northumbrian Water](#)

⁴ Annex 5 - NES.OC.A59_65 A69_A71 - Nature of Adjustment.pdf (PR19)

⁵ [PR19 final determinations: Delivering outcomes for customers policy appendix](#).

⁶ [PR19 final determinations: Delivering outcomes for customers policy appendix](#) (page 138)

⁷ Underperformance payment at PR29 using PR24 time incentive PCD rate is calculated as follows: allowed funding per unit (in 2022-23 price base) x WACC per month x number of months forecast late.