



Strategic Solution Gate One Submission:
Query Responses

Anglian to Affinity Transfer

August 2021



Gate 1 queries process

Strategic solution(s)	Anglian to Affinity Transfer
Query number	AAT001
Date sent to company	13/07/2021
Response due by	21/07/2021

Query

Please provide copies of the following documentation.

1. Environmental Assessment
 2. Strategic Environmental Assessment
 3. Habitats Risk Assessment
 4. Water Framework Directive Assessment
 5. Natural Capital and Biodiversity Net Gain Assessment
 6. Carbon Assessment (any carbon related assessment material, additional to that presented in the PFA)
 7. Invasive Non-Native Species Risk Assessment
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Solution owner response

Please find attached the below four documents as requested:

1. Annex 2A Environmental Assessment Report
2. Annex 2B Habitats Regulations Assessment Report
3. Annex 2C Water Framework Directive Assessment
4. Annex 2D Strategic Environmental Assessment

The Natural Capital and Biodiversity Net Gain Assessment and carbon assessment is embedded within Annex 2A, Environmental Assessment Report. There is no invasive non-native species risk assessment.

The documents have not been checked for SEMD requirements.

In all cases the documents submitted to RAPID following request under query AAT001 contain information that is commercially confidential and in draft form. Please ensure that appropriate steps and safeguards are observed in order to maintain the security and confidentiality of this information. Any requests made to RAPID or any organisation party by third parties through the Freedom of Information Act 2000, the Environmental Information Regulations 2004, or any other applicable legislation requires prior consultation and consent by each of Anglian Water and Affinity Water before information is released as per the requirements under the respective legislations.

The content of the documents is draft and relates to material or data which is still in the course of completion in travel to gate two and should not be relied upon at this early stage of development. We continue to develop our thinking and our approach to the issues raised in the document in preparation for gate two.

Date of response to RAPID	21 July 2021
Strategic solution contact / responsible person	[redacted]

Gate 1 queries process

Strategic solution(s)	Anglian to Affinity Transfer
Query number	AAT002
Date sent to company	20/07/2021
Response due by	22/07/2021

Query

Programme plan

In section 3.2 you state that the earliest deployable output date is 2029 and this is illustrated in figure 3 and shows mobilisation to start in 2025. However, this conflicts with your assumption that the scheme will be delivered by DPC and planning permission will be achieved through a DCO route and figure 2 shows that the DCO application will only be submitted in 2025 and the Outline Business Case will be submitted towards the end of 2025. Please confirm your assumptions underpinning your estimated earliest possible deployable output date.

Solution owner response

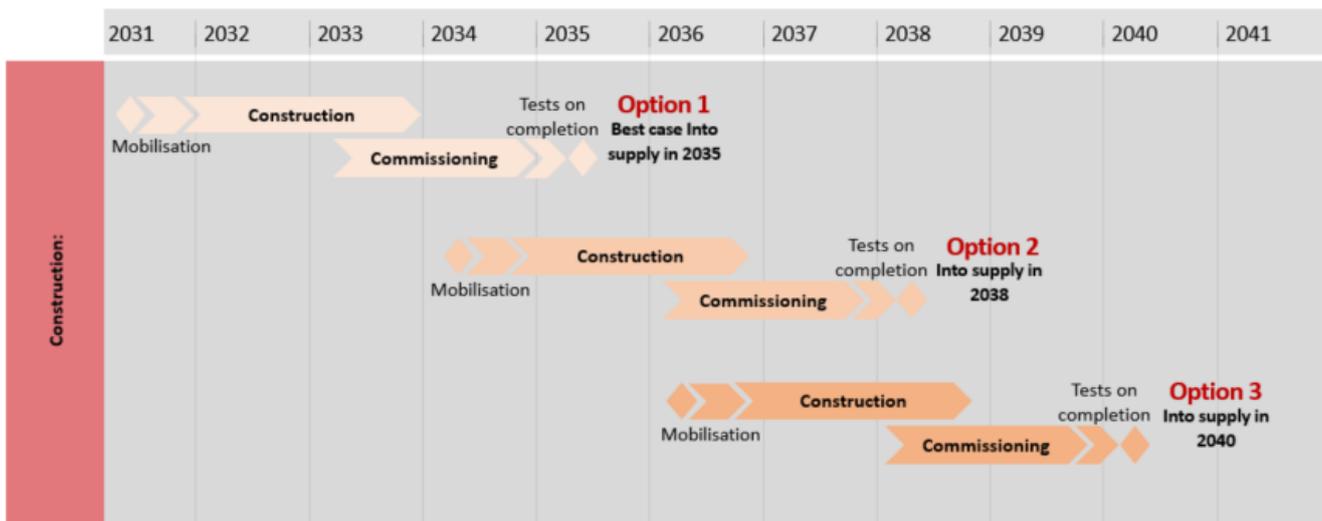
The mobilisation date of 2025 for option 1 of the indicative construction timescales within Figure 3, and referred to in section 3.2, are a theoretical timeline that is presented independently of any associated supply side scheme to provide an indication of how long the A2AT scheme might take if it were considered in isolation.

