aquaconsultants
An Adler and Allan company

0800 118 2214
aquaconsultants.co.uk
Minerva House, 29 East Parade, Leeds, LS1 5PS

Anglian Water Services Ltd
Lancaster House
Lancaster Way
Ermine Business Park
Huntingdon
PE29 6XU

For the attention of [redacted] – Regulation Director

15 August 2024

Dear Sirs

INTERCONNECTION PROGRAMME OF WORK

THIRD PARTY ASSURANCE FOR PR19ANH_39

Aqua Consultants had been instructed to provide external third party assurance as required by the PR19 final determination for Anglian Water's interconnection programme of work. This instruction includes assurance of the Annual Performance Report (APR) tables 3A and 6F with periodic assurance reports.

Anglian Water have now instructed Aqua Consultants to provide further assurance "*that any alternative schemes or additional capacity benefit at existing schemes meet the requirements of this performance commitment and are in customers' interests*".

This issue was considered in detail as part of our previously submitted Third Party Assurance reports. The key findings are summarised in the paragraphs below.

At the time of writing the first Third Party Assurance for PR19ANH_39 Initial Report, December 2022, the final capacity benefit values had not been published by Ofwat. Aqua Consultants assured the scheme against the "Assumed Post iDok Capacity Benefit Ml/d" given in Table 1 - Performance Measure Capacity Benefits of this report; confirmed in paragraph 12.

Table 2 - Performance Commitment and Designed Capacity details the design changes that are intended to increase the capacity to a value slightly above the Performance Commitment value of 469.4Ml/d. The proposed design capacities were assured to our satisfaction.

Paragraph 65 of the December 2022 assurance report states "*We are satisfied that Anglian Water has demonstrated that it has delivered 'value' in the programme of works in terms of alignment to WRE (Water Resources East), risk and resilience, customer preferences and environmental and social impacts by following the procedure in their WRMP19.*"

Aqua Consultants produced 'Third Party Assurance for PR19ANH_39 Second Report', dated May 2024. Table 2 - Performance Measure Capacity Benefits shows that the "PC Confirmed Capacity as Dec 2023" aligns with the previously assured capacity of 469.4 Ml/d and when delivered meets the requirements of the performance commitment. Paragraph 98, of this report, confirms that as previously we are satisfied that 'value' is being delivered.

Table 4 - Performance Commitment and Designed Capacity of the May 2024 report, reproduced at the end of this letter, shows the design capacity as 494.88 Ml/d, the same figure in Anglian Water's DD Representations.

We have considered Anglian Water's response to Ofwat, in the DD Representations, and the supporting summary of design changes given in the 'Draft Determination Representations Assurance Submission – PR19 Internal Interconnectors Performance Commitment' are consistent with the previously assured performance commitment values.

In summary, Aqua Consultants are satisfied that the alternative schemes and capacity benefits meet the capacity benefits and are in customers' interests as defined by the 'value' process and alignment with WRE's WRMP19 process.

For Aqua Consultants Limited

Extract from Aqua Consultants' 'Third Party Assurance for PR19ANH_39 Second Report', May 2024:

Scheme outcome description	WRMP Option Ref	Assumed Post iDok Capacity Benefit Ml/d	October 2022 Design Capacity Ml/d	PC Capacity Benefit Ml/d	December 2023 Design Capacity Ml/d, as APR23*
WRZ to WRZ transfers					
North Fenland WRZ to Ely WRZ	ELY9	20.0	25.0	20	25
Central Lincolnshire WRZ to South Lincolnshire WRZ	SLN6	63.0	55.0	63	55
South Lincolnshire WRZ to North Ruthamford WRZ	RTN27	67.0	55.0	67	55
North Ruthamford WRZ to South Fenland WRZ	SFN4	40.0	40.0	40	40
Ruthamford South WRZ to South Ruthamford Central WRZ	RTC2	7.0	7.0	7	7
Ely WRZ to Newmarket WRZ	NWM6	20.0	25.0	20	25
Newmarket to Chevely WRZ	CVY1	1.0	3.6	1	3
Newmarket WRZ to Bury Haverhill WRZ	BHV5	20.0	25.0	20	25
Bury Haverhill WRZ to East Suffolk WRZ	ESU8	20.0	20.0	20	20
East Suffolk WRZ to South Essex WRZ	SEX4	15.0	15.0	15	15
Norwich & the Broads WRZ to Happisburgh WRZ	HPB1	1.5	1.5	1.5	1.5
Central Lincolnshire WRZ to Nottinghamshire WRZ	NTM1	3.5	5.9	3.5	8
South Fenland WRZ to North Fenland WRZ	NFN4	20.0	34.0	20	20
Norwich & the Broads WRZ to Happisburgh WRZ	E Ruston	5.0	5.0	5	5
Bury Haverhill WRZ to Ixworth WRZ	THT1a	3.0	5.0	3	3
Ixworth WRZ to Thetford WRZ	THT1a	1.8	1.8	1.8	1.8
Norwich & the Broads WRZ to Norfolk Rural North WRZ	NNR8	5.0	5.0	5	5
South Humber Bank WRZ - Transfer from Pyewipe to non-potable network	SHB2b	20.4	Stopped†	20.4	0
CLN16 - New Elsham WTW to new North Lincoln SR	CLN16	62	55.0	62	55
Covenham Transfer (added to RTN27 after Tiger Team review)			7.0		7
Intrazone transfers					
Ruthamford South WRZ – Meppershall PZ	RTS Intra2	5.0	5.0	5	5

Third Party Assurance for PR19ANH_39 Second Report
Rev02 Final

Scheme outcome description	WRMP Option Ref	Assumed Post iDok Capacity Benefit Ml/d	October 2022 Design Capacity Ml/d	PC Capacity Benefit Ml/d	December 2023 Design Capacity Ml/d, as APR23*
Ruthamford South WRZ – Woburn PZ	RTS Intra1	5.0	6.3	5	5
Bury Haverhill – Haverhill PZ	BHV Intra1	8.0	14.0	8	8
North Norfolk Rural WRZ – Diddlington PZ	NNRIntra1	0.2	0.4	0.2	0.4
Treatment					
South Humber Bank WRZ – Pyewipe water reuse treatment	SHB2a	6.0	Stopped†	6	0
North Fenland WRZ to Ely WRZ treatment	ELY9	20.0	25.0	20	25
Ruthamford South WRZ – Meppershall PZ treatment	RTS Intra2	5.0	5.0	5	5
CLN15- treatment for ELN transfer	CLN15	25.0	25.0	25	55
North Lincs Alternative					15.18
Total		**469.4**	**471.5**	**469.4**	**479.7 / 494.88‡**

Table 4 - Performance Commitment and Designed Capacity († replacement to be confirmed, ‡ including North Lincs Alternative, * To be confirmed at APR24)

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Third Party Assurance for PR19ANH_39 Second Report Rev02 Final

Report of Findings for Anglian Water

May 2024

love every drop
anglianwater

Version	Status	Originator	Checker	Approved	Date
1	Draft	TP		[redacted]	25/04/2024
2	Final	TP	[redacted]	[redacted]	17/05/2024

Originator	Approver
[redacted] Associate [redacted]@aquaconsultants.com	[redacted] Associate Director [redacted]@aquaconsultants.com

Contents

1 Summary of Findings of Aqua Consultants Assessment of PR19ANH_39

1.1 Purpose and basis of report

1. Ofwat requires Anglian Water to provide external Third Party Assurance for the delivery of the internal interconnection programme of work (Unique Reference PR19ANH_39). Anglian Water has commissioned Aqua Consulting to provide this assurance.

2. This document is the second report superseding the initial document dated December 2022, however the first Third Party Assurance report is still an accurate assessment of the information available in October 2022.

3. At the time of writing the initial assurance report (October 2022) Ofwat had not published the final version of the performance commitment.

4. A final version of the performance commitment was published by Ofwat in February 2023, this is included in 8 Appendix 2 – Performance Commitment. The contents of the performance commitment are the same as the draft agreement that formed the basis of the initial report, dated December 2022.

5. This report has been based on information that was available at the end of December 2023.

6. We have been provided with a copy of Anglian Water's submission to Ofwat dated February 2024. In this document Anglian Water are proposing that schemes in the 'South' are completed during AMP7 and the remaining schemes are completed by March 2029. There is total planned delivery of 494.8 Ml/d.

1.2 Key findings

7. Since the first Third Party Assurance Report was completed there have been some major changes to the overall project, whilst the scope of the work has remained the same, the programme has extended, and the anticipated cost has increased further.

8. In the APR 2023 Summary Audit Report, Table 6F, we noted "*We are concerned that AWS may not be able to deliver the assets by the end of AMP7 despite the mitigation it has put in place. There has been slippage to the forecast construction completion date, DM4, in some areas, largely due to factors outside AWS's control. We accept that due to the nature of pipeline construction, it may be possible to deliver water, if it is required, prior to all of the construction works being completed. For example, landscaping/reinstatement works are seasonal and whilst this would prevent construction completion, DM4, the assets required to deliver water could have been completed before this.*"

9. Further delays in delivery have been experienced since our first report. In particular, unusually wet weather has created adverse ground conditions which have required a temporary suspension of pipelaying activity. These delays have prompted Anglian to

review its approach to programme delivery and to reappraise the delivery timetable. As a result, the major change to the programme since the first report (December 2022) has been Anglian Water's decision to 'split' the works in two sections; North and South. The essential works in the South are being progressed to meet the end of AMP7 date as this is the area where abstraction licenses and other changes are creating a deficiency to the supply demand balance in the near future. We understand that Anglian intends to complete the full programme including the works in the North by March 2029[1].

10. The following, Table 1- Details of rescheduled Scheme Allocation, shows which schemes are being progressed in the 'South' for end of AMP7 completion and those in the 'North' for a later completion.

Scheme outcome description	WRMP Option Ref	Rescheduled Allocation
WRZ to WRZ transfers		
North Fenland WRZ to Ely WRZ	ELY9	South
Central Lincolnshire WRZ to South Lincolnshire WRZ	SLN6	North
South Lincolnshire WRZ to North Ruthamford WRZ	RTN27	North
North Ruthamford WRZ to South Fenland WRZ	SFN4	South
Ruthamford South WRZ to South Ruthamford Central WRZ	RTC2	North*
Ely WRZ to Newmarket WRZ	NWM6	South
Newmarket to Chevely WRZ	CVY1	North*
Newmarket WRZ to Bury Haverhill WRZ	BHV5	South
Bury Haverhill WRZ to East Suffolk WRZ	ESU8	South
East Suffolk WRZ to South Essex WRZ	SEX4	South
Norwich & the Broads WRZ to Happisburgh WRZ	HPB1	Complete
Central Lincolnshire WRZ to Nottinghamshire WRZ	NTM1	South**
South Fenland WRZ to North Fenland WRZ	NFN4	South
Norwich & the Broads WRZ to Happisburgh WRZ	E Ruston	South
Bury Haverhill WRZ to Ixworth WRZ	THT1a	South
Ixworth WRZ to Thetford WRZ	THT1a	South
Norwich & the Broads WRZ to Norfolk Rural North WRZ	NNR8	Complete
South Humber Bank WRZ - Transfer from Pyewipe to non-potable network	SHB2b	Stopped†
CLN16 - New Elsham WTW to new North Lincoln SR	CLN16	North
Covenham Transfer (added to RTN27 after Tiger Team review)		South
Intrazone transfers		
Ruthamford South WRZ – Meppershall PZ	RTS Intra2	South
Ruthamford South WRZ – Woburn PZ	RTS Intra1	North*
Bury Haverhill – Haverhill PZ	BHV Intra1	South
North Norfolk Rural WRZ – Diddlington PZ	NNRIntra1	North*

[1] Letter to Ofwat dated

Scheme outcome description	WRMP Option Ref	Rescheduled Allocation
Treatment		
South Humber Bank WRZ – Pyewipe water reuse treatment	SHB2a	Stopped†
North Fenland WRZ to Ely WRZ treatment	ELY9	South
Ruthamford South WRZ – Meppershall PZ treatment	RTS Intra2	North*
CLN15- treatment for ELN transfer	CLN15	North

Table 1- Details of rescheduled Scheme Allocation

*Schemes, not north geographically, reprioritized into AMP8 along with the 'north' schemes; due to the priority licence changes in the south. ** Revised solution, Hall WTW option, due for completion in AMP7; geographically in the north.

11. The entire scheme as detailed in the Performance Commitment is still being implemented but will not be fully delivered until AMP8. The revised programme of works with a final completion date of March 2029 is realistic and achievable including some contingency for further potential delays and disruption to delivery.

12. The costs of the project have increased substantially since the first report was produced, the scheme is now budgeted at £1,150M an increase of £591M over the Final Determination allowance of £559M in 2022/23 price base.

13. We remain of the view that unless there are changes to Anglian Water's Interconnector programme of works, we will be able to confirm that the identified need will be satisfied by the delivery of the works.

14. As previously, we have a high level of confidence that the approach and implementation of the design of the pipelines has produced systems that are adequate to transfer the necessary flow rates between the WRZs and unless there are changes to Anglian Water's Interconnector programme of works, we will be able to confirm that the required capacity will be satisfied by the delivery of the works.

15. Given the extension to the delivery schedule we recommend that annual third party assurance reports continue to be produced until the full completion of the work programme. We note that, following discussions with Ofwat, Anglian has proposed some amendments to the Performance Commitment. These include amending the way in which penalties are calculated to better reflect delays in delivery as opposed to non-delivery, which would be in line with the approach to Price Review Deliverables at PR24. Future assurance reports will need to reflect any amendments which may be made to the current Performance Commitment.

2 Background, Aqua Consultants Instruction and Methodology

2.1 Background to Anglian Water's Internal Interconnector Programme of Works

16. Anglian Water's Water Resources Management Plan, 2019, (WRMP19) identified that the region had supply-demand deficiencies in several water resource zones (WRZ), resulting from a combination of growth, climate change and sustainability reductions imposed by the Environment Agency (withdrawal or reduction of abstraction licences).

17. WRMP19 identifies that Anglian Water's 2020 supply-demand balance moves into a deficit in 2025 and by 2045 to a deficit of 144 Ml/d, Figure 1 below[2], if no measures are taken to address the situation.

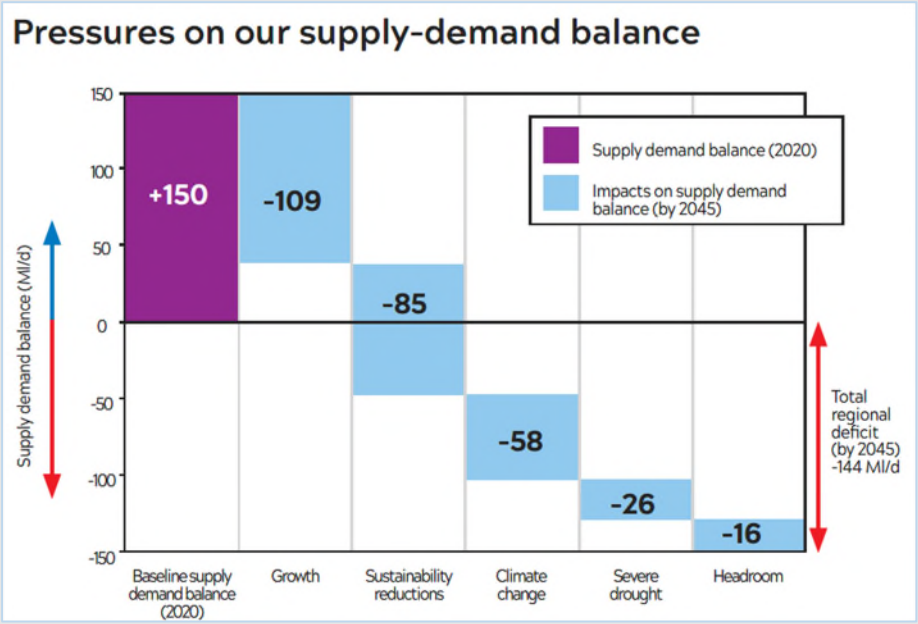


Figure 1 - WRMP19 extract, supply-demand balance

18. Comparison of the WRZs, Figure 2 below[3], shows that there is some surplus in the north-east of Anglian Water's region with deficits to the south, creating opportunities for intra-company water transfers between WRZs. Anglian Water developed the initial solution for "internal interconnectors" through the application of its "Best value decision-making" approach (see section 7.1.1).

[2] Anglian Water's Water Resource Management Plan 2019, December 2019, page 5.

[3] Anglian Water's Water Resource Management Plan 2019, December 2019, page 6.

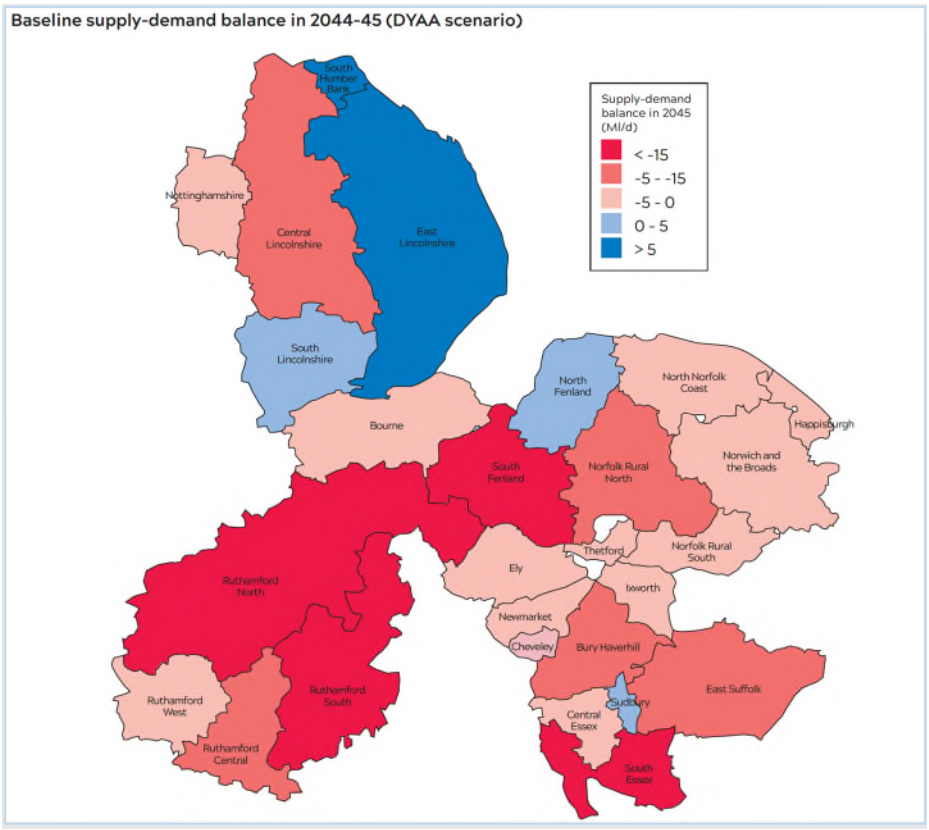


Figure 2 - WRMP19 extract, supply-demand balance 2044-45

19. The developed solution was submitted as part of Anglian Water's PR19 Business Plan and a performance commitment for the scheme was published as part of Ofwat's Final Determination. However, scheme requirements and the associated performance commitment have subsequently required amendment due to a number of factors. As such, the final performance commitment has been amended to reflect the outcome of the referral by Anglian Water of its Final Determination to the Competition and Market Authority (CMA), along with revisions to Anglian Water's proposed Direct Procurement for Customers (DPC) scheme at Elsham/Middlegate Water treatment Works and the associated Interim Determination of Price Limit (Idok) resulting from the change in procurement approach. A full description of the changes is included in Appendix 2 – .