Referring to Section 3.3 assumptions and dependencies, assuming the A2AT is selected within the WRE regional plan and that either the South Lincolnshire Reservoir (SLR) or Fens Reservoir are selected as the source of water, the earliest deployable output for the transfer will align with the respective construction

programmes of the SLR and Fens Reservoir. Both of these schemes currently estimate an earliest deployable output date of 2035.

As indicated in Figure 3, the A2AT construction programme has been initially estimated at four years. As such, in order for the A2AT construction programme to be integrated with the likely deployable output dates for the SLR and Fens Reservoir, indicative dates for construction mobilisation for A2AT would be 2031, 2034 and 2036, for options 1, 2 and 3, respectively.

Figure 3 with updated dates to reflect the detail above is provided below:



Date of response to RAPID	22 July 2021
Strategic solution contact / responsible person	[redacted]

Gate 1 queries process

Strategic solution(s)	Anglian to Affinity Transfer
Query number	AAT003
Date sent to company	23/07/2021
Response due by	27/07/2021

Query

- 1) Please explain the reasoning for limiting the transfer volume from the SLR to 150MI/d. Have any larger volumes been explored?
 - 2) Please provide further information regarding the potential opportunities to increase the public water supply resilience benefits mentioned in section 2.7. How will these be evaluated at Gate 2?
 - 3) Please explain what approach will be taken to refine utilisation rates further for Gate 2.
 - 4) Section 6.4, please provide further detail on the further work planned to determine how the transfer options would operate?
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Solution owner response

Question 1

This query has been answered based on the assumption it relates to the transfer volume of the Anglian to Affinity transfer, supported by the SLR (or alternative sources, as discussed above). If the query was intended for the scope of the SLR specific concept design work, we request RAPID submit another query on the SLR, and we will be happy to provide further clarity.

The Anglian to Affinity Transfer SRO has been sized to provide a deployable output benefit to Affinity Water of between 50MI/d and 100MI/d, depending on the source that could feed this transfer (SLR, River Trent or Fens Reservoir). This range is considered to be appropriate for Gate 1 as it is directly linked to the transfer volumes that Affinity Water and Anglian Water discussed at WRMP19 which were derived by considering

the forecast deficit in the Affinity Water supply area and the potential benefits that could be achieved through the existing option set.

More importantly, there is a regional need for the water within WRE and the yield of the largest source (South Lincolnshire Reservoir) is a maximum of 183MI/d on a 'stand-alone' basis, and a maximum of 223MI/d when considered conjunctively. Taking 100MI/d DO from this, therefore, represents a sharing arrangement of around 50/50, which is considered reasonable by both companies.

Both companies acknowledge that the regional and WRMP24 planning processes may change this assumption and a larger transfer may be required to satisfy the need of Affinity Water, but this will only be considered if A2AT is identified as the preferred first choice option for Affinity Water following the initial regional plan consultation (i.e it represents 'best value' in comparison to the other 100MI/d SRO options).

Question 2

Our gate one report outlines the transfer options that are currently being considered for the Anglian to Affinity Transfer SRO. In developing these options, we have recognised that further resilience benefits could be leveraged and have highlighted this in our report¹. For example, the option which would utilise the River Trent and Rutland Water upstream, would have potential resilience benefits to Anglian Water's supply system. Given the seasonality of Affinity demand, water resource modelling has identified a net increase in Rutland output with the Trent transfer if this is operated conjunctively. Likewise, connecting the new pipeline to the existing one downstream Grafham would provide redundancy and a resilience benefit to Affinity Water by reducing dependence on a single main. Both of these examples require further consideration, both in terms of operational implementation and benefit evaluation and this will form part of the programme of work to Gate 2. The scope of the Gate 2 work will be progressed in two stages. Stage one would assess the operational and technical feasibility of achieving the enhancement e.g. compatibility of pressure ratings, where cross connecting valves would be required and water quality considerations. The second stage would be to evaluate the benefit of the enhancement. This might include re-runs of the deployable output model to assess increase in resilience against drought events due to conjunctive use. The scope will be further defined based on the outcome of the WRE regional modelling, which will determine which transfer option is selected.