2.1.1 Inclusion of the Internal Interconnectors into AWS's dWRMP24

20. Anglian Water's draft WRMP24, published in August 2023, is clear that the impact of the Interconnectors programme of works has been used as the starting point for the current plan. It states at paragraph 5.1.1.8 "*For WRMP24 there are significant additional supply reductions which were not a requirement for WRMP19. To understand how our current plan contributes to the new supply demand balance requirements of WRMP24 we have run a version of the model without the benefit from the interconnectors, see Figure 21. This shows that without the interconnectors the regional deficit would have been 40Ml/d at the start of the plan. It also demonstrates the scale of the deficit for WRMP24 at the end of the planning period compared to WRMP19.*"

21. As such WRMP24 confirms the need and reinforces the importance of the interconnectors in addressing deficits.

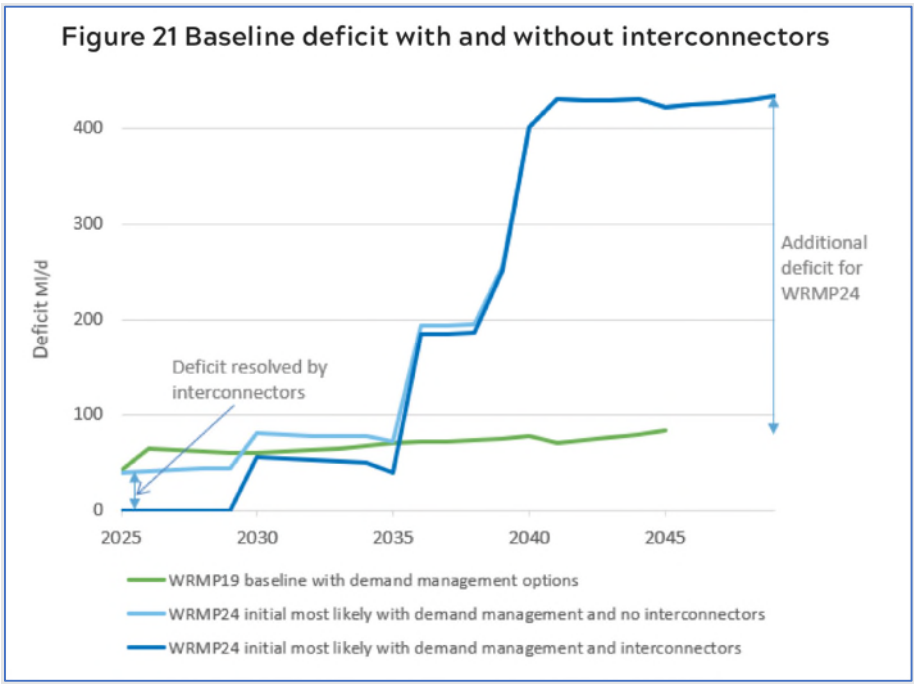


Figure 3 - Extract of Figure 21 from AWS's dWRMP24

22. Due to the rescheduling of the proposed works in to the North and South sections and their corresponding planned completion dates, the 40 Ml/d deficit reduction due to the Interconnectors, stated by Anglian Water in their dWRMP24, will not be available until after the end of AMP7, with Anglian proposing to target full programme completion by March 2029.

23. As a short term measure, to enable water to be provided in the 'South' without the transfer being available from Lincolnshire, Anglian Water are using the current existing surplus and delaying the capacity reductions of some abstraction licenses due to be voluntarily reduced.

24. We understand that discussions have taken place with the EA, and a summary of the proposed changes to the abstraction licenses has been provided[4]. We further understand that at the time of writing this report there had been no formal agreement with the EA.

25. Further discussion of the rationale supporting the decision to divide the project into North and South sections is given in section 4.4.1 Rescheduling the Works.

[4] Letter to [redacted], Anglian Water Account Manager, Environment Agency, dated 20 December 2023

2.1.2 Requirements Changes - Internal Interconnector Programme Works Since October 2022

26. A final version of the performance commitment was published by Ofwat in February 2023, is included in 8 Appendix 2 – Performance Commitment. The performance measures, for the Interconnectors, states the following:

"*The identified schemes provide either additional treatment or transfer capacity. For intra-zonal transfer capacity this is the increased capacity to move water within a water resources zone (WRZ) to address issues for an individual planning zone (PZ). An increase will be recorded once schemes are delivered and assurance is provided that they are able to operate to the capacity benefit as defined in the table below. The PC will focus "on capacity delivery, rather than the delivery of water. This will ensure that the pipes are not delayed and can start to be used where interdependencies are not disrupted, but Anglian does not suffer penalties for delays to the delivery of water using these interconnectors due to circumstances beyond its control. This would be subject to external verification". The capacity benefit is defined as the minimum the scheme can deliver on average over a year (note that the maximum capacity may be greater to achieve this annual average).*"

Scheme outcome description	FD Published Capacity Benefit[7] Ml/d	Assumed Post CMA Capacity Benefit Ml/d	Assumed Post iDok Capacity Benefit Ml/d	PC Confirmed Capacity as Dec 2023[5]
WRZ to WRZ transfers				
North Fenland WRZ to Ely WRZ	20.0	20.0	20.0	20.0
Central Lincolnshire WRZ to South Lincolnshire WRZ	63.0	63.0	63.0	63.0
South Lincolnshire WRZ to North Ruthamford WRZ	67.0	67.0	67.0	67.0
North Ruthamford WRZ to South Fenland WRZ	35.0	40.0	40.0	40.0
Ruthamford South WRZ to South Ruthamford Central WRZ	7.0	7.0	7.0	7.0
Ely WRZ to Newmarket WRZ	20.0	20.0	20.0	20.0
Newmarket to Chevely WRZ	1.0	1.0	1.0	1.0
Newmarket WRZ to Bury Haverhill WRZ	20.0	20.0	20.0	20.0
Bury Haverhill WRZ to East Suffolk WRZ	10.0	20.0	20.0	20.0
East Suffolk WRZ to South Essex WRZ	14.0	15.0	15.0	15.0
Norwich & the Broads WRZ to Happisburgh WRZ	1.3	1.5	1.5	1.5
Central Lincolnshire WRZ to Nottinghamshire WRZ	2.1	3.5	3.5	3.5
South Fenland WRZ to North Fenland WRZ	15.0	20.0	20.0	20.0
Norwich & the Broads WRZ to Happisburgh WRZ	2.0	5.0	5.0	5.0
Bury Haverhill WRZ to Ixworth WRZ	3.0	3.0	3.0	3.0
Ixworth WRZ to Thetford WRZ	1.8	1.8	1.8	1.8
Norwich & the Broads WRZ to Norfolk Rural North WRZ	3.4	5.0	5.0	5.0
South Humber Bank WRZ - Transfer from Pyewipe to non-potable network	20.4	20.4	20.4	20.4
CLN16 - New Elsham WTW to new North Lincoln SR			62	62
Intrazone transfers				
Ruthamford South WRZ – Meppershall PZ	5.0	5.0	5.0	5.0
Ruthamford South WRZ – Woburn PZ	5.0	5.0	5.0	5.0
Bury Haverhill – Haverhill PZ	8.0	8.0	8.0	8.0
North Norfolk Rural WRZ – Diddlington PZ	0.2	0.2	0.2	0.2
Treatment				
South Humber Bank WRZ – Pyewipe water reuse treatment	6.0	6.0	6.0	6.0
North Fenland WRZ to Ely WRZ treatment	20.0	20.0	20.0	20.0
Ruthamford South WRZ – Meppershall PZ treatment	5.0	5.0	5.0	5.0
CLN15- treatment for ELN transfer			25.0	25.0
Total	**355.2**	**382.4**	**469.4**	**469.4**

Table 2 - Performance Measure Capacity Benefits

[5] Consolidated PR19 final determinations: Anglian Water – Outcomes performance commitment appendix, February 2023

27. The values given in Table 2 have been used as the basis of the assurance report.

28. As previously reported to deliver the programme of works Anglian Water initially contracted all of the works with an entity called Strategic Pipeline Alliance (SPA). SPA are described as "*The Strategic Pipeline Alliance partners are: Anglian Water, Costain, Farrans, Jacobs, Mott MacDonald Bentley. Anglian Water selected the partners after a competitive procurement process that started in 2019. The work will be a complex and challenging major infrastructure project. The partners bring a wealth of experience, new mindsets, thinking and innovation for what is an incredibly exciting programme. Anglian Water is ultimately responsible for the delivery of schemes identified and approved in the Water Resources Management Plan 2019*."[6]

29. In March 2022 to ease pressure on the programme several of the smaller sections, without interdependencies, were transferred to Anglian Water's usual delivery contractor the @one Alliance.

30. We have also been informed of a further minor change in delivery responsibility; "*in addition, to help ensure timely delivery of the southern section, in August 2023 the ESU8 scheme was split into infrastructure and non-infrastructure with the installation of the pipeline being moved across to the @one Alliance. The Strategic Pipeline Alliance retain the overall responsibility for this scheme and the costs will be reported as a total.*"

2.2 Third Party Assurance

31. As previously reported, Ofwat requires Anglian Water to provide external Third Party Assurance for the delivery of the internal interconnection programme of work (Unique Reference PR19ANH_39) with the specific requirements of the assurance being the following[7]:

"*The company will provide external assurance by a third party to confirm:*

- *the schemes delivered have been selected on delivering best value to customers;*
- *the transfer meets the criteria of either linking up two water resource zones, provides additional capacity within a zone, or provides additional water treatment capacity;*
- *the treatment or transfer scheme can provide the capacity benefit on an annual average basis;*
- *the treatment or transfer schemes selected to be delivered or not delivered are not skewed by solution costs;*
- *the increases are as a result of physical enhancements to the company asset base and not the result of changes in assumptions; and*

[6] https://www.anglianwater.co.uk/about-us/our-strategies-and-plans/new-water-pipelines/

[7] PR19 final determinations, Anglian Water - Outcomes performance commitment appendix, dated December 2019, page 97

- *that any exclusions are correctly reported.*

If the company does not deliver schemes that have high average cost per Ml/d, the underperformance rate may be increased as part of the reconciliation at PR24 to protect customers."

2.3 Instruction

32. Aqua Consultants has been instructed to provide external third party assurance as required by the final determination[7]; This report is the second iteration of programme assurance.

33. It is now anticipated that the requirement for third party assurance will be extended until the work programme has been fully delivered.

2.4 Methodology

34. As previously reported, to ensure that all relevant aspects of third party assurance have been assessed, Aqua Consultants have reviewed the project and reported our findings in the following sections:

- Value.
- Identification and satisfying the required needs.
- Design of the works.
- Scheme progression and delivery.
- Exclusions

35. **Value.** The basis of the value assessment remains the same as in the previous report; namely Anglian Water's definition, of value, given in WRMP 2019 Technical Document Options Appraisal December 2019, section 1.2, Best value decision-making and our Plan:

"Recognising our challenges, we have adopted a planning approach that uses least-cost optimisation as well as broader criteria to develop a Best Value Plan which takes account of 'best value' decision making criteria:

- *Cost – how much does the plan cost to build and operate? In areas where we are departing from 'least cost', does the additional investment deliver additional benefit to customers and the environment?*
- *Adaptability and flexibility – is the plan flexible enough to cope with uncertain future needs? Does it include potentially 'high regret' options, or limit future choices?*
- *Alignment to WRE[8] – how well does the plan align to the regional strategy?*

[8] Water Resources East, WRMP19 page

- *Risk and resilience – how resilient is the plan to severe and extreme drought and other hazards, and what are the residual risks?*
- *Deliverability – can the plan be delivered on the timescales needed to manage risks?*
- *Customer preferences – how well does the plan align to customer preferences?*
- *Environmental and social impacts – what are the environmental and social impacts? Does the plan result in a net environmental benefit?"*

36. **Identification and satisfying the required need.** The CMA reference final report confirmed the need for these works and this is reaffirmed in Anglian's dWRMP24. Aqua's assurance process has traced the development of the programme from WRMP19 through outline design and progression through Anglian Water's investment process gateways. Summary information supplied by Anglian Water has been assured by selecting example data sets for detailed examination.

37. **Design of the Works.** We have selected sample schemes to ensure that the level of detail, methodology and technical basis of the calculations are appropriate for the scope of work being delivered.

38. **Scheme progression and delivery.** Aqua Consultants are responsible for the Audit Report Form Table 3A and 6F and additionally have reviewed the development of schemes through their gateways. As the projects are delivered their physical delivery can be ascertained.

39. **Exclusions.** The overall programme of works has been reviewed to allow any exclusions to be established from any noted changes and omissions.

3 Confirmation of Performance Commitment requirements

40. We have used two sources of information as the basis of this assurance document, as stated in paragraphs 18 and 25.

41. The performance commitment is defined as the capacity increase at the end of the Asset Management Plan (AMP). There is some ambiguity as to whether independent assurance is required to report only on outputs delivered at the end of the period or alternatively annually on progress and planned activity. Anglian Water has instructed Aqua Consultants to produce this assurance report at the end December 2023. This report is specifically considering the "Internal interconnectors", providing a greater level of assurance than Table 6F. This report cannot confirm the delivery of the assets at this time as the majority of the required outputs are not planned for delivery until later years with several now programmed to be delivered after the end of AMP7.

42. As previously, in accordance with the requirements set in the performance commitment included in paragraph 25, when water is not available or required, we will confirm if the "capacity benefit" of each part of the project has been provided from our assurance of the design, procurement, construction and installation of the required system. To confirm "capacity benefit" several inspection/tests would need to have been completed:

- Pipeline pressure tests
- Relevant equipment installed, including security systems
- Relevant equipment energised, including security systems

43. As previously, the Interconnector Performance Commitment is based on delivered capacity and our understanding is that works such as reinstatement of the pipeline working width, including topsoil, landscaping, seeding and temporary fence removal, are not required to be completed in order to confirm the delivery of the works.

44. As previously, the "*Capacity benefit delivered (Ml/d)*" has been derived from the WRMP, this is based on the dry year annual average (DYAA) as required by the planning criteria. Unless this exact scenario is occurring when the programme of work has been completed it is unlikely that the full capacity benefit will be required in early 2025. We will be able to confirm assurance based on the capacity benefit established as set out in paragraph 39.

45. As previously, strictly the "*minimum the scheme can deliver*" is zero when the equipment is isolated, however we do not believe that this was a measure intended to be used to validate the "*Capacity benefit delivered (Ml/d)*". We understand that the performance commitment is to be validated against the values given in Table 4, page 22.

4 Basis of Assessment

4.1 Value

4.1.1 General

46. Anglian Water's definition of value (see paragraph 34) is largely demonstrated by the selection of the schemes in the WRMP19. Ofwat's requirements, as stated in the Performance Commitment, that require assurance specifically for value are:

- Cost
- Adaptability and flexibility

47. "Deliverability" is addressed in section 4.4 Scheme progression and delivery.

48. WRMP24 confirms the need and reinforces the importance of the interconnectors in addressing deficits. In choosing schemes at WRMP19 the interconnectors clearly demonstrated best value and whilst the cost has increased it is likely that the cost of the alternatives would have similarly increased. For a complete view the value should be checked at the end of the project to ensure any lessons are learnt so that they can be applied to future schemes.

4.1.2 Costs

49. As of December 2023, the anticipated cost has continued to increase from those previously reported.

50. The Interconnector programme of works is a very large scheme, the FD expenditure allowance being £550M. The current anticipated expenditure is £1,150M.

51. This 109% increase is a substantial cost escalation. We are aware that there have been factors outside Anglian Water's control[9], such as the war in Ukraine, that have had significant impact on the price of materials. The increases have been attributed to the following:

Cause of Increase	Increase £M
Global pandemic	Not quantified by AWS
Ukraine war	Not quantified by AWS
Planning delays	Not quantified by AWS
Compensation	11+25
Weather	Not quantified by AWS
Materials Cost Inflation Non infrastructure	55

Table 3 - Cost Increases

[9] Reported to Ofwat in Anglian Water's 2023 APR.

52. We note that Ofwat[10] requires reporting and assurance against any schemes not delivered with a high average cost per Ml/d; at this time, it is Anglian Water's intention to deliver all schemes although there have been some changes in solution.

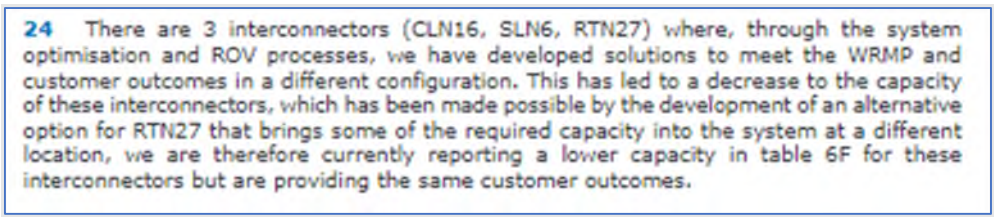
53. As reported in the last APR the solution for NTM1 (Central Lincolnshire WRZ to Nottinghamshire) scheme has change to a treatment solution at Hall WTW which was previously limited on nitrate levels. WRMP24 includes a baseline capacity of 8 Ml/d. The capacity of the nitrate plant is 8Ml/d allowing the total WTW capacity to be 20 Ml/d when further works are carried out during AMP8, 2025 - 2030.

4.1.3 Adaptability and flexibility

54. Paragraphs 55 to 59 inclusive below, were reported previously and remain unchanged.

55. At the commencement of the delivery phase of the programme of works Anglian Water and the delivery team, SPA, went through a process of review/optioneering that was called "*Tiger Team*". We understand that this process occurred when agreement had been reached with the EA regarding abstraction licenses and the CMA process had been completed.

56. The "*Tiger Team*" identified an additional source, at Covenham, see Table 4, page 22, that has provided 7.0 Ml/d further south than any source had been identified previously. This has allowed some sections to have a smaller capacity provided; 11% smaller in terms of flow.



24 There are 3 interconnectors (CLN16, SLN6, RTN27) where, through the system optimisation and ROV processes, we have developed solutions to meet the WRMP and customer outcomes in a different configuration. This has led to a decrease to the capacity of these interconnectors, which has been made possible by the development of an alternative option for RTN27 that brings some of the required capacity into the system at a different location, we are therefore currently reporting a lower capacity in table 6F for these interconnectors but are providing the same customer outcomes.

Figure 4 - Extract from Anglian Water's 2022 APR

57. Pipelines have been designed with a suitable compromise between a smaller diameter to minimise 'sweetening' flows, when transfer is not required, and larger diameters to reduce power requirements for pumping. As a result of the design all pipelines have the potential to have an increased capacity without substantial works.

58. The decisions to utilise welded pipelines, both HPPE and steel, would be suitable for an increase in flow, with a corresponding increase in pressure, up to their working pressure rating.

59. It is intended that several of the pipelines will deliver the required water in a 21 hour period, should the water be available and required these could operate for 24 hours per

[10] PR19 final determinations, Anglian Water - Outcomes performance commitment appendix, dated December 2019, page 97

day. For example, the North Fenland WRZ to Ely WRZ pipeline that delivers 25 Ml in a 21 hour period has an effective capacity of 28.57 Ml/d.