Question 3

Utilisation of the proposed solutions is an area where further work is planned for Gate 2. Our intention is to provide more detail around how operationally we might use the SROs that are being investigated. The operational strategy will be defined alongside system operability as part of the 'Connect 2050' project, which will produce an

¹ See section 4.6

integrated strategy that will underpin Affinity Water’s WRMP24 and Gate 2 SRO submissions. Through a series of workshops with operations and water resources teams, we will aim to assess whether the analysis undertaken at gate one is representative of realistic operations by looking at the following three areas:

- i. Water quality constraints that may prevent certain schemes from being used with a higher frequency or that may require a base-load flow to be maintained, primarily as a result of different water quality typologies preventing rapid changes in water sources for particular Affinity Water demand zones.
- ii. Risk management of groundwater sources and the timing of SROs utilisation and how it links with actions and measures outlined in the Drought Management Plan. Currently the control rules have been set so that the surface water starts to be used approximately 1 month before the point of failure of groundwater sources, but this may need to be extended.
- iii. Incremental cost difference to understand the cost implication of ramping up the utilisation of the SROs.

These three elements will help define operational control rules that will be run through the Affinity Water portion of the WRSE regional system simulator to produce a revised utilisation profile. It should be noted that any increased utilisation requirement by Affinity will tend to reduce the conjunctive use DO of the surce water option (e.g. South Lincs Reservoir), so in this case increasing the utilisation of the option is not advantageous in terms of the cost/benefit performance of the scheme.

Question 4

Further technical work planned to determine how the transfer options would operate is summarised in the answer provided to bullet point 3. In addition to that, as part of the work to Gate 2, a commercial strategy will be developed. The commercial strategy will set out initial views on the following items and influence how the transfer may be operated:

- i. The commercial model: revenue build up, approach to cost fixing, end of asset handover, residual value treatment, performance incentives, revenue adjustment mechanisms, example of the Allowed Revenue Direction mechanism and termination clauses.
- ii. Risk allocation: identification of key risks and the parties they should sit with under the contract.
- iii. Operational and maintenance regime: expected level of output required (e.g. resilience or base) and the associated maintenance standards.
- iv. Contracting arrangements: set out the key components of the contract. This will include a mapping exercise to the Ofwat commercial and procurement principles.

The commercial strategy is clearly linked closely with the procurement strategy and the decision around the adopted procurement model (i.e. DPC or alternative) and the appointment of a CAP or in house delivery. The work will be informed by, and can in turn help to inform the regulatory and commercial framework work RAPID is progressing and we look forward to continuing to collaborate on this together.

Date of response to RAPID	27 July 2021
Strategic solution contact / responsible person	[redacted]

Gate 1 queries process

Strategic solution(s)	Anglian to Affinity Transfer
Query number	AAT004
Date sent to company	30/07/2021
Response due by	03/08/2021

Query

1. Please confirm that the costs reported in Tables 12 and 14 are reported in the 2017-2018 price base as specified in the submission template.
 2. Please clarify how your projected solution cost estimates have changed between total solution costs submitted in WRMP19 or at PR19 and the current Gate 1 submission, where possible providing a breakdown and comparison of the cost estimates where they are comparable. Please explain clearly any changes, added/eliminated cost items or activities, or developments that contributed to the difference. Where possible, please use data in water resource market information (WRMI) tables for a more detailed cost comparison. If costs have not been published in WRMI tables, please use the next best data source available.
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Solution owner response

1. The costs presented in Tables 12 and 14 are not in 2017/18 prices. We have updated the costs to reflect this and set out updated tables below.