60. The ability to regionalise the Interconnectors into the 'North' and 'South' sections has, it could be argued, further demonstrated that the system is flexible.

4.2 Identification and satisfying the required need

61. In the first third party assurance report we described how we had confirmed that the need was being satisfied in paragraphs 62 to 65 below. As of March 2023, these paragraphs remain valid.

62. In assuring that the need has been met we encountered some difficulty in following schemes due to the similar and duplicate names (eg Norwich & the Broads WRZ to Happisburgh WRZ). Anglian Water has used an "Option ref." in the WRMP and it is by using this reference that elements of the interconnectors may be traced.

63. We have used WRMP19, and supporting documents, as the base data that identifies the need of the scheme as the WRMP is a regulated process that water companies must comply with.

64. The need, established in the WRMP, has been traced through to delivery schemes, for example schemes such as 'Newmarket WRZ to Bury Haverhill WRZ' reference 'BHV5' from:

- WRMP19, Table 5.6: Differences between Preferred Plan and Baseline Least Cost Plan, page 70
- Calculation sheets contained in filename: BHV5 20Ml WRMP Transfers Template 02a - 1065 C55 Input Spreadsheet
- Gateway progression recorded on Anglian Water's Totex Delivery Workflow (TDW) system

65. We have been able to track progression of the sample schemes, confirming that capacity is being delivered in line with the deficit shown in WRMP19.

4.3 Design of the Works

4.3.1 Capacity of Scheme

66. Table 4 - Performance Commitment and Designed Capacity († replacement to be confirmed, ‡ including North Lincs Alternative, * To be confirmed at APR24) shows that there has been an overall increase of 23.4 Ml/d in the design capacity between October 2022 and December 2023.

67. In the first Third Party Assurance Report we reported how we had confirmed that the capacity requirement was being satisfied and recorded in paragraphs 68 to 74 below. As of April 2024, these paragraphs remain valid.

68. The capacity of the schemes was originally derived for inclusion in WRMP 2019, at this stage several options were considered for each transfer.

69. We have reviewed design information of several schemes, such as the Central Lincolnshire WRZ transfer options, as shown in Figure 5, below.

Table 6.36: Transfer options for Central Lincolnshire WRZ

Opt Ref	Option Name	Total Length (km)	Internal Diameter (mm)	No of Pumping Stations	Crossings requiring directional drilling
CLN11b	South Humber Bank WRZ to Central Lincolnshire WRZ Transfer (10 Ml/d) - Transfer Only	55.9	409	2	37
CLN12b	South Humber Bank WRZ to Central Lincolnshire WRZ Transfer (50 Ml/d) - Transfer Only	55.9	900	2	37
CLN13b	South Humber Bank WRZ to Central Lincolnshire WRZ Transfer (31 Ml/d) - Transfer only	55.9	800	2	37
CLN16	South Humber Bank WRZ plus East Lincolnshire WRZ to Central Lincolnshire WRZ - transfer only	55.9	900	2	37

Figure 5 - Extract from page 48 of WRMP 2019 Technical Document: Supply-side Option Development, December 2019

70. Of the options identified at the WRMP stage CLN16 was chosen to be progressed; this progression can be seen in Table 2, Table 4 and Table 5.

71. Anglian Water does not have a standard specification for trunk mains and have therefore used an 'engineering design' approach to individually design these works. The values adopted for what can be regarded as the main criteria, velocity, roughness and energy loss coefficients[11] are typical values that are widely used.

72. The initial scoping design of the pipelines was carried out utilising the criteria set out in the PR19 C55 Input Spreadsheets known as 'Motts spreadsheet'.

[11] Anglian Water's SPA System Hydraulic Design Parameters.xlsx

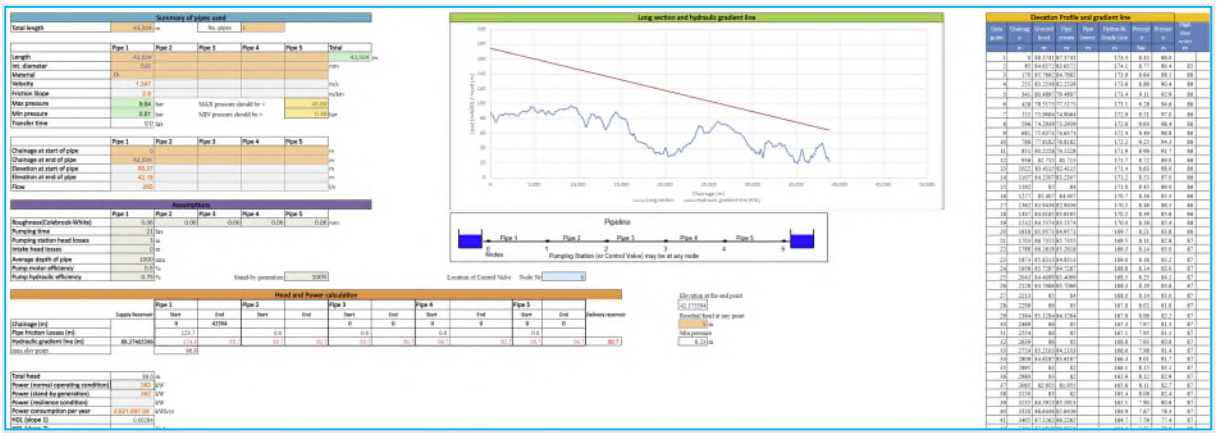


Figure 6 - Extract from Q10 02a-1236a and b ESU8 20MI (1) C55 Input Spreadsheet

73. The spreadsheet produces the long section, hydraulic profile and the estimated duty kilowatts (kWs) for the system. These are appropriate for the stage of development of the project.

74. The detailed design is being done by SPA engineering design team.

4.3.2 Review of Performance Commitment and Design Capacities

75. Since the CMA/Final Determination (FD) capacities were established, there have been changes to the individual Performance Commitment (PC) capacities due to the Idok, as Table 4, below.

76. The right-hand column of the table shows Anglian Water's current (December 2023) design capacities. Comparison of the sections of the programme of works show that the majority have a slightly higher capacity than the performance commitment values; overall Anglian Water is currently planning to deliver 23.4 (5.0%) Ml/d more than its performance commitment when the North Lincs Alternative is included.

Scheme outcome description	WRMP Option Ref	Assumed Post iDok Capacity Benefit Ml/d	October 2022 Design Capacity Ml/d	PC Capacity Benefit Ml/d	December 2023 Design Capacity Ml/d, as APR23*
WRZ to WRZ transfers					
North Fenland WRZ to Ely WRZ	ELY9	20.0	25.0	20	25
Central Lincolnshire WRZ to South Lincolnshire WRZ	SLN6	63.0	55.0	63	55
South Lincolnshire WRZ to North Ruthamford WRZ	RTN27	67.0	55.0	67	55
North Ruthamford WRZ to South Fenland WRZ	SFN4	40.0	40.0	40	40
Ruthamford South WRZ to South Ruthamford Central WRZ	RTC2	7.0	7.0	7	7
Ely WRZ to Newmarket WRZ	NWM6	20.0	25.0	20	25
Newmarket to Chevely WRZ	CVY1	1.0	3.6	1	3
Newmarket WRZ to Bury Haverhill WRZ	BHV5	20.0	25.0	20	25
Bury Haverhill WRZ to East Suffolk WRZ	ESU8	20.0	20.0	20	20
East Suffolk WRZ to South Essex WRZ	SEX4	15.0	15.0	15	15
Norwich & the Broads WRZ to Happisburgh WRZ	HPB1	1.5	1.5	1.5	1.5
Central Lincolnshire WRZ to Nottinghamshire WRZ	NTM1	3.5	5.9	3.5	8
South Fenland WRZ to North Fenland WRZ	NFN4	20.0	34.0	20	20
Norwich & the Broads WRZ to Happisburgh WRZ	E Ruston	5.0	5.0	5	5
Bury Haverhill WRZ to Ixworth WRZ	THT1a	3.0	5.0	3	3
Ixworth WRZ to Thetford WRZ	THT1a	1.8	1.8	1.8	1.8
Norwich & the Broads WRZ to Norfolk Rural North WRZ	NNR8	5.0	5.0	5	5
South Humber Bank WRZ - Transfer from Pyewipe to non-potable network	SHB2b	20.4	Stopped†	20.4	0
CLN16 - New Elsham WTW to new North Lincoln SR	CLN16	62	55.0	62	55
Covenham Transfer (added to RTN27 after Tiger Team review)			7.0		7
Intrazone transfers					
Ruthamford South WRZ – Meppershall PZ	RTS Intra2	5.0	5.0	5	5

Scheme outcome description	WRMP Option Ref	Assumed Post iDok Capacity Benefit Ml/d	October 2022 Design Capacity Ml/d	PC Capacity Benefit Ml/d	December 2023 Design Capacity Ml/d, as APR23*
Ruthamford South WRZ – Woburn PZ	RTS Intra1	5.0	6.3	5	5
Bury Haverhill – Haverhill PZ	BHV Intra1	8.0	14.0	8	8
North Norfolk Rural WRZ – Diddlington PZ	NNRIntra1	0.2	0.4	0.2	0.4
Treatment					
South Humber Bank WRZ – Pyewipe water reuse treatment	SHB2a	6.0	Stopped†	6	0
North Fenland WRZ to Ely WRZ treatment	ELY9	20.0	25.0	20	25
Ruthamford South WRZ – Meppershall PZ treatment	RTS Intra2	5.0	5.0	5	5
CLN15- treatment for ELN transfer	CLN15	25.0	25.0	25	55
North Lincs Alternative					15.18
Total		**469.4**	**471.5**	**469.4**	**479.7 / 494.88‡**

Table 4 - Performance Commitment and Designed Capacity († replacement to be confirmed, ‡ including North Lincs Alternative, * To be confirmed at APR24)

4.4 Scheme progression and delivery

4.4.1 Rescheduling the Works

77. We understand that during November 2023 concerns were raised about the ability to complete the full Interconnector Programme of work, within the AMP, without placing significant pressure on the safety and quality of the pipelines.

78. The parts of the works that will be impacted by the changes to abstraction licensees, that are in the southern areas of the project, were deemed to be the priority projects. The remaining schemes, while not strictly in the north geographically, were reprioritized into AMP8 to allow focus to be placed on meeting the priority licence changes in the south where the impact is greater. Table 5 - Extract from Anglian Water's Totex Delivery Workflow (TDW) shows which schemes have been reprioritised in to AMP8.

79. The work at Hall WTW, see paragraph 53, is to be completed in AMP7 despite it being geographically in the north of the area is tagged it as 'south'.

80. To assess the potential for the 'south' and 'north' work reprioritisation to be successful different scenarios were assessed, these were called "Plan B" by Anglian Water and are shown below in Figure 7 - Example Table of Scenarios Considered for Plan B and Figure 8 - Diagrammatic representation of Plan B.

	B	C	D	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
3			Maximum flow required (Resilience, drought & BAU)	DY2045 Drought in Notts, Lincoln, Bexwell, Ely, Newmarket, Wooditton, Haverhill, Rushbrooke and	1:200 Drought H8 DY2045 Drought in Ruthamford	1:200 Drought H8 DY2045 Drought in Ipswich	1:200 Drought H8 DY2045 Drought in Colchester	Winter/Spring NY 2025	Summer Autumn NY 2025	Winter/Spring NY 2045	Summer Autumn NY 2045	Autumn/Winter DY 2025	Spring/Summer DY 2025	Autumn/Winter DY 2045	Spring/Summer DY 2045
4		**Drop Off Locations**		Summer	Autumn	Autumn	Autumn								
5		Notts		2.30	0.53	0.53	0.53	0.80	1.49	0.61	1.21	1.12	2.38	1.17	2.43
6		Welton (400mm off-take)													
7		Lincoln (Bracebridge off-take)		20.00	-	-	-	-	-	-	-	-	-	-	-
8		Wilsford													
9		Grantham		-	-	-	-	-	-	-	-	-	-	-	-
10		Bourne (Input)		- 7.00	- 7.00	- 7.00	- 7.00	- 7.00	- 7.00	- 7.00	- 7.00	- 7.00	- 6.59	- 7.00	- 6.82
11		Peterborough		-	40.00	33.00	33.00	- 2.00	1.50	- 2.00	1.50	31.50	8.50	31.50	8.50
12		Bexwell		15.00	2.40		2.40	2.63	3.21	1.45	2.01	3.89	5.75	3.32	5.14
13		Ely		2.66	-	-	-	-	-	-	-	-	0.33	-	0.58
14		Newmarket		2.00	-	-	-	-	-	-	-	-	-	-	-
15		Wooddittton		0.50	0.10	0.10	0.10	0.26	0.30	0.09	0.13	0.31	0.43	0.16	0.26
16		Haverhill (Rede)		4.21	2.75		2.75	3.02	3.22	2.63	2.83	3.25	3.89	3.06	3.69
17		Rushbrooke (Little Welnethan)		10.00	-	-		7.20	7.20	6.10	6.10	8.60	8.60	8.00	8.00
18		Thetford/Ixworth (Little Welnethan)		2.80	0.41	0.41	0.41	-	0.51	0.05	0.67	0.39	1.27	0.92	1.94
19		Ipswich		- 7.20	- 0.90	10.00	- 0.90	1.00	1.00	1.00	1.00	1.00	0.45	- 2.00	- 4.75
20		Raydon (or split between Semer & Raydon)		8.63	7.51	7.51	7.51	7.46	7.61	7.24	7.38	7.60	8.07	7.75	8.23
21		Gt Horkesley		1.10	9.2	7.00	15.00	2.50	2.50	2.50	2.50	3.80	1.90	7.00	7.00
22	Current Flows	**Elsham to Peterborough**	**55.0**	55.0	55.0	51.6	53.8	15.9	21.5	12.7	18.3	54.5	35.0	53.9	34.2
23		**Peterborough to Bexwell**	**39.7**	39.7	21.5	25.0	27.3	24.1	25.5	21.1	22.6	28.8	30.7	28.2	30.1
24		**Bexwell to Rede**	**25.0**	24.7	19.1	25.0	24.9	21.4	22.3	19.6	20.6	25.0	24.9	24.9	24.9
25		**Rede to Little Welnetham spur**	**24.9**	19.0	24.9	24.8	21.2	22.0	19.5	20.5	24.6	24.2	24.2	24.7	24.1
26		**Little Welnetham spur to Raydon**	**24.5**	2.5	15.8	24.5	21.6	11.0	11.1	10.7	10.9	12.4	10.4	12.7	10.5
27		**Raydon to Gt Horkesley**	**15.0**	1.1	9.2	7.0	15.0	2.5	2.5	2.5	2.5	3.8	1.9	7.0	7.0

Figure 7 - Example Table of Scenarios Considered for Plan B

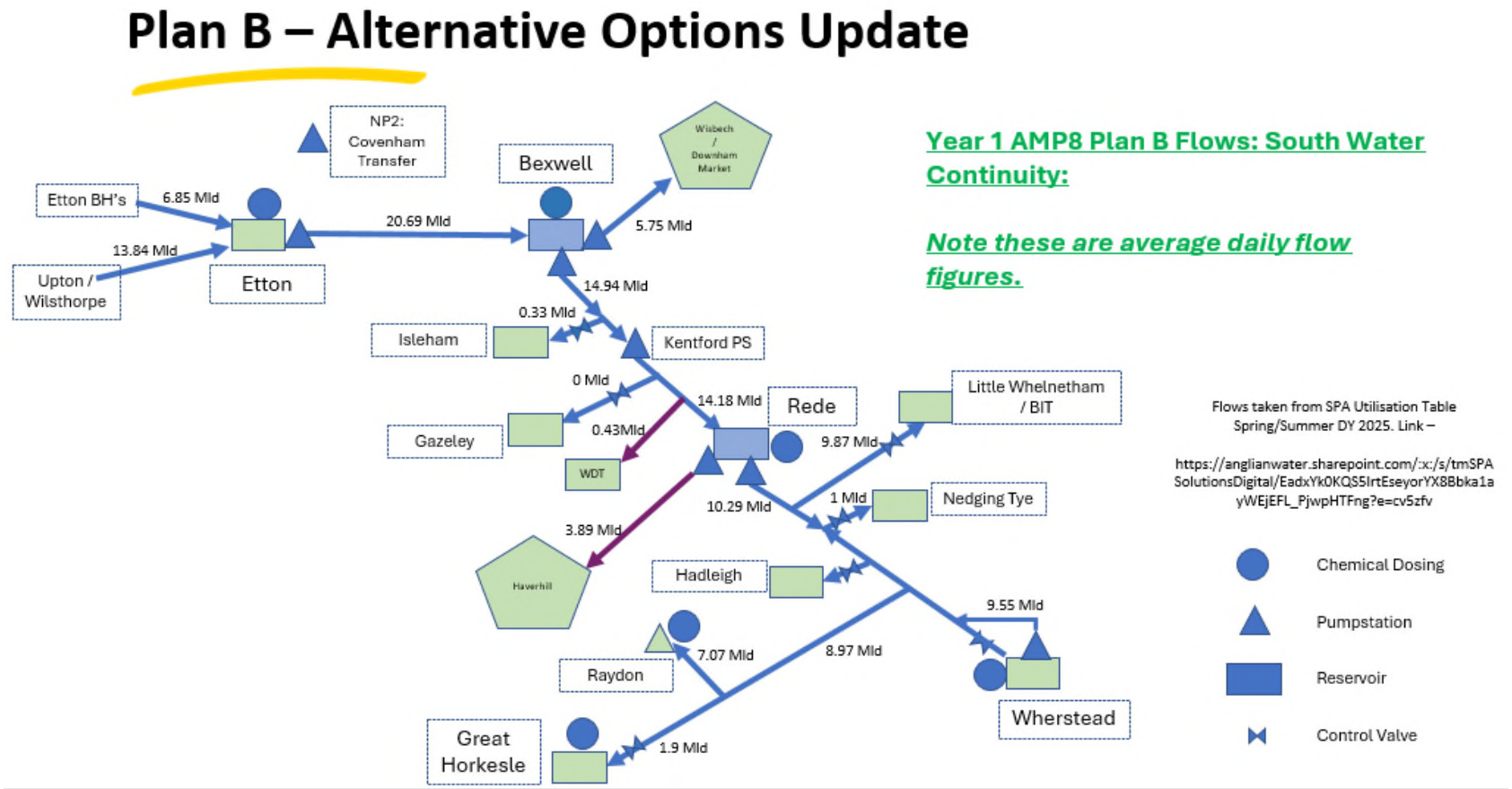


Figure 8 - Diagrammatic representation of Plan B

4.4.2 Design and Procurement

81. In order to confirm progressions of the schemes we have reviewed the stage of each section on Anglian Water's TDW system. The "Current Approved DM" is the relevant 'gateway' that has been passed, with "Active DM Stage" being the 'gateway' that is being progressed to.