Table 12 Breakdown of gate one costs by technical workstream

	Deliverable	Published Table Cost (£k)	2017-18 prices cost (£k)
1	Concept design		
1.1	Engineering	201	192
1.2	Environmental considerations	53	50
1.3	Water quality considerations	7	7
2 & 3	Initial outline of the solution procurement strategy & Initial considerations of planning application route	27	26
4	Contribution to Regional Planning	104	98
5	External assurance	9	8
6	Customer and stakeholder engagement	20	19
7	Environment Agency support	24	23
8	Contribution to ACWG consistency studies	15	14
9	Project Management	122	116
	Total	583	553

Table 14 Breakdown of gate two budget by technical workstream

	Deliverable	Published Budget (£k)	Adjusted budget (£k)
1	Solution feasibility and data collection:	-	-
1.1	Hydrology	11	10
1.2	Strategic planning	50	46
1.3	Engineering design	306	283
1.4	Site surveys (topo surveys & ground investigations)	200	185
1.5	Environmental considerations (inc Environmental Assessments)	180	167
1.6	Water quality considerations (inc water quality monitoring surveys)	47	43
2	Procurement strategy	90	84
3	Considerations of planning application route	38	35
4	Contribution to Regional Planning	50	46
5	External assurance	17	16
6	Customer and stakeholder engagement	104	97
7	EA & Natural England contribution (NAU & local)	80	74
8	Contribution to ACWG consistency studies	12	11
9	Project Management	209	194
10	Specialist consultants (legal support; land agents)	246	228
11	Risk (@5%)	82	76
		1,722	1,597

2. Our Gate 1 report refers to the components of the SLR to Preston option which are directly comparable to the options considered during WRMP19. These options were designated “*AFF-RTR-WRZ3-4013 South Lincs Res (50MI/d)*” and “*AFF-RTR-WRZ3-4014 South Lincs Res (100MI/d)*” in Affinity Water’s Supply Side Constrained Options Report – Volume 2, dated June 2019.

The WRMP19 options 4013 and 4014 were based on the premise that the additional DO from the SLR would be supplied to Anglian Water customers and that this would release supply capacity at Grafham for transfer to Sundon to feed into Affinity Water’s WRZ3. Therefore, the WRMP costing only considered the transfer and conditioning facilities from Grafham to Sundon, plus an allowance for bulk water imports provided by Anglian Water. The WRMP19 cost estimates were presented without adding optimism bias and this partly explains the difference that is seen between the solution Capex. At Gate 1, we have now adopted the ACWG cost consistency methodology which has resulted in a 31.2% optimism bias applied to the cost estimates for these components, contributing to a higher Gate 1 Capex.

CAPEX (£'M) – 50MI/d	WRMP19 Option	A2AT SRO Component
	AFF-RTR-WRZ3-4013 South Lincs Res (50MI/d)	Grafham to Sundon (50MI/d) and Sundon Conditioning (50MI/d)
Pumping Station	██████	██████
Pipeline	██████	██████
Service Reservoir	██████	██████
Conditioning Plant	██████	██████
Sub-Total	██████	██████
Optimism Bias	-	31.2%
TOTAL CAPEX	██████	██████

CAPEX (£'M) – 100MI/d	WRMP19 Option	A2AT SRO Component
	AFF-RTR-WRZ3-4014 South Lincs Res (100MI/d)	Grafham to Sundon (100MI/d) and Sundon Conditioning (100MI/d)
Pumping Station	██████	██████
Pipeline	██████	██████
Service Reservoir	██████	██████
Conditioning Plant	██████	██████
Sub-Total	██████	██████
Optimism Bias	-	31.2%
TOTAL CAPEX	██████	██████

For the 50MI/d option, the comparable A2AT component cost estimate (excluding OB) is 18% less than the WRMP19 equivalent. For the 100MI/d option, the comparable A2AT component cost estimate is 7% less than the WRMP19 equivalent. In both cases the main difference is due to refinement of the pipe diameter; the A2AT estimates are based on DN800 and DN1200 pipes respectively, whilst the WRMP19 estimates are based on DN1400 and DN1600. These differences are offset to a large extent by design development of the pumping stations and conditioning plant, which has led to a higher estimated cost for these elements.

The difference in service reservoir cost is due to the WRMP19 options adopting twelve hours of storage as apposed to six hours for A2AT (on A2AT a further six hours of storage is provided at the upstream WTW). Hence the cost of the service reservoir for the WRMP19 50MI/d option is equal to the cost of the A2AT 100MI/d option because in each case the required storage volume is 25MI.

Date of response to RAPID	3 August 2021
Strategic solution contact / responsible person	[redacted]