Scheme outcome description	WRMP Option Ref	Active DM Stage (Oct. 22)	Approved DM (Oct. 22)	Active DM Stage (Dec. 23)	Current Approved DM (Dec. 23)	Priority
WRZ to WRZ transfers						
North Fenland WRZ to Ely WRZ	ELY9	DM3	DM2	DM4	DM3	-
Central Lincolnshire WRZ to South Lincolnshire WRZ	SLN6	DM4	DM3	DM4	DM3	AMP8
South Lincolnshire WRZ to North Ruthamford WRZ	RTN27	DM3	DM2	DM3	DM2	AMP8
North Ruthamford WRZ to South Fenland WRZ	SFN4	DM3	DM2	DM3	DM2	-
Ruthamford South WRZ to South Ruthamford Central WRZ	RTC2	DM3	DM2			AMP8
Ely WRZ to Newmarket WRZ	NWM6	DM3	DM2	DM4	DM3	-
Newmarket to Chevely WRZ	CVY1	DM2	DM1	DM2	DM1	AMP8
Newmarket WRZ to Bury Haverhill WRZ	BHV5	DM3	DM2	DM4	DM3	-
Bury Haverhill WRZ to East Suffolk WRZ	ESU8	DM2	DM1	DM3	DM2	-
East Suffolk WRZ to South Essex WRZ	SEX4	DM2	DM1	DM3	DM2	-
Norwich & the Broads WRZ to Happisburgh WRZ	HPB1	DM6	DM5			Complete
Central Lincolnshire WRZ to Nottinghamshire WRZ	NTM1	DM2	DM1	Stopped		
South Fenland WRZ to North Fenland WRZ	NFN4	DM2	DM1	DM3	DM2	-
Norwich & the Broads WRZ to Happisburgh WRZ	E Ruston	DM2	DM1			-
Bury Haverhill WRZ to Ixworth WRZ	THT1a	DM2	DM1	DM2	DM1	-
Ixworth WRZ to Thetford WRZ	THT1a	DM2	DM1	DM2	DM1	-
Norwich & the Broads WRZ to Norfolk Rural North WRZ	NNR8	DM4	DM3	DM4	DM3	Complete - work on DM4 deliverables
South Humber Bank WRZ - Transfer from Pyewipe to non-potable network	SHB2b - Stopped, replaced with N Lincs Alt Strategy Schemes					

Scheme outcome description	WRMP Option Ref	Active DM Stage (Oct. 22)	Approved DM (Oct. 22)	Active DM Stage (Dec. 23)	Current Approved DM (Dec. 23)	Priority
CLN16 - New Elsham WTW to new North Lincoln SR	CLN16	DM3	DM2	DM4	DM3	AMP8
Covenham Transfer		DM3	DM2			-
Intrazone transfers						
Ruthamford South WRZ – Meppershall PZ	RTS Intra2	DM4	DM3	DM3	DM2	-
Ruthamford South WRZ – Woburn PZ	RTS Intra1	DM3	DM2			AMP8
Bury Haverhill – Haverhill PZ	BHV Intra1	DM3	DM2			-
North Norfolk Rural WRZ – Diddlington PZ	NNR Intra1	DM1	DM0	DM2	DM1	AMP8
Treatment						
South Humber Bank WRZ – Pyewipe water reuse treatment	SHB2a - Stopped, replaced with N Lincs Alt Strategy Schemes					
North Fenland WRZ to Ely WRZ treatment	ELY9	DM3	DM2			-
Ruthamford South WRZ – Meppershall PZ treatment	RTS Intra2	DM4	DM3			AMP8
CLN15- treatment for ELN transfer	CLN15	DM3	DM2	DM4	DM3	AMP8

Table 5 - Extract from Anglian Water's Totex Delivery Workflow (TDW)

82. Anglian Water have summarised the changes as follows:

- 1 scheme has been approved at DM2 (SEX4)
- 6 schemes have been approved at DM3 (NWM6, BHV5, CLN15, CLN16, ELY9, ESU8)
- 5 schemes have been moved from SPA to IMW (RTC2, NNR Intra, RTS Intra 2, CVY1, THT1a) so are regoing through the DM stages
- 1 scheme has been stopped and replaced (NTM1) to Hall Increase Capacity
- 1 scheme has been stopped (Saltersford resilience) - not part of PC

83. ESU8 now appears twice in the summary data tab because it has been repromoted to get a separate SAP code for the infra element, data will be merged at end of project

84. Progress will be assessed against the information in Table 5 and Table 6 in future assurance reports.

Gateway	Activity	October 2022		December 2023	
		Active DM Stage	Current Approved DM	Active DM Stage	Current Approved DM
DM0	Confirm risk	0	1	0	0
DM1	Confirm preferred option	1	8	0	4
DM2	Confirm outline design	8	9	4	9
DM3	Confirm solution delivery plan	9	3	9	7
DM4	Confirm solution completion	3	0	7	0
DM5	Confirm financial close	0	1	0	1
DM6	Confirm scheme close	1	0	1	0
Total		**22**	**22**	**21**	**21**

Table 6 - Summary of TDW 'gateway' stage

4.4.3 Construction progress

85. As previously recorded, one part of the Interconnector programme of works has been completed, as reported in the APR 2022 Summary Audit Report, Table 3A. The Ludham scheme is now progressing to the final category of DM6 in Anglian Water's TDW system, as shown above in Table 5, above.

86. The APR 2023 Summary Audit Report, Table 3A, states "The figure reported, 6.5 Ml/d, has increased since last year due to the N2W, Norwich WRZ to North Norfolk Rural WRZ WRMP19 (NNR8), scheme being delivered since the last audit. The N2W scheme delivers 5 Ml/d".[12]

[12] AWS have stated that the Norwich to Wymondham Scheme (NNR 8) has been installed, commissioned and is in supply. The scheme is progressing to 'DM4' status and was reported as complete in April 2023. It consists of a 5 Ml/d transfer from Little Melton WTW to High Oak WTW via 12.5 kms of 315mm OD PE pipeline and new pumps installed in an existing dry well pumping station.

87. At the time of writing this assurance report (April 2024) further pipelines have been laid and the advance works for other section are ongoing[13].

88. Mainlaying is now complete or substantially complete on 5 schemes NNR8, SLN6, HPB1, RTC2, RTS Intra 2, East Ruston. The East Ruston scheme, that is a pipe system has been put into supply.

89. The table below shows pipelaying progress across all the schemes, on schemes where pipelaying. has not yet commenced enabling work is continuing:

Scheme Name	Delivery Route	Mains Laid, m	Total Length, m	Left to Lay, m	% complete
South Lincolnshire WRZ to Ruthamford North WRZ - WRMP19 (RTN27)	SPA	14,174	38,700	24,526	37%
Ruthamford North WRZ to South Fenland WRZ- WRMP19 (SFN4)	SPA	1,593	51,600	50,007	3%
South Fenland WRZ to North Fenland - WRMP19 (NFN4)	SPA	-	-	-	
Ely WRZ to Newmarket WRZ - WRMP19 (NWM6)	SPA	2,300	12,520	10,220	18%
Newmarket WRZ to Bury St Edmunds WRZ - WRMP19 (BHV5)	SPA	11,990	26,660	14,670	45%
Newmarket WRZ to Cheveley WRZ - WRMP19 (CVY1)	IMW	-	11,900	11,900	0%
Bury Haverhill WRZ to East Suffolk WRZ - WRMP19 (ESU8)	IMW	-	35,910	35,910	0%
East Suffolk WRZ to South Essex WRZ - WRMP19 (SEX4)	SPA	-	17,380	17,380	0%
Norwich WRZ to North Norfolk Rural WRZ - WRMP19 (NNR8)	SPA	12,300	12,300	-	100%
North Fenland WRZ to Ely WRZ - WRMP19 (ELY9)	SPA	10,580	34,250	23,670	31%
Lincoln to Grantham - WRMP19 (SLN6)	SPA	34,100	34,800	700	98%
Stoke Ferry to Diddlington WRMP19 - (NNR Intra1)	IMW	-	8,400	8,400	0%
Bury St Edmunds WRZ to Thetford WRZ WRMP19 - (THT1a)	IMW	-	200	200	0%
WRMP19 - HPB1 - Ludham.	IMW	3,487	3,487	-	100%
East Ruston Sustainability Reduction - Phase 2	IMW	17,586	18,500	914	95%
WRMP19 RTC2 Ruthamford S to Ruthamford Central.	IMW	1,990	1,900	-90	105%
WRMP19 BHV Intra RZ Bury Haverhill Transfers (Rede to Boyton Hall).	IMW	-	6,500	6,500	0%

[13] New water pipelines (anglianwater.co.uk)

Scheme Name	Delivery Route	Mains Laid, m	Total Length, m	Left to Lay, m	% complete
Ruthamford South WRZ to Meppershall PZ WRMP19 - (RTS Intra2)	IMW	8,878	8,900	22	100%
Elsham to Lincoln Transfer - WRMP19 (CLN16)	SPA	15,265	55,600	40,335	27%
Total Lengths		**134,243**	**379,507**	**245,264**	**35%**
Percentage Complete		**35%**		**65%**	

Table 7 - Pipe Laying Progress, at December 2023

90. We have used the amount of pipe laid to-date to estimate the completion of the pipelaying assuming a continuation of the same activity rate. This shows that at the current average rate of productivity the various pipelines will not be complete until the end of 2026. If further operational issues are experienced such as further prolonged periods of adverse weather this could extend until summer 2027. The works would then require testing, disinfection, and commissioning prior to being considered completed; these works should be achievable within about six months.

91. Subject to the completion of the pumping stations and treatment works, we consider the full programme is unlikely to be completed before early 2028 with some reinstatement works continuing beyond this time. Further delivery challenges could result in a later final completion date, and it would be prudent to allow some contingency

92. Figure 9 - Extract from the SPA Project Control system showing pipe completion, details the progress at the time of the previous report. At that time approximately 27 kms of pipeline had been laid compared to 134 kms at December 2023.

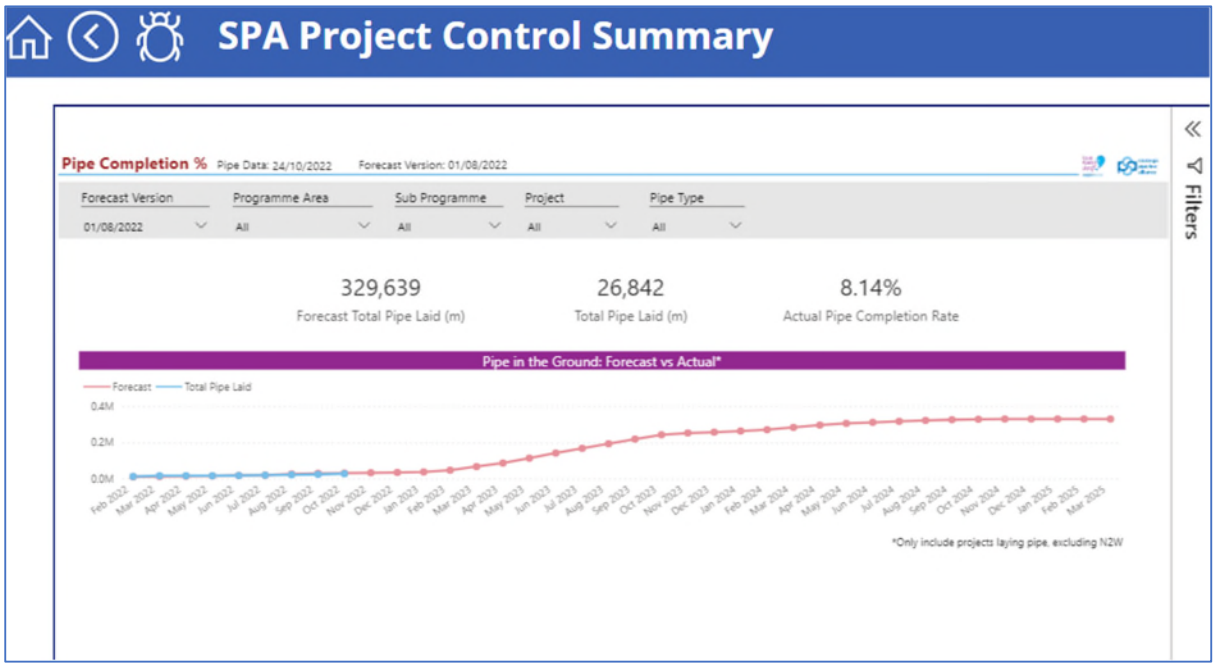


Figure 9 - Extract from the SPA Project Control system showing pipe completion

93. The project has experienced some issues with obtaining a supply of pipes and some equipment, such as the pumping equipment, could be on long delivery periods. We would expect the company to have a standard report on the progress of procurement activities and to regularly review this as part of its programme management.

94. Anglian Water has provided the following information regarding pipes. (Note this is for the elements of work being delivered by SPA only)

Pipe Material / Status	Steel [km]	HDPE [km]	Steel [%]	HPPE [%]
Delivered‡	160.5	155.5	100	97.5%
On Order	0	0	0%	0%
Remaining	0	4	0%	2.5%
Total	160.5	159.5		

Table 8 - Pipe Material Status (‡ Delivered – installed or made and vested in Anglian Water)

95. Anglian Water has supplied the following information on the order, manufacturing and delivery status of items other than pipes (Note this is for the elements of work being delivered by SPA only):

Component/ Material / Status	Pumps	Pre-cast re'voirs	MCCs	Steel Frames	Surge Vessels	Transformers	Power Upgrade	Chemical Dosing Pack's
Designed	40	2	9	8	9	1	9	8
Ordered / In manufacture	27	2	3	2	4	1	3	4
Delivered‡		1		1			1	
Total Required	43	2	10	12	11	1	10	10

Table 9 – Component and Material Ordering and Delivery Status (‡ Delivered – installed or made and vested in Anglian Water)

4.5 Exclusions

96. The Performance Commitment[14] includes a "Specific exclusion" regarding metaldehyde and the exclusion of works if the ban[15] on its use did not occur. We understand that the ban on the use of metaldehyde came into force on 1 April 2022 and therefore the specific exclusion is not applicable.

97. At the time of writing this assurance report (April 2024) we are not aware of Anglian Water's intention to exclude any parts of the Interconnectors programme of works. The planned works are shown in Table 4 - Performance Commitment and Designed Capacity († replacement to be confirmed, ‡ including North Lincs Alternative, * To be confirmed at APR24).

[14] PR19 final determinations, Anglian Water - Outcomes performance commitment appendix, dated December 2019, page 97

[15] Outdoor use of metaldehyde to be banned to protect wildlife - GOV.UK (www.gov.uk)

5 Conclusions of the Assurance Assessment

5.1 Value

5.1.1 General

98. As previously we are satisfied that Anglian Water has demonstrated that it has delivered 'value' in the programme of works in terms of alignment to WRE (Water Resources East), risk and resilience, customer preferences and environmental and social impacts by following the procedure in their WRMP19.

5.1.2 Costs

99. At the time of writing this assurance report (April 2024), we are not able to confirm that Anglian Water has delivered the schemes at a cost that represents value although we do not currently have concerns in this regard. This will need to be assured based on actual costs for completed delivery in subsequent and final reports.

5.1.3 Adaptability and flexibility

100. As previously we have a high level of confidence that the designs being progressed by Anglian Water are both 'adaptable and flexible' and could be developed to provide more capacity in the future if necessary.

101. Unless there are changes to Anglian Water's Interconnector programme of works, we will be able to confirm that the value in terms of adaptability and flexibility will be satisfied by the delivery of the works.

5.2 Identification and satisfying the required need

102. As previously we have a high level of confidence that the deficits that were identified in WRMP19 have been used as the basis for the design of the various sections of work that are required to deliver the "Interconnector" programme.

103. Unless there are changes to Anglian Water's Interconnector programme of works, we will be able to confirm that the identified need will be satisfied by the delivery of the works.

5.3 Design of the Works

5.3.1 Capacity of Scheme

104. As previously, we have a high level of confidence that the approach and implementation of the design of the pipelines has produced systems that are adequate to transfer the necessary flow rates between the WRZs.

105. As previously, unless there are changes to Anglian Water's Interconnector programme of works, we will be able to confirm that the required capacity will be satisfied by the delivery of the works.

5.3.2 Review of Performance Commitment and Design Capacities

106. At this time (April 2024) we can confirm that Anglian Water intends to deliver the necessary capacity benefits.

5.4 Scheme progression and delivery

5.4.1 Design and Procurement

107. As previously, we have a high level of confidence that the design and procurement of the works is progressing. The information obtained from the first assurance report formed the basis on which to confirm the rate of the progression in this second assurance report.

108. At the time of writing this assurance report (April 2024) we can confirm that the design and procurement are progressing, however, we note that there remains a significant amount of work to do.

109. We concur with Anglian Water's view that the whole of the works will not be complete by the end of AMP7.

110. Subsequent assurance reports will be able to form an opinion regarding the status of delivery at the end of AMP7 and Anglian Water's potential to meet the requirements of any revised programme that is to be agreed with Ofwat.

5.4.2 Construction progress

111. From the information provided by Anglian Water we can confirm that construction of the programme of works is progressing.

112. At the time of writing this assurance report (April 2024) we understand that the programme of remaining works is being rescheduled to take into account any changes and the effects of the weather during the past winter period.

5.5 Exclusions

113. As previously, there are no exclusions to include in the assurance report.

6 Recommendations and Further Work Required

114. Confirmation is required, from Ofwat, that we have interpreted the detail of Performance Commitment requirements, as detailed in Section 3, correctly.

115. Any further changes to the Performance Commitment for the Interconnectors, will need to be reflected in future assurance reports. We note that Anglian has requested a change to the Performance Commitment and the application of penalties that reflects the introduction of Price Control Deliverables (PCDs) for PR24.

116. As previously the assurance process and report need to be reviewed and updated. We recommend that this is done annually, with the final assurance report undertaken when the programme is due to be completed.

117. We recommend that an assurance process and report is carried out at the end of March 2025 to coincide with the end of AMP7 to confirm the position of the 'Southern' and 'Northern' schemes against the current or revised performance commitment.

118. As previously a review of the three 'Treatment' schemes is required, this assurance report has principally focused on the delivery of interconnectors as these have progressed further at this point.

119. As previously a review of selected options for value is required considering updated actual costs.

120. As previously progress for both design and delivery of the elements of the scheme need to be monitored and any exclusions reported.

7 Appendix 1 – Public Domain Documents Assessed

7.1 Public Domain

- Anglian Water's Our Plan 2020 to 2025
- Anglian Water's Water Resources Management Plan 2019 (WRMP19), December 2019
- Anglian Water's Supply-side Option Development, WRMP 2019 Technical Document: December 2019
- Anglian Water's Demand Forecast, WRMP 2019 Technical Document: December 2019
- CMA's Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations. Final report, 17 March 2021.
- Anglian Water Services Limited, Annual Performance Report 2022
- dWRMP24 Anglian Water Revised Draft Water Resource Management Plan 2024

7.1.1 Anglian Water's Water Resource Management Plan 2019, December 2019, page 9

Best value decision-making

Recognising the challenges described above, we have adopted a planning approach that uses least-cost optimisation as well as broader criteria to develop a Best Value Plan which takes account of 'best value' decision making criteria:

- Cost - how much does the plan cost to build and operate? In areas where we are departing from 'least cost', does the additional investment deliver additional benefit to customers and the environment?
- Adaptability and flexibility - is the plan flexible enough to cope with uncertain future needs? Does it include potentially 'high regret' options, or limit future choices?
- Alignment to WRE - how well does the plan align to the regional strategy?
- Risk and resilience - how resilient is the plan to severe and extreme drought and other hazards, and what are the residual risks?
- Deliverability - can the plan be delivered on the timescales needed to manage risks?
- Customer preferences - how well does the plan align to customer preferences?
- Environmental and social impacts - what are the environmental and social impacts? Does the plan result in a net environmental benefit?

8 Appendix 2 – Performance Commitment

PR19-final-determinations-Anglian-Wate